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Children's and teachers' experiences of engaging with ICT in learning EFL
a case study of Saudi Arabian preschool education (ages 5-6)

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Children's and Teachers' Experiences of Engaging with ICT in Learning EFL: A Case Study of Saudi Arabian Preschool Education (ages 5-6)

by

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Abstract

The purpose of this research is to investigate the significance of Tablets in the classroom and to find whether the Tablets can enhance the Metacognitive competencies, core competencies and language competencies among the preschool children of Saudi Arabia. The study used the mixed method approach to find how preschool children and preschool teachers interact with Information and Communication Technology (ICT) and consequentially to understand how ICT can be introduced for teaching English as a Foreign Language (EFL) to preschool children in Saudi Arabia. The study data were collected by conducting (1) English tests with the two groups of children before and after ICT intervention, (2) interviews with the teachers in the preschool to understand their perception, concerns and attitudes, and (3) observational analysis of the children and teachers in the class during the intervention.

Extant research has discussed the effect of children's interacting in the language learning process and how it brings improvement in knowledge construction; however, it has not addressed the mechanism of knowledge construction through ICT among very young children. This study used the conceptual framework to answer various research questions. The conceptual framework states that ICT use may affect the development of Metacognitive competencies (Communication, Self Development, Creativity, Problem Solving,and Autonomy) which lead to the development of core learning skills (Task Competency, Process Competency, and Personal Competency) and that these, in turn, lead to development of core competencies (Reading, Listening, Speaking, Writing, and Reading Stories).

The findings of the thesis confirm the initial conceptual framework but qualitative findings suggest two more aspects which play a role in the effectiveness of using ICT for teaching EFL to Saudi preschool children. These are, first, designing the right course content suitable

for Saudi context and, second, equipping the teachers with skills and capabilities to interact and engage properly in using the ICT for teaching EFL. The findings confirm that the use of ICT in the language learning process for the preschool children can enhance their language learning skills. It provides them with the opportunity to explore various new areas and improves their knowledge construction. The thesis finds that teachers play a significant role in improving language learning skills and competencies among children.

Ethical Approval

The research for this project was submitted for ethics consideration under the reference EDU 14/ 075 in the School of Education and was approved under the procedures of the University of Roehampton's Ethics Committee on 04.03.15.

Key Definitions

Information and Communication Technology (ICT): ICT in this research refers to use of technological tools for educational purposes. ICT devices refer to Tablets, PCs and other tools using digital technology. In this research it refers to the Tablet.

Language learning: Language learning in this research refers to learning a foreign language. Learning of language involves learning reading, listening, speaking and writing a language.

Metacognition: Metacognition refers to awareness and understanding of one's own thought processes. Metacognitive competency refers to the competency of being able to develop one's ability to think and act.

Competencies: Competencies refer to the ability or skills of an individual.

Contents

List of figures

List of tables

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I dedicate this thesis to the memories of my beloved father who I lost, unexpectedly, while I was doing this work.

His endless love, support and encouragement words gave me the power to complete this doctoral journey.

May God give peace to him in Paradise.

Chapter 1   Introduction

1.1   Overview

Learning new things and teaching new things have been an inseparable part of human life. These are also the significant components of civilized society and continue to remain significant human society over time. The process of teaching and learning has undergone great transformation over the centuries, and the transformation process has reached a significant level in the last few decades. Since the introduction and development of Information and Communication Technology (ICT), the field of education has significantly changed and developed (Edwards and Bird, 2015; Jabli and Qahmash, 2013). There are several factors that have improved and reformed the ICT initiative in education. ICT has significantly improved the quality of education, by changing the learning attitudes of the children, supporting knowledge construction, changing the attitudes and expectations of the children, encouraging problem solving, and developing a better learning environment, and has significantly contributed to quality improvement (Aljabre, 2012; Allen and Seaman, 2008; Edwards and Bird, 2015; Jabli and Qahmash, 2013; Littlejohn and Pegler, 2007, Mirza and Al-Abdulkareem, 2011; Tubaishat, 2008). The modern touchscreen ICT tools have been adopted in the education system. The Tablet is an important ICT tool that has transformed the whole picture of the teaching and learning processes. The creation of the technology-rich learning environment by the ICT tool has the capability of engaging the learners and, therefore, is considered as beneficial for quality education (Edwards and Bird, 2015).

Aldhafeeri and Palaiologou (2016) argue that there is very limited research on uses of digital technologies by Arabic families and children. Their research, conducted in the context of

Kuwaiti families, found that home life has embedded digital technologies. This has led to a cultural shift towards greater use of technology and this, in turn, has wider implications for organised life such as education. Many researchers have found that children as young as two years are interacting with technology (see, for example, Aldhafeeri and Palaiologou, 2016; Marsh, 2010; Mascheroni and Olafsson 2014; Edwards, 2013; Plowman et al., 2012). Researchers such as Chaurdon (2015), Marsh et al. (2017) and Olafsson et al. (2014) have found evidence that children's interaction with technology does have an impact on their learning. It is thus not surprising that there are increasing calls for managing children's interaction with technology from an early age to improve the possibility of the productive utility of technology (Marsh et al., 2017; Edwards and Bird, 2015).

This research investigates Saudi preschool children's and teachers' experiences of interacting with ICT in learning English as a Foreign Language (EFL). There are two key aspects of this research; the first is the use of ICT in preschool education and the second is teaching/learning of EFL for Saudi preschool children. These two are, however, strongly linked in that they are both considered essential for modernisation of the Saudi education system. It is strongly argued that in order to improve the quality of education in Saudi Arabia, Saudi children should be equipped with strong technical/ICT and English language skills from the early stages of education. This is essential to align the Saudi education system with the global education system adopted in most developed countries. While there is no consensus on whether preschool children should be exposed to technology, there is also onely limited debate over whether Saudi children should be taught English from the early stages of education. In fact, most parents prefer to send their children to English medium schools so that they may not face challenges at higher education levels where knowledge of English language is becoming almost compulsory (Rabaah et al., 2016).

One of the key arguments in language teaching is that languages should not be taught using conventional instruction methods often deployed for teaching other subjects. Instead, authors such as Alo (2003), Aremu (2011) and Ogunsiji (2003, 2004) argue about developing "Communicative Competence". They argue that instead of trying to teach language to children what we should aim for is developing competencies (skills and knowledge) which will allow children to use language in a real-world environment. This also involves teaching children how to use the resources at their disposal to most effectively improve their language competence. In this respect, one of the key aspects is teaching children how to use portable technology gadgets for improving their language skills. The ubiquity of such devices combined with access to virtually all of the information from around the world makes these devices an ideal tool for teaching languages. In particular, the graphical content makes it easier for the learners to learn languages in a real-life context. However, the usefulness of such devices for teaching EFL to preschool children has not been investigated. This is particularly critical for the following reasons:

- Such devices with graphical displays are easier for preschool children to learn from because they can relate to images and videos more than they can do with words. Furthermore, the moving images make it even easier for these children to understand the meanings of words which they may find difficult to grasp from the book due to the limited and textual contents of books.

- Children can intuitively learn to use many of these devices as the interfaces can be designed/customised for use by children. However, children have little prior knowledge of using such devices, so some degree of guidance and engagement may be needed.

In order to integrate ICT into preschool education, it is essential for us to know how the users, i.e. teachers and children, engage in ICT and how they use this knowledge to develop an adequate strategy to integrate ICT into EFL teaching. In line with the aforementioned arguments, this research aims to investigate Saudi preschool children's and teachers' experiences of engaging with ICT in learning English as a Foreign Language (EFL).

1.2 ICT in Early Education

The debate on whether technology should be used in early childhood education (ECE) or not is not new (Alper, 2011; Blackwell, 2013; Cordes and Miller, 2000; Edwards and Bird, 2015; House, 2012; Kirkorian, Wartella, and Anderson, 2008; Lindahl and Folkesson, 2012; Morgan, 2010; Parett, Quesenberry, and Blum, 2010; Plowman, 2014). The critics of the use of technology in early childhood education argue that young children must comprehend the knowledge using concrete materials, not just visual ones (Healy, 2004; House, 2012; Plowman and Stephen, 2003). Some critics argue that spending too much time on the digital screens can overwhelm senses of young children which may lead to other negative impacts such as poor concentration and attention disorders (Cordes and Miller, 2000; House, 2012). The literature also reports possible ill health effects of the use of technology in early childhood education such as visual impairments (Cordes and Miller, 2000) and muscular-skeletal injuries (Cordes and Miller, 2000; Plowman and Stephen, 2003). Critics also suggest that use of technology in early childhood education can lead to several cognitive issues such as lack of creativity and reduced literacy skills (Cordes and Miller, 2000), as well as poor social interaction skills and increased social isolation (Healy, 2004). At the same time, a number of authors have argued that use of technology in early childhood education can

improve their ability to learn (Blackwell, Lauricella, and Wartella, 2014; Blackwell, 2013; Hillman and Marshall, 2009; Lindahl and Folkesson, 2010; Parette, Quesenberry, and Blum, 2010; Plowman, Stevenson, McPake, Stephen, and Adey, 2011).

Today's society is knowledge-based, and information technology is one of the key aspects of this society (Aldhafeeri and Palaiologou, 2016; Arnott, 2013). In this society, knowledge is the main capital and progress is entirely dependent on the creativity and knowledge of its members (Kozma, 2003; Plomp et al., 2003). With continuous and rapid developments in technology, we now have access to a wealth of knowledge at our fingertips (Marsh et al., 2017; Yelland et al., 2008). In addition, technology has completely altered how we communicate and even whom we communicate with (Edwards, 2013).

Realising its potential benefits for the society as a whole, there has been a deliberate and conscious effort to push for the use of technology in education. This is aimed at generating two benefits; the first is to give children access to an abundance of high-quality information as well as tools to utilise this information (Edwards and Bird, 2015). The second benefit is to give children skills and competencies to continuously develop their skills in this rapidly changing environment (Aldhafeeri and Palaiologou, 2016).

With the increasing development of ICT in society, the world's organisations are also becoming engaged in promoting the significance of ICT in education. The new educational agenda in the world mainly emphasises the effective role of ICT in transforming the process of learning and teaching (British Educational Communications and Technology Agency, 2006, 2008). The evidence from the literature displayed the contribution of ICT to improving teaching and learning processes in education and it is considered as the innovative factor in education (Sangràand and González-Sanmamed, 2010). In Europe, the effective use of ICT in education has been signified as an important approach that can improve the quality of

education. Also, according to the study of Sangràand and González-Sanmamed (2010), the European Commission (EC) is also promoting the use of ICT in learning and teaching. One of the important aims of the EC by integrating ICT in education is to improve the quality of learning by increasing the access to various learning resources and promoting collaborative learning (Ehlers, 2005). The OECD asserts that "*perhaps the factor most identified as heraldinga fundamental change in the structure and organization of schooling is the spreading impact of ICT on learning*" (OECD, 2001: 66).

Except for the world organisations, many global companies have also joined the campaigns promoting the use of ICT in education. One such global organisation is Microsoft which is also promoting the use of ICT and enhancing the process of teaching and learning (Microsoft Corporation, 2016). ICT is also a very supportive tool for the teachers for exploring the various teaching methodology and quality skills improvement for communication and language learning (Loveless, Burton and Turvey, 2006). The study of Trinidad (2003) has also acknowledged the significance of ICT by explaining that a "*Technology-rich learning environment using e-learning can engage the learner giving them a sense of empowerment where they are no longer dependent on the specific and often limited knowledge of their educator*" (p.110). This is the reason that there has been increased focus on the organisation of the ICT policies for appropriate integration in education and curricula across the complete education system. The developed and industrialised nations of the world like the USA, the UK, South Korea and Singapore, and many developing nations like Chile, Estonia and Ethiopia have developed detailed and comprehensive nationalised strategies for the education sector (Desai, 2010).

The main aspect of the educational strategies involving the use of ICT is that these strategies have the same objective, which is to support the integration and use of ICT tools in teaching

and learning systems of primary, secondary and higher education. The main focus of these strategies is mainly on improving the access and facilities within the schools and investing in the sufficient integration of computer provision and Internet access for the purpose of teaching (Hennessy et al., 2010). However, the main aim of integrating ICT is to expand the provision of basic education and to develop essential skills in the children (Desai, 2010). Another significance of ICT can also be understood by the fact that it promotes equal opportunities for obtaining information and education (Desai, 2010). Countries are now investing the resources for providing ICT training to their teachers and making changes in the curricula so that the integration of ICT in education for the purpose of learning and teaching can be enhanced.

ICT has great potential for early childhood education. The young children of the current society are very intelligent, and are fast learners: they are also referred to as 'digital natives' (Bolstad, 2004). It can also be said that ICT is becoming the ubiquitous component of the social and physical environment that is occupied by the young children (Aldhafeeri and Palaiologou, 2016). ICT tools are the important component of the private and work lives of those who have asignificant role to play in the learning and development of young children, such as parents, grandparents, childhood educators and caregivers. It has also been found that early childhood education experience for young children should connect and reflect their interactions with the wider world. Therefore, ICT matters very much in early childhood education, because it has already affected the people and the environment surrounding the young children (Aldhafeeri and Palaiologou, 2016). Therefore, there has been a strong need that has been discussed in the literature regarding the significance and role of ICT in early childhood education (Hennessy et al., 2010).

Children have been exposed to various ICT tools for at least 15 years, and have interacted with them on a daily basis (Tapscott, 1998). When the ICT technologies started becoming prevalent in the society, great debate arose from this growth on how ICT can be integrated into education and the early learning and teaching environment. Many scholars have supported the integration of ICT in education, while some are still against it (e.g., Cordes and Miller, 2000). However, most of the literature associated with the use of ICT has reported that integration of ICT in preschool education has significant benefits for the cognitive and social skills development of children (Samara and Clements, 2002; Yelland and Siraj-Blatchford, 2002).

ICT offers opportunities to strengthen many aspects of the child's development and early childhood educational practices. ICT offers great potential for the education sector that includes opportunities to enhance and support the play and learning experiences of children, opportunities to support and strengthen the development and knowledge of the practitioners, and various opportunities to support the process of communication and language learning (Stephen and Plowman, 2002). However, some studies have found that for making a technological society, ICT also poses many challenges for the practitioners (Kirschner and Selinger, 2003; Loveless and Dore, 2002; Scrimshaw, 2004). The researchers involved in finding the significance of the integration ICT in education have faced a number of issues that are required to be understood in detail before the integration of ICT. Some of the problems are the attitude of practitioners towards integration of ICT (Albirini, 2006; van Braak et al., 2004), experience of the teachers and practitioners with technology (Bovée et al., 2007; van Braak, 2001) and training required for using ICT tools in the classrooms (Galanouli et al., 2004; Tan et al., 2003).

There are the significant pieces of the literature that support the use of ICT in preschool education and the positive attitudes of the practitioners in taking well-informed decisions (Buckingham, 2007; Downes et al., 2005; NAEYC, 1996; O'Hara, 2004; Siraj-Blatchford and Siraj-Blatchford, 2006; Yelland, 2008). The main aspect of the literature is on their experience of ICT, and ways in which children use it (Bolstad, 2004; Yelland, 2005). Therefore, it is believed that it is significant to meet the demands of the important stakeholders before implementing the new technologies in the classrooms. The growing demands of society also support the idea that ICT should be implemented in the early stages where children can form their base to use the technology throughout their life (Brito, 2010). Some researchers have significantly focused on evaluating the thinking and concentrating processes of children that are enabled by ICT. Some of the studies have also focused on finding out and evaluating the interaction of children with technology based on the wider social context that includes parents, teachers and early childhood education settings (Hendrick and Weissman, 2009).

This research combines the two aspects and looks at how Saudi preschool teachers and children interact with ICT in learning EFL. ICT is a very broad term including a range of tools such as multimedia, projectors, software applications, PCs and display devices, among others. This research focuses solely on the use of the *Tablet*. The tablet is currently not being used for preschool education, but the researcher believes that it is one of the devices which can be very useful for teaching preschool children subjects such as language. Language learning is more about learning how to communicate meaningfully using words that comprise any language. In this respect, preschool children learn words through their audio-visual sensors. Using ICT devices with audio graphical displays such as a tablet can be extremely

useful in this case because such devices can be used intuitively and without much technical language. Here, the researcher had linited time to conduct the study experiment and using the tablet was the least intrusive way, particularly because it required little technical knowledge among the users. Along the same line, the researcher believes that devices with audio graphical interfaces can be used to make learning more effective in preschool education.

1.3   ICT in Preschool Education in Saudi Arabia

According to Stephen and Plowman et al. (2012), an ideal opportunity for pedagogical reflection is the development of a national strategy for ICT for the preschool education. Due to the unclear plan of integrating ICT in the preschool education of Saudi Arabia, there has been uncertainty in the use of ICT practices in early childhood education. The situation found in Saudi Arabia is not very different from the situation in other countries. There has been a great uncertainty about the integration of ICT and the correct age of the children when they should be exposed to the use of ICT in education. The use of ICT in the primary and secondary education of Saudi Arabia has been well recognised (MoE: General Directorate for Planning, 2005). Due to the significant boom in technology, the value of technology is now well recognised by the society, and the government also obligated to work towards forming 'Technological literacy' (Pekerová, 2009). One of the significant ICT programmes in Saudi Arabia is the King Abdullah bin Abdul-Aziz Public Education Development Project (2007). This programme is based on the agenda of development of ICT in education and gives priority to the issues associated with ICT in the school education sector. In 2009, the first International Conference on E-learning and Distance Learning was held in Riyadh, the capital of Saudi Arabia. The main aspect of the Conference was that it made some significant

recommendations regarding the development of the national strategies related to e-learning and distance learning in primary, secondary and higher education (Bingimlas, 2009).

In comparison to ICT usage and integration in the school sector, very little is known about integration in the preschool education. It is also clear from the above-mentioned conference that ICT in preschool education is significantly excluded from policy making and educational agendas. Studies have found that use of ICT in education is important for the development of the children and for providing them with the opportunity to learn in the information age (Bingimlas, 2009). The research evidence has shown that some of the ICT tools have being used in the preschool education for a very long time — for example, these tools can be the video player, television, and audio equipment. Some computer resources were also used; yet there is still a lack of the appropriate integration of ICT, and there is also a lack of a holistic plan for integration. The studies have recognised that the successful integration of ICT mainly requires the efforts and positive attitude of the teachers (Tubin et al., 2003). The individual efforts of the practitioners and teachers can make the integration successful, but differences in the approach and attitude of the practitioners to the integration of ICT in the daily programmes and curricula of preschools have become difficult (Tubin et al., 2003). This has been difficult for both private and public sectors, and researchers assert that these challenges have to be effectively addressed.

There are various policies and programmes in Saudi Arabia to address the new approach of integration of ICT in education, but none of the approaches addresses the issue from the perspective of the preschool teachers. This research identifies the important role of the teachers in the integration of ICT in preschool education and language learning. The preschool curriculum of Saudi Arabia also fails to specify the significance and integration of ICT in early childhood education. *The Developed Curriculum for ECE* (Samadi and Marwa, 1991; MoE, 2005) does not encourage the use of technology in any sense in the preschool

education; nor does it include any of the practical aspects of ICT. However, the major reason for this problem could be that this curriculum was developed in 1991 when the use of technology was very limited, but when this curriculum was revised in 2005, no information regarding the integration of ICT was included in it. Several attempts have been made in the SA education sector to encourage the use of technology, but these efforts have not been successful. The lack of a clear plan is the main problem that restricts the integration of ICT in preschools (Al-Dayel, 2009). The evidence from the literature suggests that teachers and educators require proper guidance and opportunities for becoming capable, informed and competent about the potential and important role of ICT. They also require support for making the most of the opportunities that ICT can provide to enhance preschool education delivery (Al-Dayel, 2009).

Research has also shown that there is a lack of locally applied research about ICT in Saudi Arabia regarding the use of ICT in preschools and there is insufficient evidence to support the potential and significance of ICT in SA preschools (Hammed, 2011). Some researchers such as Al-Dayel (2009), Al-Shoaiby (2010) and Al-Showayer (2006) have considered this problem and challenged it in their studies. Most of the studies are focused on the specific context, but with unclear evidence, such as the role of computers in learning for young children (e.g., Al-Showayer, 2006; Al-Shoaiby, 2010). Some studies have also investigated the children's behaviour that is influenced by the use of technology, and attitude of the teachers and learners, mainly relating to computers (e.g., Al-Dayel, 2009) and the role of software in preschool education (Hammed, 2011). However, these studies have focused on the very simple question of: *Should children engage with and use technology or not*? Although this is a valid question for the research, the issue has to be seen from the broader perspective and from more complex challenges. This is mainly relevant because technologies are now used in every aspect of human life and broadly used in the homes and playrooms, so

young children are highly exposed to technology and use it without the instructions of the adults. Therefore, the more relevant question for the research is to understand: *How do children engage with technology*? Moreover, technology is being used by young children, so a further question can be: *How are the educators taking advantage of the ICT tools to enhance the development and learning among the children by eliminating the potential harm*?

In this context, the key important studies are those that have designed according to the perspective of the practitioners, which are valid and are of great interest for this research. However, the main problem with these studies is that they provide very limited findings, which displays the lack of consideration of the whole preschool environment. The studies lack displaying and provide the findings related totheengagement of the teachers and learners with technology. The purpose of this research is to address this gap and consider users' engagement with technology to understand and improve the role of ICT in preschool education in Saudi Arabia. According to Tondeur et al. (2008a; 2008b), the current studies related to the use of ICT in education address single perspective or opinion, while further research needs to focuson the wider perspective and should include various elements of the integration of technology in preschool education. No studies have significantly concentrated on the nature of engagement of the users with technology. Therefore, it is very important to look from the two-way perspective, which includes the practitioner's or teacher's perspective and the preschool characteristics (Tondeur et al., 2008a).

The variations and changes in the usage of ICT in education are mainly due to the partial explanation of the significance of ICT in education. This is the reason that isolated focus of the research has resulted in the poor integration of technology in education (O'Dwyer et al., 2004; Tang and Ang, 2002). However, ICT cannot be considered as an isolated instrument, because the ranges of other ICT tools are interwoven within the learning environment (Lim, 2008). Therefore, a more detailed and holistic approach has to be taken to understand the

importance of ICT (Fullan, 2001; Kennewell et al., 2000; Kozma, 2003; Salomon, 1991). Contemporary researchers have failed to lead the holistic approach in the field of ICT in education.

Laverick et al. (2008) asserted that integration of ICT in preschool education is a multi-dimensional and multifaceted process that requires different approaches and strategies. . If the goal of ICT integration is significantly achieved, the ICT can potentially impact the development and growth of the children in the technology-led world (cited in Siu and Lam, 2005). ICT has the potential to become the most important part of the early learning experience of children (Fischer and Gillespie, 2003) and also make them confident learners and ICT users (Stephen and Plowman, 2002). When ICT becomes an integral part of the preschool life of children, it allows them to become lifelong learners (Swaminathan and Yelland, 2003). In other words, for preschool children using ICT, it is more about developing competency in using ICT for educational purposes. This competency perspective is the key pillar of this research.

The outcomes of this thesis make significant recommendations for the use of ICT for teaching EFL to preschool children in Saudi Arabia. These recommendations are relevant to learn the lessons and pitfalls in the integration of ICT in ECE and what changes or additions can be made in the preschool policy or system in Saudi Arabia. In particular, there is poor understanding of how to use ICT in the preschool education system. This research is looking to understand how teachers and preschool children might interact with ICT tools such as tablets and this is likely to then guide the policy makers towards how to effectively integrate tablets in the Saudi preschool education system.

1.4   Theoretical Significance of the Research

The review of the literature explained that there has been a scarcity of findings related to the significance of ICT in early childhood education. There is a lack of findings that can support the integration and significance of ICT in a preschool setting (Stephen and Plowman, 2002). The criticism of the technology or the use of ICT in the preschool education is mainly due to the lack of empirical research (Couse and Chen, 2010; Schmidt and Vandewater, 2008; Yelland, 2008), where the results of the current studies have been drawn from some of the limited old research studies. According to the study of Plowman et al. (2010), it has been significantly discussed in the literature that opportunities and challenges posed by the technology must be effectively addressed for compulsory education. The role of ICT for the older school children and those of university age who are going to enter the workforce soon have been discussed, but much less attention has been paid towards the significance of ICT for the young preschool children. According to Shore (2008), more research is required to find how children develop the learning skills with the use of technological tools and how the participation of the adults in the child's learning process can be effective. With some exceptions (i.e. Kirkorian et al., 2008; Marsh et al., 2017; Rideout 2007; Plowman et al., 2010), there has been a lack of full-fledged research of the use of technology by young children for the purpose of learning and education. Also, structured research on the area of use of ICT in preschool education in Saudi Arabia is currently very limited. This research is, thus, a valuable addition to the field.

Cognitive development of individuals is a path to the 'mastery of language' (Palaiologou, 2010). Using cognitive development in line with the theory of constructivism can help us understand how children may learn languages. This is the approach adopted in this research

— the process of language development is assumed to initiate with the development of *Metacognitive* competencies which lead to the development of *core* competencies which eventually lead to the development of *language* competencies. Using this approach is useful in that it helps us understand which Metacognitive competencies should be focused upon in order to initiate the process and how to track the progress of children's linguistic competencies.

1.5   Practical Significance of this Research

Introducing ICT into preschool education is not simple as adopting the policies and strategies similar to the integration of ICT for the education of older children (Plowman et al., 2010). In spite of the great developments in the field of technology, it must be considered that ICT tools have some limitations. These limitations are that technology cannot be used as the substitute for teachers; technology is not capable of fixing anything; and technology can be affected by the poor philosophy or underdeveloped educational practice (Ertmer, 2005; Niederhauser and Stoddart, 2001). The significance of ICT has been discussed in many countries including Australia, the UK, Finland and New Zealand (Cooper, 2005; Downes et al., 2005; Kankaanranta and Kangalasso, 2003; O'Hara, 2004; Plowman et al. 2010; Bain, 2006). These studies suggest that over the last few decades there has been a significant shift in the use of technology and preschool education. Computers and technologies have been commonly used by the preschool teachers and in the playroom activities. The studies have also found that there has been an increase in the political interest in the integration of ICT in preschool education. However, the changes in preschool education had not been equally implemented in comparison to changes in society and are mainly seen as the 'fun' activity tool. Technological devices like computers, touchscreen devices and other ICT tools are considered to be the source that drives the standards, as mentioned in the *No Child Left*

Behind legislation. However, it has not been significantly considered as important in preschool, as in the case of higher schools (Plowman et al., 2010). The literature has also explained that, in the context of preschools, the meaning of integration of ICT is still associated with the use of desktop computers but, for the practitioners, the use of more sophisticated tools of ICT in the preschool education remains challenging (McManis and Gunnewing, 2012; Plowman et al., 2010, Siraj-Blatchford and Siraj-Blatchford, 2006).

ICT facilitates great access to information and knowledge and also provides the opportunity for multiple learning situations. Therefore, the ICT tools must be seen as powerful toolsthat can improve the process of teaching and learning. They also have the potential to fulfill the needs of the children towards growth and learning. Mioduser et al. (2000) have asserted that presence of the technology in the preschool can be considered as the 'hardware reality' that has not become the reality of the technically sound learning environment in preschools. Higgins (2003) suggests that providing ICT tools to children and teachers in the preschool is not sufficient, and does not fulfill the purpose of education. Therefore, these tools must be used in more meaningful manner. Schibeci et al. (2008, p.2) state, "*first hardware-based enthusiasm then pedagogical reflection is a widespread phenomenon when it comes to integrating technology into the learning environment*".

The changes in the educational system and integration of technology in education have led to changes in the teaching approaches and strategies; this is the reason that pedagogical approaches for the integration of ICT in preschools are still emerging. There has been a very slow change of pace in the integration of ICT according to one published report of Becta. In reference to the use of ICT in the schools rather than their integration in the preschools, this report states that:

"The development of new pedagogies can be a substantial professional challenge: teachers must learn new skills and rethink and refashion the teacher-learner relationship. Developing pedagogical approaches of active learner engagement, facilitating and scaffolding learning rather than transmitting knowledge, using new, more open, questioning techniques, and undertaking assessment for learning all provide significant challenges to a teacher's role and identity. A lack of time, willingness or the resources to develop new pedagogical approaches is a major barrier to fully exploiting the educational potential of digital technology." (Chowcat et al., 2008, p. 20)

Use of ICT tools is not easy, and is not similar to other subjects. The integration of ICT requires special efforts from the school administrations and teachers so that this integration can be successful. The teachers have to rethink the teaching process and the pedagogical approaches and also have to make an effort to follow through change in education (Kalas, 2013). There is the requirement of concrete planning for the introduction of ICT in preschool education and for the teachers in preschools. The planning should be clearly grounded in the purpose, practices and social context of the early childhood education (O'Hara, 2004). For the direct integration of ICT, it is important that clear educational objectives should be made that can promote and make the process successful (Sugar et al., 2004). The objective of the education that encompasses the use of ICT is different from the normal preschool culture, and includes the professional practice, flexible curriculum, learning through play, and assessment process.

In Saudi Arabia, the journey of integrating ICT into preschool education is in its infancy and there is currently little evidence of any efforts to use ICT in preschool education. Part of it can be blamed on lack of Saudi policy towardstheuse of ICT in preschool education andthepart can be blamed on lack of poor social awareness towards benefits of technology (Kalas, 2010; Plowman et al., 2010; Plowman, 2014; Taguma et al., 2012). Aldhafeeri et al. (2016) examined early childhood education teachers' views, aptitudes and attitudes towards digital technologies in their personal lives and in the classroom practices in Kuwait.

According to their findings, despite being competent users of technology, most teachers are still reluctant to embed these in curriculum practices. Learning about how preschool teachers interact with technology in the preschool environment will help us understand if and what reservations Saudi preschool teachers may have in embedding ICT tools such as Tablet in the preschool education curriculum.

The findings of the research will (1) contribute to enhancing the knowledge and boosting the already existing but limited research in Saudi Arabia. Therefore, this research will also encourage further research in the field of preschool education in Saudi Arabia and how ICT can be integrated into early childhood education in a meaningful manner (2) The research will also provide significant information for the policy makers and the decision makers with detailed information regarding the appropriate use of ICT in the context of Saudi teachers and preschool children and what issues teachers face in integrating ICT in preschools. (3) Present and future educational policies and curriculum guidelines can also be influenced by the recommendations and findings of the research and can provide information regarding the successful integration of ICT in teaching and learning EFL in preschools of Saudi Arabia. The results from this research will also be beneficial for guiding the integration of ICT in the preschool education of the developed and developing nations. Many countries have developed or are in the process of developing the preschool guidelines for ICT integration in the preschool education; therefore, the findings of this research will provide the substantial lesson for the policies and curricula worldwide. The preschool settings, that have initiated the use of ICT, will benefit from the findings of the research. The findings will also provide recommendations that can revolutionise the current preschool education practices. Finally, the results and findings of the study are important for influencing the perspective of the policymakers to provide adequate training and support to the preschool teachers. This research can also be of particular significance to the Ministry of Education in Saudi Arabia.

1.6   Aims and Objectives

The main aim of this thesis is to evaluate teachers' and preschool children's engagement with a Tablet for learning EFL. In essence, it evaluates the effectiveness of using a Tablet for teaching EFL to Saudi preschool children and looks at ways of making better use of devices such Tablets for teaching EFL to Saudi preschool children. In this context, this research assumes that the focus should be on the mechanism of learning and building capacity to learn as language learning is a competency which allows individuals to learn language through their life experiences. Using the constructivism approach this research aims to investigate how the use of Tablets affects the ability of children to not only learn EFL but also acquire skills that will help them to continue their learning of EFL during the course of their lives.

Objectives of Study

The overarching aim of the study will be achieved through the fulfillment of the following objectives:

RO1. To understand the process of learning EFL in preschool children.

RO2. To understand the mechanism through which ICT affects the learning of EFL among Saudi preschool children.

RO3. To explore how preschool children engage with technology for learning EFL.

RO4. To identify the challenges that preschool teachers face in using ICT to teach EFL to Saudi preschool children.

RO5: To identify ways of improving the effectiveness of ICT in teaching EFL.

1.7   Research Questions

The following research questions have been identified for this research

- How does ICT affect the Saudi preschool children's EFL learning?

- How do children interact with ICT in relation to language learning?

- How do teachers interact with ICT in relation to language learning?

1.8   Structure of the Thesis

This thesis comprises of seven chapters. Chapter 1 presented an overview of the research including the background of the study, and provided a brief review of the existing work on the use of ICT in preschool education. This chapter mentions some key benefits and challenges in adoption of ICT in preschool education, and also discusses the reasons why studying the use of ICT in teaching EFL to preschool children in Saudi Arabia is essential. This chapter also presents the aim and objectives of this research.

Chapter 2 provides a review of the existing literature on ICT in education and use of ICT for teaching EFL. It discusses the literature on the use of ICT for preschool education followed by a review of literature in using ICT for teaching foreign languages. It primarily argues for using the competency building approach for teaching EFL. At the end of chapter 2, the conceptual framework is presented.

Chapter 3 of this thesis sets the context of use of ICT in education in Saudi Arabia. It makes statistical references to the progress in the adoption of ICT in the Saudi Arabian education system. It makes references to Islamic principles and how these affect the culture and education system in Saudi Arabia. It also examines the adoption of information and communication technology in Saudi Arabia, followed by discussion on developments in the education system and, specifically, the preschool education system. The use of ICT has expanded, culminating in the publication of the National Plan for ICT in 2006, which cited the fourth goal of optimising the use of ICT in education and training at all educational levels. This chapter provides a discussion of the Saudi Arabia's national information and communications technology plan. This chapter also discusses the impact of the formation of the National Centre for E-learning and Distance Learning on adoption of e-learning by higher education systems in Saudi Arabia.

Chapter 4 presents the methodology used for this research. This research is grounded in a pragmatic philosophy. The reasons for selection of pragmatic philosophy and the mixed methods approach are discussed in detail. The data collection and analysis part of the chapter is divided into two parts. The first part is the test score analysis. The second part contains details of the qualitative methodologywhich including researcher observation and semi-structured interviews with the teachers. Concerning the assessment of children in the early years' foundation stage, Palaiologou (2010) talks about using a number of assessment tools to assess children's performance; in particular, different observation techniques. Observation techniques are used in this research to assess how children are interacting with Tablets and how the use of the Tablet may be affecting their EFL learning. The sampling strategy adopted for qualitative and quantitative parts are discussed in respective subsections.

The next chapter contains the analysis of qualitative and quantitative data. This presents the results of the quantitative data analysis including the findings of the English test scores for children. The next section qualitatively analyses the data from the observations and interviews. The key themes for the qualitative data are identified and analysed. Chapter 6 presents the discussion of the findings. Finally, Chapter 7 concludes the research. The key findings and contributions of the research are discussed along with its limitations.

1.9   Chapter Conclusion

Within the last decade or so there has been a rise in the use of Information and Communication Technology (ICT) in teaching at almost all levels — from preschool to Postgraduate. The level and nature of usage of ICT may vary according to the level of study. The Saudi Arabian education system is currently in the process of modernisation and integration of ICT in delivering education is a key pillar of this modernisation drive. The problem, however, is the ICT integration is not as per the context, and consequently, such projects fail to deliver the desired results. This research looks at possible ways in which teachers and children interact with ICT in order to identify better ways of integrating ICT in the preschool education system in Saudi Arabia.

This research particularly looks at teaching and learning of EFL. It has been identified that one of the key aspects that Saudi education policymakers need to work on is promoting the use of English language in education. Poor knowledge of English has proved to be one of the key barriers in the academic performance of Saudi children, at home and abroad. Realising this, there has been a deliberate push to promote English education at all levels in Saudi Arabia. In this respect, teaching children EFL from a very early age can help them overcome

a number of challenges that they face in higher levels of education. This research is anchored in the recent attempts of the Saudi government to introduce English as a subject in the curriculum of elementary education, subsequently attesting to the increasing importance of teaching EFL to younger children.

The main purpose of this research is to gain insight into the actual use of ICT in preschool education settings to help learn EFL through an experiment in the Saudi Arabian context. This research is focused on ways to encourage the use of ICT by the preschool teachers and children for the purpose of learning EFL.

The use of ICT is very important for success and enhancement of the modern education system, whereby children who have knowledge of using ICT can significantly benefit from the information and knowledge offered by the ICT tools. The children will also have the valuable opportunity of interacting with millions of other users worldwide.

Another significant aspect of this research is that it provides a set of guidelines for ICT integration in the global preschool education community. The research is also important because it investigates the issues regarding the actual use of ICT systems such as Tablets by the intended users. It can create a better understanding of the factors that are affecting the integration of ICT in preschool education. The main aim of the research is to investigate the key factor that can influence the integration of ICT in preschool education settings. This aim is fulfilled through the research objectives and sub-questions that aim to provide the picture of preschool education in Saudi Arabia.

This chapter provided an overview of why this research is useful in the present context. In Saudi Arabia, there has been ongoing discourse into improving the quality of education. This research is expected to make a significant contribution in this regard by focusing on

improving preschool education, thereby paving the way for improvement at other levels of education.

Chapter 2   Literature Review

2.0   Chapter Introduction

The new era is dominated by technology and computers in all fields. Various exciting applications and services are being provided by computer technology (Divaharan and Wong, 2003). The studies have also shown that technology is affecting the whole system of education in a very harmonious manner (Dennison et al., 1997). Computer technology is affecting and changing the ways and content that teachers use to teach the children, which thereby change the method of learning and knowledge gaining by the children (Khezrlou, Ellis and Sadeghi, 2017). The computer-related learning offers many acronyms, which means that various applications, uses and facilities provided by computers are understood through these acronyms. One of the most important acronyms is ICT (Information and Communication Technology). The term is used to refer to the process of including computers and technology in the process of education or learning (Ruiz-Madrid, 2005). ICT could also be considered as the umbrella term that covers the various communication devices used for the purpose of learning. These technological and communication devices included in ICT are mobile phones, computers, television, radio, network hardware and software, different applications and services associated with these devices, and satellite systems. Examples of the services could be video conference or online interaction with the teachers in distance learning system (Oster et al., 2006; Ruiz-Madrid, 2005).

The advent of the computer and advancement in technology has really taken the process of language learning to a new dimension. The role of computer technology in language learning

is significant and essential for the teachers and children of this cyber age (Yunus and Suliman, 2014). There are various benefits of the computer technology, such as the supportive software and interactive programmes and application that can enhance the process of language learning. According to Bueno-Alastuey and López Pérez, (2014), the virtual platform facilitates the use of all different forms of ICT. The interactive processes and programs support the learning process because language learning through communication technology allows the learners to discover new dimensions, to explore and search new ideas and approaches to learning, and to respond to and receive feedback on their learning (Brett, 1996). In other words, it can be asserted that ICT provides a range of forms of interaction and technology-based learning environments (Yunus and Suliman, 2014).

2.1   Theoretical Overview

Learning can encompass a range of developments in children's skills, confidence or knowledge (Plowman et al., 2010). In theories of contemporary education, there is a clear understanding that learners in the twenty-first century have a unique set of needs that curricula must adapt to in order to properly prepare learners for working in the digital age. In 2008, Kalantzis and Cope suggested the tenets of a 'new learning' that, while not being structured into a set curriculum in their model, could offer a basic set of open-ended criteria to guide learning. The key ideas of 'new learning' put forward by Kalantzis and Cope (2008) are that:

- Education should be at the centre of the knowledge economy and be socially significant
- The idea of educational institutions should be broadened

- The tools for learning should reflect contemporary technologies

- Learning outcomes should be more dynamic, collaborative and capability-based

- Learners and participants should share control in learning

- Children who do not fit easily into societal norms should be justly educated

- Old pedagogical practices should be updated

- The teacher should no longer be only a purveyor of knowledge but have more independence to design learning scenarios and research tasks.

The aim of these criteria is to allow teachers to integrate the received curricula they deliver.

A number of elements need to be in place before this high level of integration may be achieved. Young children should be familiar with new ICT tools and be able to learn both with and from them (Yelland et al., 2008). Yelland et al. (2008) argue for the use of fresh technologies, as well as collaborative learning and problem solving carried out in dynamic ways. Such learning practices may be demonstrated in listening and feedback skills in brainstorming sessions or through creating drawings on ICT tools. Mirroring Kalantzis and Cope (2008), Yelland et al. (2008) argue that 'new learning' surpasses traditional and individually-focused educative practice. The role of the teacher is therefore radically altered from a purveyor of knowledge to a stakeholder who is more interested in thinking through ways of communicating, pedagogical reflection, and teamwork. ICT can be a central tool in this transformation of learning as it allows children to make sense of concepts and ideas in a myriad of ways that can reinforce the tenets of 'new learning'. In turn, ICT is a significant and powerful tool that can meet the complex needs of the twenty-first-century learner.

This engagement promotes a pedagogy in which children are driven to actively construct meaning in learning; in turn, its use can be aligned with a number of renowned theoretical

approaches that prioritise such construction of meaning (e.g., Piaget, 1972; Bruner, 1977; Vygotsky, 1978).

2.1.1 The Nature of Learning

It is difficult to provide the precise definition of learning because this process is multifaceted. The process of learning and its various layers have always been popular among scholars, philosophers and language professionals (Crick, Stringher and Ren, 2014). The significant question associated with learning is: What is the process and significance of learning in the context of language? According to the definition provided by the Merriam-Webster Dictionary, learning can be understood as the act to learn, knowledge or the skill that is acquired by the specific instructions or process and changes in the behavioural tendency (Zhao, 2014).

According to Piaget, leaning can be considered as the indispensable mechanism that is present in all the biological beings, and it is also considered as the survival mechanism to adapt to the environment (Boeree, 2001). Huges (2008) has made significant efforts in summarising Piaget's Theory of Learning:

- The children build their knowledge on the basis of their previous cognitive development that increases their ability to solve various complex problems.
- The most significant part of learning is to learn through discovery. The most important process of learning involves discovering and reconstructing by rediscovery. The children learn to produce the creativity and the repetition of the knowledge.

- The logical and conceptual growth of the children is very important for the process of learning, for which the educators are required to develop the appropriate curriculum. This will enhance the two important processes of the accommodation and adaptation (Boeree, 2001).

- The children have to go through various stages of the learning process to develop the basic understanding of the phenomenon.

Piaget's constructivist theory explains that guided discovery and child-determined exploration can serve as the significant basis for learning in comparison to direct teaching. In addition, Ciampa (2012:3-4) explains that "*the constructivist goals of learner control, autonomy support, choice, active problem-solving, and use of relevant and authentic texts in beginning reading instruction are preferred to explicit, teacher-directed instruction.*" Therefore, in the educational setting, Piaget's constructivist theory reinforces the benefit of ICT. The benefits of ICT are explained more comprehensively by Weber. He states that ICT provides "*better access, more control, and greater freedom for e-learners*" (2011, p. 565); Sharples et al. (2005) also attest to the benefits by stating that children need to cultivate the reflective 'Metacognitive awareness' (which means that children need to develop the understanding of their own learning process) towards their own safe and creative way of engaging with ICT.

Social Learning Theory was introduced by Bandura (1977). According to this theory, most of the traits of human behaviour are learned through observation by the process of modeling. The observer forms the idea of the new behaviour that is used, and later this knowledge is used by the learners as the guide for their actions (Kearsley, 2008). Bandura's Social Learning Theory is important to understand the –process of learning and human development, where the scholar proposed that direct learning or the reinforcement of the ideas cannot help in all kinds of learning (Cherry, 2011).

Ginn, 2002, cited in Boethel and Dimock, (2008) states that technological workshops and laboratories have increased interactivity by creating a virtual reality, hypermedia,and multimedia that fit in the Piagetian learning theory. The active discovery environment cannot be created through computer programs that are specifically based on drills and practices. This is the reason that memorisation practices and drills used in language schools lack the ability to promote creativity and discovery among children (Cherry, 2011).

2.1.2   Vygotsky (Zone of Proximal Development)

The theory of the Zone of Proximal Development or "ZPD" was devised by Lev Vygotsky in 1978, where he demonstrated that there are various parts of learning that the learners can engage in without help. He also explained that children follow the adult's process of learning where they gradually develop the ability to do certain tasks without the support or assistance of others (Wass, Harland and Mercer, 2011). Therefore the theory of the Zone of Proximal Development addresses the difference between the tasks that the child can do with or without assistance. The main aspect of this theory is that social interaction is the very significant concept that helps the in th ecognitive development of children (Kearsley, 2008).

Similarly, the Social Constructivism Theory presented by Vygotsky (1978) posits that social and behavioural aspects or elements like the sense of togetherness and friendship are very important for the learning process. According to Vygotsky the process of learning among the children starts before they go to schools. This process takes place through instructions and imitations of the adults, which explains that there is a close relationship between the development and learning that starts at the very early stages of life (Shabani, Khatib and Ebadi, 2010). Social experience and interaction play a very significant role in the

development of the cognitive skills (Chung, 2012). Chung (2012) also finds that the Zone of Proximal Development (ZPD) theory developed by Vygotsky (1978) is significant in explaining the reason behind the positive impact of social interaction on cognitive development of an individual.

ICTs are important tools that support and enhance children's play and social interaction when it is specifically applied to educational settings (Gahwaji, 2011). The positive relation between play and learning is also acknowledged by Plowman and Stephen (2005), who proposed the advantages and benefits of introducing ICT to children at an early age. The findings of these scholars subsequently support the assumptions made under Vygotsky's (1978) Social Constructivism Theory as well as Piaget's Constructivist Theory.

2.1.3   Bruner (Discovery Learning)

A significantly important explanation of the Discovery Learning is given by Jerome Burner. Discovery Learning uses cognitive psychology as the important base for presenting the theory, and there are various definitions to describe its approach. However, the simplest definition is given by Bardin (2008), who asserts that Discovery Learning is a tool that provides significant information required to solve problems in a way that makes sense for the learners. Bardin (2008) has also defined it as the process of experimentation that is used to learn extrinsic interventions associated with coaching, as well as the framework that help learners to achieve a reasonable conclusion. From another point of view, Discovery Learning can also be considered as the expository model through which the learners 'discover' what approach has been planned by the teachers or the children and to discover new things from the approach outlined by the teacher (Castronova, 2002).

Discovery Learning is an effective approach towards learning that helps to facilitate the guiding of teaching strategies and particular teaching methods (Grundmane, 2004). Discovery learning takes place as the guiding approach that helps children to use their personal experiences and prior knowledge. It can also be referred to as the method of instruction through which children are able to interact with their environment, by exploring various objects and by manipulating these objects; and also through experimenting (Conway, 1997). Through Discovery Learning the children are able to learn and remember the concepts through the process of their personal discovery. It has also been found that Discovery Learning is more successful when the children possess essential knowledge about the concept and have undergone some specific and structured experiences (Conway, 1997).

It is important that the instructional system is developed for facilitating Discovery Learning, where children can think and work in a more creative manner. This will enhance their control over their own learning process (Kirschner, Sweller and Clark, 2006). Another way through which it can be promoted is through the Discovery Learning modules, courses and technology that support this process (Bardin, 2008). The technological advancement can provide children the opportunity to experience the virtual environment. Discovery Learning among the children can also be promoted through simulations. This process is very flexible and less offensive for the child, as well as less expensive for the institutions (Schmidt et al., 2007).

2.1.4   Inquiry-based Learning

According to Haq (2017), Inquiry-based Learning is the process that encompasses a range of small learning methods. This approach is child-centred and is significantly based on the

constructivist learning theory (Haq, 2017). The general definition of Inquiry-based Learning explains that it is a process through which children learn to formulate questions, obtain factual information, and then build and enhance their knowledge that ultimately helps in answering the original question (Jakes et al., 2002). For the purpose of this research, the factual information and evidence are obtained from the Web resources. However, the Inquiry-based Learning approach includes many features like thinking skills that can facilitate the type of learning, which creates a meaningful experience for the children. The advantage of this learning approach is that it allows children to indulge in individual learning as well as group learning (Abdi, 2014).

The virtual learning environment (VLE) significantly supports this kind of learning experience. According to Jakes et al., (2002), this process is very flexible and permits different variations of the process to be effectively used by the learner. According to the Duke University Center for Inquiry-Based Learning (2003), the Inquiry-based Learning process is an open-ended concept, which means that the process is not focused on finding the single correct answers; instead, a set of correct answers from different perspectives can be gained. Various studies have signified the importance of the Inquiry-based Learning approach in enhancing the academic achievements of the children (Pedaste et al., 2015). It can be posited that this approach facilitates exploration and meaningful examination. The children also learn to analyse and reason in a careful manner.

2.1.5   Metacognition Theory

Simply put, Metacognition has been defined as "thinking about thinking". This also means the ability of thinking beyond the normal process. It is considered as the ability and the personal process of planning, analysing, tracking and assessing personal knowledge and

understanding. The term 'Metacognition' was introduced by John Flavell, and is related to the process of developing self-knowledge about learning how one should learn (Noushad, 2008). Noushad (2008) has also proposed the inclusion of the Metacognition theory in the school curriculum because the author believes that Metacognition provides the opportunity to develop the self conscious learning. It allows children to think about their own skills and improve their reading and writing and problem-solving skills. The metacognitive knowledge helps children to learn new things and to understand their own capabilities (Mahdavi, 2014). Various studies have reported that Metacognition helps in developing the independent thinkers and also the lifelong learners; it also helps the children to "*grapple with the new situation and allows them to learn how to learn and to continue to learn throughout their lifespan in this hectic pace of life*" (Mahdavi, 2014: 529).

Literature also reports that Metacognition helps in developing cognitive knowledge and can be very effective in language learning and teaching, as it can help instil confidence and a sense of duty in the learners, which enables them to self-direct their own learning process (Lai, 2011). Metacognition consists of two main components — knowledge and regulation. Metacognitive *knowledge* includes the knowledge about own self as the learner and the factors that might impact the performance of learners, knowledge about developing learning strategies, and knowing when to use such strategies (Oxford, 2016). Metacognitive *regulation* on the other hand is considered as the process of monitoring one's cognition, including planning strategies, developing task performance, and evaluating the efficacy of the strategies (Lai, 2011). Some recent evidence has shown that young children are capable of the rudimentary forms of Metacognitive thought after the age of three. Although various studies have proposed individual development models for Metacognitive knowledge, most have asserted that Metacognitive development and improvement is very high in the first six years of life. Studies have also attested that Metacognition can be significantly improved among

young children with appropriate instructions and support (Breen, 2014). Therefore, these studies have also provided the empirical evidence to support the notion that Metacognitive knowledge can be taught to children and can enable them to reflect on their own thinking and learning (Raoofi et al., 2013).

Flavell (1979) stated that "*the effective role of Metacognitive knowledge in many cognitive activities related to language use is conspicuous, e.g., oral communication of information, oral persuasion, oral comprehension, reading comprehension, and writing, to language acquisition, and to various types of self-instruction*" (as cited in Rahimi and Katal, 2012, p. 75). Studies have also found that Metacognitive knowledge about the task and appropriateness of the strategies can be a significant determiner for the language-learning effectiveness among young learners (Rahimi and Katal, 2012). The one significant reason behind this finding is that Metacognitive strategies developed by the learners help them to use the strategies and play an active role in the learning process. This process also supports the learners in managing and directing their own learning process and allows them to find the best ways to practice and to reinforce the knowledge that they have learned (Chari, Samavi and Kordestani, 2010). Therefore, it can also be said that Flavell's original conception of Metacognition has been influenced by the information processing theory of cognitive development and also Piagetian stage theory, which informs that development and experience help the individuals to monitor their own thinking and also what to monitor and regulate, by setting various goals and strategies (Marulis, 2014).

The process of memory is significant in the case of Metacognition because children would be able to use Metacognition when it is associated with their 'metamemory'. Remembering and recall are the important functions of memory and through Metacognitive knowledge, children are effectively able to recall and remember and develop declarative knowledge. According to Chatzipanteli, Grammatikopoulos and Gregoriadis (2014) evaluating and improving

Metacognition in early childhood can be very beneficial, as it can help the children to develop their thinking and evaluating skills, which are also important for learning and development. Studies have also found that Metacognition can be effective at improving the episodic memory of children (Geurten and Willems, 2016). Metacognitive abilities are also significant because children specifically rely on them for evaluating their memory and using this evaluation to regulate the performance of their memory (Geurten and Willems, 2016). Therefore, Metacognition is associated with knowledge and regulation of thoughts. This allows children to understand what thoughts are important for learning and how thoughts can be used to enhance their learning experience. Metacognition is also considered as a powerful skill that helps children to develop resilience and regulation on actions (Jacobson, 2018; Rahimi and Katal, 2012).

One of the most significant aspects of Metacognition is that it helps in self-reflection, which is important for correcting, assessing own mistakes, and improving them through self-actions. Metacognition is also involved in the everyday process; although it may remain unnoticed, it helps a great deal in adapting to new challenges, experiences and emotional setbacks (Jacobson, 2018). When children are involved in a comprehensive problem-solving task, they are required to analyse the problem, gather information about the problem, develop a plan to solve it and evaluate the progress. These strategies can be developed among children with the support of educators. The physical activities can be used to explain and engage children in the Metacognitive process (Chatzipanteli et al., 2014). Lewis (2017) states that one of the most effective strategies to develop Metacognitive skills in young children is video-stimulated reflective dialogues; this is one example of strategies that could be used by the educators in early childhood education settings. Such activities can help to enhance the Metacognitive ability of the children and can develop and enhance their literacy and learning skills. Children can be encouraged to work through challenging situations and must be allowed to make their

own decisions to address these challenges. In this way children would be able to learn differently and will also self-support their own learning process (Marulis, 2014).

Another important concept that is associated with Metacognition or Metacognitive knowledge is the development of autonomy among the language learners (Marulis, 2014). Metacognitive knowledge helps in regulating the self-learning and also planning, monitoring and evaluating personal skills. Therefore, enhance the autonomy of the learners. The enhanced learning, evaluating and problem-solving further enhances the autonomy of the children, which is very significant for quality learning (Rahimi and Katal, 2012). Metacognitive knowledge also helps in developing many other skills, such as self-appraisal, and acquiring task and declarative knowledge. Raoofi et al. (2013) identified that Metacognition is very significant for second language or foreign language learning. Metacognition and Metacognitive knowledge help in developing many language learning skills among children. Raoofi et al. (2013) provided some empirical data in support of using the Metacognition theory for language learning and found that with the inclusion of Metacognitive strategies and interventions in the classrooms, and using Metacognitive training, learners can achieve the improvement in language learning and in language performance. The study also identified that Metacognition is a strong predictor of language performance. When learners are able to use the Metacognitive resources, they become able to perform the language task more effectively.

Chatzipanteli et al. (2014) postulated that Metacognition can be very important in early childhood education, and is also significant for knowledge transfer, by preparing children to become lifelong learners. Therefore, the involvement of young learners in the process of Metacognitive thinking can be significant in early childhood education and also for language learning. Chatzipanteli et al. (2014) also asserted that using Metacognitive knowledge and strategies in interesting activities makes the whole learning process enjoyable for children.

The high-order thinking among young children can be beneficial to enhance their Metacognitive skills. Teachers can include the self-check teaching styles that could help the young children to reflect on their own learning, knowing that what they are doing can be an effective way of developing Metacognition (Breen, 2014; Chatzipanteliet al., 2014; Rahimi and Katal, 2012).

In summary, investigating how learning occurs in individuals through Metacognition can be a useful approach because it allows us to be more effective and precise in developing the right learning approach. Constructivism theory also believes that every individual is an independent learner who learns through both direct and indirect interaction with the environment and objects within that environment. Using the Metacognitive approach will help in developing independent learning. Language learning best occurs in a constructivist and informal manner through interaction.

Metacognition theory is useful in developing language learning because language learning cannot occur through instruction alone and within a short time span. Instead, it should be acknowledged that language learning occurs over a long time period and, for this reason, understanding the process of cognitive development of individuals through the theory of Metacognition can be useful and effective.

2.1.6 Communicative Language Teaching

Canale's (1983, cited in Rickheit and Strohner, 2008) concept of "Communicative Language Teaching" explained that when children are to be taught about a language, they require the environment in which they can develop their language skills and can easily employ the target language in real-life situations. The roots of Communicative Language Teaching are found in the study of Dell Hyme (1972, cited in Rickheit and Strohner, 2008), where he presented the

concept of "communicative competence". According to Hyme, communicative competence assumes the ability of the child or children to effectively employ the target language in real-life settings. Thus, language is taught as communication, as theorised by Alo (2003) and Ogunsiji (2003, 2004) and suggested by Aremu (2011). According to them when the language is required to be taught as communication, it requires a well-defined learning process and contextualisation of the teaching. This process is very comprehensive, in which the teachers are required to use the practical tasks, such as debating programmes, spelling drills, spontaneous speeches and also plays and rhymes, among other tools. These practical tasks are very important for teaching a target language, as they will help children to easily employ the target language in real-life situations.

Ogunsiji (2004) explains that teaching English as the second language will help to improve the communicative competence in children and will also facilitate the process of teaching English as the target language. Canale (1983, cited in Rickheit and Strohner, 2008) also found that teaching language through communication involves the development of some significant competencies in children such as grammatical, strategic, discourse and sociolinguistic competencies. The mastery of the rules of the target language implies grammatical competence.

Sociolinguistic competence encompasses the conventional and social rules of using a language. The sociolinguistic rules imply having the understanding of and knowledge about what, when, where, and how to say. When the child gains that knowledge and sociolinguistic competence in the second language or the target language, they will easily be able to use the language for expressing various gestures, needs and appeal (Larsen-Freeman and Long, 2014).

Discourse competence is a different skill, which can be referred as the ability to control or manipulate the form of the target language (Larsen-Freeman and Long, 2014). Manipulation of the language may involve rhetorical devices that can be used by children according to the purpose of communication. Discourse competence can also be related to the ability to construct text (McCarthy and Carter, 2014).

According to Richards and Schmidt (2014), strategic competence is the ability to overcome the situational as well as communicative problems that can arise due to the lack of grammar or lack of knowledge about the appropriate communication norms or behaviour. It also explains the ability of the learners to adapt to the use of the verbal and nonverbal language skills in the communication problem. Aremu (2008) has developed a practical strategy for the teachers in the form of a significant concept related to communicative language teaching; this means that teachers have to include their background knowledge (linguistic, cultural or social knowledge) and their contextual belief. Scollon and Scollon (2003) emphasise that "*we listen and speak, write and read not only about the world…much of what we understand depends on exactly where we and language are located in the world*" (p. 9). This explains that real-world experiences can affect the use of a language in real-life situations.

Bach and Harnish (1979) introduced the term "Speech Act Schemata", which means that experiences obtained from the real world are retained in the brains of children and acquiring the skills of learning a second language works in the mental structure (Terkourafi, 2013). This can also be understood as the mental process that involves the series of the inferential steps that are used by the learner for understanding an utterance. Terkourafi (2013) has also considered it as 'illocutionary intention', which is a reflexive intention which is fulfilled by recognition of the speech act. The knowledge from the real world will help children in adapting the skills, which they learn from the class (Evans, 2016). This knowledge of the world will affect how a learner of English understands what he or she learns in the class. For

example, the children who are going to learn ICT tools must have the knowledge about effectively employing the ICT in learning the English language.

The aim of the Communicative Language Teaching is to achieve the holistic communicative competence that would also include the grammar and linguistic skills. Communicative Language Teaching also emphasises that fluency should be achieved in the language with contextual meaningfulness. It also implies that fluency and meaningfulness should be achieved in functional terms of the language, which means that productive use of the language is more important than the critical use of language (Brown, 2007).

The Discourse Approach (Cots, 1996) explains that discourse-based teaching is very important in second language learning, as it can help children to acquire sound knowledge about communication skills (Van Dijk, 2015). The discourse approach also supports the real-life examples and materials. The aim of the discourse approach to language learning is to analyse the written, vocal and sign skills that help to develop communicative and pragmatic competence (McCarthy and Carter, 2014). It involves learning not only through text but also through discourse across the text. The teacher will be required to involve the children in discussions and encourage themto speak about what has been heard in the discussion. This process involves learning and applying the learned knowledge about the second language (Celce-Murcia and Olshtain, 2005).

2.1.7   Limitations of Learning and Child Development Theories

In general, the learning theories previously explored in this section provide a number of useful concepts for understanding learning with and through ICT in ECE. This section has, in

particular, emphasised certain socio-cultural theories as they serve to highlight the importance of an adult presence, as well as others with expertise, which can scaffold a child's learning. An idea of why and when to use ICT has been formed in this literature review, but it is still necessary to consider how to integrate ICT in such situations in ECE.

The main focus in all the learning theories, from behaviourism to social constructivism, has been fundamentally on cognitive development (Trawick-Smith, 2010). These theories are propounded from the particular point of view of the psychologist and educationalists have to take a more holistic view (Luckin, 2010). While a teacher's philosophy and their relationship with learners is central, the influence of holistic factors upon this relationship cannot be overlooked, particularly if we take the playroom to be the microenvironment of a child's learning, the meso level to be the wider context of the preschool, and the macro level to be the ideologies and policies surrounding ICT use in ECE in a certain country. Indeed, teachers carry out their work within the influential wider ecological context that surrounds them (these environmental and ecological factors are discussed in depth later in this chapter). Debates or practices at each of these contextual levels influence both the practice of ICT use in the playroom, and the philosophy of the teachers who facilitate this practice, to varying degrees. Hence, in order for ICT integration in the playroom to enhance contemporary learning in a way that is modern and relevant, it is also necessary to consider the wider contexts of learning (Siegler, 2004, 2007a; 2007b).

Furthermore, everyday pedagogical practices work more on the whole child than simply cognitive development (Lohnston and Nahmad-Williams, 2009); for example, drawing is not only cognitive but is also a physical activity. There are other areas of child development that are important to consider when it comes to ICT integration in ECE, particularly as, in this thesis, we categorise ICT use as play. Play involves exercising the four key elements of the child: cognitive, emotional, social and physical (Vickerius and Sandberg, 2006). With regard

to the second of these elements, it is the work of Susan Isaacs in the 1920s that empirically highlighted an emotional or affective aspect to learners (O'Hara, 2004). Children also have to be able to show choice and responsibility to develop socially; as well as gain a sense of self and autonomy (Samuelsson and Carlsson, 2008). It has been found in the literature (e.g., Howard et al., 2010; Samuelsson and Carlsson, 2008) that early years' institutions have a significant role to play in nurturing these social skills and also in developing early learners physically through play and exercise.

These categories overlap and impact upon one another. For example, the process of acquiring language involves a development of cognitive skills through understanding and learning language. The process of learning the language, in turn, promotes social and emotional growth (Cooper, 2005; Forcier and Descy, 2008; Plowman et al., 2012). Developmentally appropriate practice pays attention to all such factors and the National Association for the Education of Young Children (NAEYC) guidelines suggest how to optimise nurture across all of these issues (NAEYC, 2009). ICT, therefore, has to be integrated into ECE in a manner that respects this range of needs and diverse experiences that the child brings with them (Can-Yasar et al., 2012; Jonassen et al., 2008). In other words, it has to be integrated in a way that is 'developmentally appropriate' for the child. This integration has to respect both the diversity of learners and the influence of environmental factors.

2.2   English as a Foreign Language

The process of English learning can be described through various terms. In various countries, where Englishis used as a second language, this English learning process is referred to as 'English as an additional language' or 'English language learning'. Learners acquire the

distinct position in the English learning process along with other subjects (Brinton and Celce-Murcia, 2014). The approach has become very popular in countries like Australia, the UK, the USA, and Canada. In these countries, over 25 yeas of research has made this process a political agenda and is considered as the process of inclusion. In the countries of the Middle East, the English learning process is called 'English as another language'. This term is specifically coined for the children who belong to minority ethnic groups, who possess the experience of their own language, and who are learning their official language as well as English as another language (Brinton and Celce-Murcia, 2014).

In countries all over the world, learners and readers are well informed about the concept of learning and enhancing their skills for 'English as a foreign language'. English is learnt as a foreign language in non-native English speaking locations. The main aspect of the EFL classrooms includes the common concept of exposing the children to English as the 'living language'. The meaning of living language is to provide opportunities to the children to practice their target language with the help of real working models and authentic texts (Rofiq, 2016). In the EFL classrooms technology can play a very significant role in achieving this; it can help children to learn the target language more effectively in comparison to conventional strategies and tools of teaching (blackboards, books etc.) that are found in most classrooms. The technological advancement over the years has opened new opportunities for language learning, and e technology can also serve as an important tool that can provide access to various authentic sources (Rofiq, 2016). The current era of different kinds of technologies available around the globe assists in many ways, i.e. easy and authentic research, accurate contents for practice; all this is easily accessible via the Internet. The learners and teachers are not isolated now from the target language or culture. Technology provides the opportunity to "*participate in the socially mediated practices of [the target language] community*" (Kirsch, 2008: 46). Even if children do not have direct access to the Internet at their schools

or homes, teachers can access the Internet and can provide additional resources and supplement material through conventional tools (Yamauchi, 2009).

2.3 Learning EFL

The main question associated with learning English as asecond language is: Why is having knowledge and skills about English so important around the globe? The answer to this question could be that English is the most widely used language (Pim, 2013 cited in Motteram, 2013). However, it is difficult to evaluate how many people around the globe are English speakers, although it has been estimated that there are around more than 350,000,000 native English speakers and more than 400,000,000 non-native English speakers, who use English as the foreign language or second language (Jayanthi and Kumar, 2016). English Language Teaching (ELT) can be very effective if it is associated with modern communication technologies. According to Graddol (2000), there were approximately one billion English learners, and the number was expected to double by 2010. The study also finds that 80% of the material and information available on the Internet is specifically in English. The conventional methods of teaching English were mainly teacher-centred and neglected the promotion of communication skills among the learners (Tomlinson, 2011).

The knowledge of English is particularly critical for people from developing nations which need access to developed western countries for various reasons such as accessing knowledge bases. People in these countries may be particularly disadvantaged because little global scientific research has been conducted or translated into their native language, making it difficult for them to learn from the extensive amount of research material available online. Zughoul (2003) explains that the English language is very important for the Arab world, so that people could effectively communicate with the world and is also important for its development in a broader context. Samak (2006) asserts that fluency in the English language

is linked with the higher social conditions, and it is also important for securing higher paying jobs in the Arab world. English is taught through EFL to fulfill this purpose. Therefore, a number of changes are required in the approach, methodology, perception and more specifically, the University curricula (Albirini, 2006). These changes highlight the significance of making changes in the mother tongue teaching, relating the learning process to the children, investigating to relate it to the learners, maintaining the English language as the main foreign language in Arab countries, and amending the foreign language teaching policies (Dutta, Shalhoub and Samuels, 2007). However, the evidence has shown that there is very little research available on the implementation and use of ICT in the EFL classrooms of the Middle East (Samak, 2006). Ony very limited studies address the attitude of the teachers on the use of ICT in the education system of Arab countries (Albirini, 2006).

The question of when the best time to start learning English is remains a much-debated subject. This conundrum has been the subject of intense scrutiny for many years and continues to vex policymakers all over the world. Much of the early debate around the early introduction of language learning into schools centred on the Critical Period Hypothesis (CPH) which, broadly, '*is a causal explanation for the differential success in theacquisition of a second language by younger and older learners*' (Bialystok and Hakuta, 1999: 162). However, a longitudinal study in the UK on the teaching of French in both primary and secondary schools conducted by Burstall et al. (1974) showed that apart from improved pronunciation there appeared to be no significant difference between attainment for learners who started earlier and those that started later. This meant that in the state sector in the UK at least, foreign languages were not taught in the primary sector for many years. The research and the debate have continued, but no definitive answer has been forthcoming. Summarising our current understanding in this area, Kirsch (2008: 4) suggests the following:

- Research into the optimum age for language learning is inconclusive

- An early start has a positive impact on children's attitudes

- The only advantage of an early start is the total amount of time spent actively on learning a language.

However, the growth of globalisation of trade and the predominance of English in the media, particularly on the Internet, have been responsible for driving change in language education policy and there is a global trend towards introducing English language teaching into the primary sector.

Within a politically charged educational environment, some policymakers have decided that the creation of a well-educated, English-speaking workforce may be one route out of the current global economic downturn. Parents often consider academic excellence in English to be the number one priority in terms of access to higher education, university accreditation and economic prosperity for their children. Consequently, in many countries, children now begin their study of English at primary level.

2.3.1   Speaking

It has been seen that when English language learners are completely immersed in the target language and in the locations where English is the dominant language (as in the UK), such children are more likely to develop more effective reading and writing skills. However, it becomes very complex, when English is considered a foreign language.

A useful framework for viewing learning a foreign language can be seen in Figure 1 below.
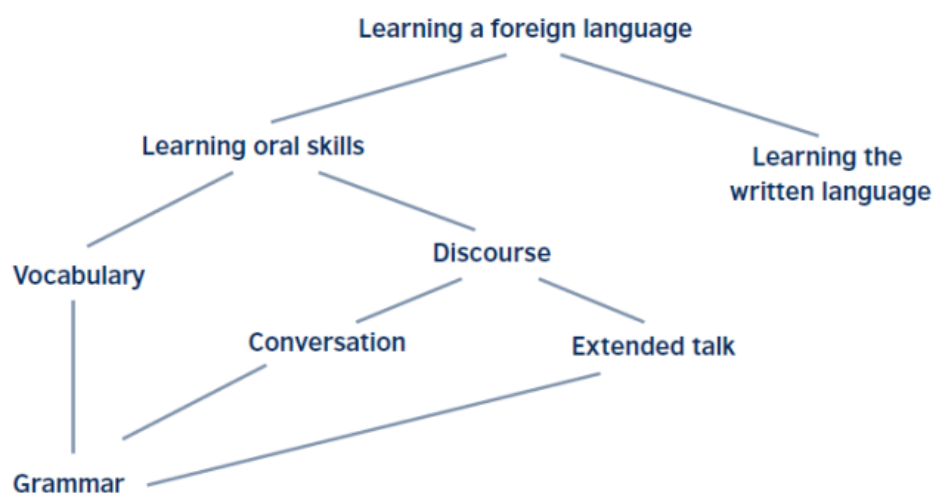
Figure 1 Dividing up language for child foreign language learning

Source: Cameron (2001: 19)

Cameron (2001) finds that learning the language in written form is a different aspect because it will eventually develop with the child's development. However, she believes that to become proficient in writing language, teachers have to take the leading role in mentoring children about writing. The process of teaching language writing requires planning and teachers have to focus more on strategy. Although written language is separated from spoken language, it has not been explicitly separated from the language learning process. For the young language learners, the language is introduced through speaking and listening. The small, effective and interactive activities in the class can help children to understand the meaning of the words, while the knowledge of the grammar "*emerge[s] from the space between words and discourse*" (Cameron, 2001:18), which further promotes the development of meaning. The most effective classroom strategies that have been used for the young learners are some of the traditional ways, such as storytelling and rhymes, which specifically involve the repeated language structure. In such cases, the Internet can work as a very effective tool as it can provide some authentic oral model in the form of electronic books, video clips, recorded songs and podcasts. The authentic oral models can help in

understanding the importance of pronunciation and also the reinforcement of the new vocabulary. The new technological tools can also support the teachers, who do not have confidence in their own language skills.

2.3.2   Reading and Writing

Reading and writing are dependent on each other. According to Corbett (2008:1) *"reading makes the writer"*. However, in the worst case, although reading can help children to decode the language, they might be unable to appreciate and comprehend the complete text. However, the process of learning a foreign language can become very difficult for the teacher to teach to their children when reading is forced on them too early in the learning process. The process can also become difficult due to the lack of authentic oral models and lack of engaging texts. The process of reading can be specifically compromised if the learners have limited access to appropriate texts. Some of the sources on the Internet can be very sophisticated for the new learners, while there are sources, which are more accessible sources of English learning.

2.3.3   EFL in Saudi Arabia

There is no doubt that Saudi Arabia is progressing in the field of education. However, it has been found that the level of achieving proficiency over English as the foreign language is still far from meeting expectations. The main problem found is that most of the children leave the course at the secondary stage of learning English and do not even gain the ability to carry out a small conversation in English (Al Shumaimeri, 2003).

It has also been seen, though, that even after learning English for many years, the children have been unable to achieve much proficiency in the language and that it has been a waste of

time and energy for the teachers as well as for the children. So, the important question that arises from this situation is: Why has improvement in learning among the children not been achieved? Some of the challenges of EFL being faced in the Arab world are explained by Fareh (2010):

1. Inadequate training of the teachers and lack of proper methodology.

2. The approach is required to be child-centred, but it is more teacher-centred in the Arab world and lacks the child-focused activities.

3. There are a lack of child's aptitude, motivation and initial preparedness and this is the reason that schools and Universities complain about low proficiency in children. The institutions have found that there is a lack of motivation among the children.

4. Another problem is of compartmentalisation vs whole language approach.

5. There is also a lack of emphasis on developing knowledge and skills in the current learning methodology.

6. Lack of proper teaching material.

7. Inappropriate assessment methods.

8. Limited exposure to the English language.

2.4   Early Education

It is very important to identify the appropriate approach for teaching aforeign language to the young learners. The appropriate approach is important based on various factors such as the age of children, the competency skills of the teacher, size of the class, educational framework constructed by the authorities, and the available resources. Another question associated with

the early education of foreign language is: Should the oral development be preceded by reading and writing?

The longitudinal study carried out by Nolen (2007) was based on observation of children during their literacy activities, and teachers and children were interviewed to understand the children's motivation to read and write. The study finds that motivation and development of the social meaning of reading and writing are important. The autonomy of creative self-expression and interest development are the key areas to motivate children for reading and writing after oral or spoken methods. Kennedy et al. (2012) assert that there is a very strong link between the oral and reading as well as writing skills. The proficiency in oral skills can motivate children towards reading and writing. The children learn language effectively by hearing when the language is effectively modeled by the teachers, and the productive activities can enhance the learning process (Hwang et al., 2015).

However, in some contexts, it has been seen that early exposure to reading and writing in the second language can allow children to achieve proficiency in the second language especially when the teachers are able to promote learning phonics and teaching grammar. The older learners are able to transfer their literacy mainly to the first language, but the young learners can transfer proficiency to both languages.

The early education of the children has wider implications for the learning abilities of the child in later life. The competency skill development of language learning in early childhood has been associated with English language learning in later life. Literacy and language have to be seen as the set of skills for the language learning. The learning and teaching of the second language beyond the restrictive range of skills can have wider implications for the language learning and literacy. This also encourages the job mobility and development of the children. Rethinking in early education can improve the English language learning skills.

2.5   ICT and Early Childhood Education

Over the last two decades, there has been a significant shift in the way the technology is being used by people in their personal and professional lives. Technology has affected all areas of human life. The application of technology in the education system has taken some time, but the teachers and educators have now realised its importance (Hammed, 2014). The earlier use of technology was mainly focused on getting information, but now technology is being used collaboratively and creatively for various purposes.

According to Kerckaert, Vanderlinde and van Braak (2015), more and more scholars are being convinced of the fact that ICT can open many new possibilities if introduced in early childhood education. The ICT matter a great deal in early childhood education for two key reasons: the first is that ICT has a significant impact on the environment and people who surround children, and the second is that ICT can help in strengthening many important aspects of early childhood education (Bolstad, 2004). As ICT is becoming a key component of the physical and social worlds, it has great potential in influencing children and their education.

The United Nations Development Programme (UNDP, 2003) defines ICTs mainly as the information-handling tool that encompasses the wide variety of goods, applications and services and these can be used to store, process, produce, process, distribute and exchange information. Some of the examples of the old ICT's are television, radio and telephones, while some of the modern forms of ICT are wireless technologies, computers, satellites and also the Internet (Hammed, 2014).

The different ICT tools now work together and have given rise to the networked world. The networked world consists of a massive infrastructure for radio, television, the Internet,

standardised hardware for computing and other facilities that allow it to reach into every corner of the world (Inan and Lowther, 2010).

Several authors have defined and acknowledged the significance of ICT. One of the most effective definitions given by Plowman and Stephen (2005: 147) states that ICT can be understood as various "*audio-visual resources, 'smart' toys [...] remote control devices, photocopiers, telephones, fax machines, televisions, and computers, [...] toys that simulate appliances such as mobile phones, laptops, cash registers, microwave ovens, and barcode readers as well as computers [...].*"Children from the current generation are highly intelligent and have great skills to learn ICT at a very young age. Integration of ICT and language learning together at the younger ages can enhance their capabilities and can make children competent to work in the global marketplace. Various ICT tools are very significant in improving the self-perception of young children that can later improve confidence in language learning through ICT. The self-perception includes the self-efficacy, self-confidence and self-esteem that play a very significant role in second language learning. For example, the role of positive self-concept in terms of use of ICT can improve the learning skills of children and also enhance their confidence.

In recent years, tremendous growth has been seen in ICT. It has been found that 90% of the European teachers use ICT for preparing their educational lessons (Empirica, 2006). It has also been found that all the European Union (EU) countries have significantly invested in ICT for their schools. The investment of these schools includes spending on "*equipment, connectivity, professional development and digital learning content*" (Balanskat, Blamire and Stella, 2006: 2). The European Union is also focusing on setting the target for enhancing and promoting digital literacy skills (European Commission, 2012). It has been found that it is not just the case in theEU; the influence of ICT remains the same in the educational systems outside the EU. The 'National Educational Technology Plan' has been developed by the US

Office of Educational Technology (OET) (OET, 2010) to transform the whole education system with the power and influence of technology.

The study of Trucano (2012: 101) states that "*enthusiasm for the use of computers and other information and communication technologies in education is undeniable and widespread*". Tella et al. (2007:5) also report that "*the use of ICT in ... African countries generally are increasing*", although it has also been found that African countries have limited access. Latin America is also going through change, and ICT is appearing in the schools as a significant technological tool, although a bit unevenly (Garcia-Murillo, 2003). It can be difficult to disagree with the statement of Mark Pegrum, which is "*that technology and education have a tightly intertwined future*" (Pegrum, 2009: 5). The investment by the government in ICT has specifically increased since 1998 for the education departments. This growth of ICT has been well documented (Becta, 2004; Macaro, Handley and Walter, 2012), but there is a lack of evidence about the process of ICT implementation, and how teachers can use ICT. Since the use of ICT is increasing day by day, it is easier to develop the language learning skills in children at the very young ages. The use of ICT tools at home and schools encourage children towards learning new things, develops their interest, and motivates them to grow new language learning competencies.

The study of Ilomäki (2008: 67) on the process of implementing ICT in schools is divided into two types of ICT story. The first ICT story states that there was overestimation about the benefits of ICT in schools, as the process of ICT implementation was top-down and was processed without the strong involvement of the schools and teachers. The role of training teachers and supporting teachers cannot be denied (Firmin and Genesi, 2013). In the general context, it can be said that ICT specifically and interestingly supports the basic education process (Plowman and Stephen, 2005). Early childhood covers the age of the child from birth to eight years of age (Copple and Bredekamp, 2009). This is the period through which the

growth and development of the child are very rapid. Children attend preschools during this period, and have access to different kinds of learning tools (Couse and Chen, 2010). In the case of childhood education, there is agreement among the various stakeholders, such as parents, practitioners, teachers and policymakers about the importance of learning and introducing ICT to early education (Plowman and Stephen, 2005). The self-constructed personality of the children is very important for learning English as a second language. ICT helps to develop the perception of the self and the world around them that also influences their interest in and value of the second language. The negative perception of the English language and English values can be changed through ICT that will enhance the learning interest of children.

The use of computers can immensely effective in the cognitive development of children (Haugland, 2000) and also has a positive impact on literacy development of young children (Gahwaji, 2011). Gahwaji (2011) also asserted that the use of ICT *allows children to decide pace and direction, and contains sound, voice, and music*" (p, 101), and also facilitates "*open-ended learning tasks with animated routines and directions that can be paused and resumed, or halted, and swift feedback to children in order to nurture their interest*" (p. 102). The mental development of the children through ICT has long been well-known; it also provides better opportunities to communicate with each other. To communicate over long distances, the non-English speakers have to develop the skills of English language. Therefore, the use of ICT can also motivate children to learn English as a second language for developing better communication skills. The use of ICT in basic education will not only enhance the language learning skills but also enhance the employability of the children in the future.

The use of ICT in the educational system is considered as enabling, interactive and transformative (Clark et al. 2008; Prensky, 2010). The use of ICT tools in early childhood

education enhances the social experience of children and improves their collaborative and learning skills (O'Hara, 2008). The use of technology in the early years of education is beneficial in creating the 'enabling environment', and such an environment is based on interaction and communication (O'Hara, 2008). This statement can be supported by the assertion of Montessori (1949, p.35), that an enabling environment is important for the development of children. The enabling environment includes the opportunities for communication, manipulation, and exploration. In combination with the development of the practical skills, the children are also required to develop the reflective 'Metacognitive awareness' (which means developing an understanding of their own learning process), so that they could engage with ICT in a safe and creative manner (Sharples et al., 2005). This process is importantly defined as 'e-confidence', and it becomes the most specific concern for the teachers for planning learning experiences involving ICT.

The framework for the possibilities and implementation of ICT in early childhood education was developed by the National College of School Leadership (Blows, 2009). This framework involves the 'e-words'that are supported by the comprehensive school e-safety policy (Byron, 2008).

According to the constructivist view, the process of learning is constructed as the process of *making meaning* of the world and the process of *making sense* of the world. This process involves the construction of knowledge by the children that they develop through their experience. The construction of knowledge takes place through the personal experience of children as well as the guidance of teachers (Department for Education and Skills, 2004). Through this process, the children become "*more independent, active and responsible learners*" (Hennessy et al., 2005a: 2). Hence, ICT is becoming an important tool for supporting the child's learning process and helps significantly in brainstorming, problem-solving, and more structured thinking abilities. All these skills are also required for language

learning in EFL. ICT has many different approaches to interactions. The various ICT tools and resulting information also provide opportunities to enhance vocabulary learning skills. Parental factors are also important in the use of ICT and English as a foreign language (Pfenninger, 2016). The use of ICT by the parents exposes children to new vocabulary at an early age, which makes the process of EFL more interesting and motivating. In the preschooling age, children learn various new things, and they have language developing capabilities. The educational provisions of language learning can develop at the early ages and children can be educated through the medium of English. Starting school can be difficult for children, as they may find problems in adjusting. Therefore, the teachers and educators can develop the learning framework that can help children to develop language learning skills, as well as impact their whole personality (Pfenninger, 2016). Therefore, it can be said that technology in the early years of life can have a major impact on the learning or more specifically on language learning skills of children.

Several researchers have signified the importance of ICT for teaching foreign languages. Yun (2014) supports the use of technology for teaching a foreign language, especially through movies and documentaries that display the use of everyday language. Li and Brand (2009) explained the significance of music and song for the same purpose, and Ching and Fook (2013) examined that graphic literature can be very helpful in developing the skills of critical thinking in language learning.

According to Boody (2001), the major problem for the education sector is that it fails to accept ICT as the major societal and communication tool in education. Some other educational and economic factors are also considered as the obstacles that must be addressed. These problems in providing the holistic sense of the stakeholders who are involved in ICT use in education are now addressed. The most effective and important strength of ICT is that

it can be rendered in the software form as well as the online tool. It provides the software-based and online platforms for the learners to solve various problems.

In 2001, the phrase 'digital natives' was coined by Prensky. Digital natives refer to the young learners who have shown interest in ICT by being enclosed and absorbed in the environment that supports ICT in various aspects of their daily lives (Prensky, 2001). Some scholars and researchers have agreed that children have a natural inclination towards the use of ICT (Fisher and Baird, 2009;Palfrey and Gasser, 2008; Rideout and Hammel, 2006; Rideout et al., 2005; Tapscott and Williams, 2007; Veen and Vrakking, 2006). From an educational point of view this generation is called the 'new millennial learners' that ECE must cultivate and accommodate (Vandewater et al., 2007; Pedro, 2007).

There is a clear necessity according to which ICT should be a significant curriculum component to be introduced in the field of education. It is of great importance for both internal and external sectors of education (Selwyn, 2011a). Such necessities have also been acknowledged in the literature and have supported the rationales for ICT use (Hawkridge, 1989; Kozma, 2008; Robertson et al., 2007). The internal rationales are those concepts that specifically explain that ICT can be used to improve and reform the educational practice, while the external rationales are the societal pressures that specifically come from outside and put pressure on the education sector to fulfill the needs of the young learners through ICT.

The priorities of the rationales are reflected through ICT and thus bring a set of external pressures for integration (Selwyn et al., 2010). The main priority is to keep up with the needs of children in the digital age and meet the expectations of the public regarding the questions regarding how and why ICT should be integrated into education. It must also acknowledge the priorities of educational policy. Another pressure associated with the use of ICT is that

teachers should ensure that technology is being used safely by the young learners (Selwyn et al., 2010).

2.5.1   External Rationales for using ICT in Early Childhood Education

The external rationales include the economic and reasons for using ICT. The role of economic rationales is to explore the support of the government for promotion of ICT in the field of education through various provisions, resources, policy and funding by government as it is going to design the future workforce that will be technologically literate and will be prepared to work in the 'Information Age' (Kozma, 2008). It has also been seen that in many developed nations that have risen to success via manufacturing are now witnessing a decline in manufacturing and are now working towards creating knowledge-based economies, mainly driven by technology (Selwyn, 2011a).

It has also been noticed that most developed nations have their own elaborate and detailed 'educational ICT strategy', which has a specific and broad aim of encouraging schools to use ICT for the purpose of teaching and learning Countries like the USA, the UK, Singapore and South Korea have introduced national policies for ICT use in education to promote the use of ICT in ECE, as mentioned in the policies of Scotland and New Zealand. Some of these policies are also witnessed in the developing Arabic countries like Jordan. The young learners of the country are required to be provided with the learning that also includes ICT so that they can prepare for the future and can become technology-able learners who will help in driving the economy of the country in the future (Holloway and Valentine, 2003). For involving the young learner in the process of development, integration of ICT in ECE can be considered as the initial step. This will prepare the young learners to adjust to the new

economic demands of the country, by providing them with the required knowledge and skills through various educational levels.

ICT tools have been very specific in reshaping the way people think and act in their daily lives, and dictate the changes through bringing change in their everyday habits (Robertson et al., 2007). There is a justification to use ICT by the young learners so that they can understand the social aspects of technology. Playing and learning through ICT at a very young age will encourage creativity and critical thinking, and will help to create social cohesion, and will also help them to develop the skills of sharing knowledge (Kozma, 2008). The focus should be placed on the fact that young learners are going to become the adults of the future (Lee, 2002, cited in Plowman et al., 2010). Technology is also a significant way of promoting autonomy; people can socialise over long distances and keep up with the continuous development processes. The early learners are specifically exposed to the technology firstly in their home environment (Stephen et al., 2010) and, in turn, ECE institutions are required to make the investments in ICT so that they can keep up with the ever-changing communication, social, and technological needs of society (Selwyn, 2011b).

2.5.2 Internal Rationales for Using ICT in Early Childhood Education

Research has found that there are some internal pedagogical justifications for the integration of ICT in the play and learning activities of young children. It requires the administration and teachers to prepare the activities for benefitting the young learners. The two main justifications are *management* and *reform* (Kozma, 2008). The reform of the system is associated with bringing changes in the playroom practices, and also includes the children's progress reports and data. ICT can also work as an effective tool forthe educational

management, which can promote and support accountability and decision-making. The process of learning and development of young children can be powerfully influenced by the use of ICT in education (Selwyn, 2011b). The cognitive development of children can be promoted by ICT, as it can work as an effective social tool that can enhance active learning and solve various real-world problems (Selwyn, 2011a). ICT can offer a range of promotional tasks that can be used by the teachers, facilitators, parents, and learners themselves. The various problem-solving tasks can be supported by ICT that will improve the educational environment (Robertson et al., 2007).

There is, though, a distinction to be made between rationales of use, which, whether external or internal, come from outside of the teacher, and teachers' reasons for using ICT in ECE: use that is influenced by pedagogical knowledge, attitudes and understanding. These rationales, while pointing to the wider reasons as to why ICT use by young learners is important, do not consider in what ways we may ensure an in-depth integration of ICT into ECE (Aquilina and Bonnici, 2009).

2.5.3   Role of ICT in Early Childhood Education

In the field of ECE, there has been a very fierce debate about the role of technology in teaching and learning. The researchers, educators and parents have shown the concerns related to the detrimental effect of ICT in early childhood education. They are concerned about what negative effects ICT may have on preschool children (Laverick et al., 2008, Lynch and Warner, 2004). Some of the critical views towards the integration of ICT in preschools have stated that ICT in ECE will be an expensive and time-consuming tool and will take away the childhood of the children. This view comes from critics who believe that

ICT could speed up the learning process, and according to some researchers, the focus on technology has taken away the traditional childhood experiences (e.g., Healy, 2004; Cordes and Miller, 2000). However, those in favour of technology believe that technology should be allowed because it can bring many new things to traditional learning approaches and the learning environment.

The critics and proponents of ICT have agreed that physical, social, linguistic, cognitive and emotional development of the children is very important. There has been much debate around understanding the needs of young children, how ICT can support those needs, and how it will encourage the developmental experiences. According to Plowman et al. (2010), there are three main categories of need that are mentioned in the literature; these are cognitive, wellbeing and socio-cultural needs of children. The cognitive concerns of the children are very high because the researchers are concerned that technology can have the negative impact on the cognitive development of children. The concerns about the physical harm are also high because children exposed to computer games for very long periods can become obsessed, and the lack of exercise can cause various physical problems (Plowman et al., 2010). However, it is also believed that technological activities can enhance the play activities and learning. The critics of technology are also concerned about the psychological effects of technology, which can result in increasing the chance of violence, sex crimes and gender stereotypes. The socio-cultural concerns are also focused on children's ability to take part in various social activities. However, a lack of social interaction can occur due to the digital age and children often use technology in isolation, which is also considered as detrimental to social development (Healy, 2004).

These are some important debates that have surrounded ICT in ECE over the last three decades. However, most people support the use of ICT for the learning and development of the children. Stephen and Plowman (2002) and the New Zealand Council for Educational

Research (2004) have found that there is no clear evidence about the negative impact of technology on children or that t technology can pose a real risk for children. Plowman et al. (2010) made some assertions on the basis of anecdotal evidence or personal experience. The debate regarding the use of ICT continues in the literature, but no significant results have been found. Furthermore, Byron (2008) has found that the debate about the efficiency or inefficiency of ICT in early education is mainly formed on an emotional basis rather than being evidential (Bolstad, 2004).

For the purpose of pedagogy, a numbers of attempts have been made to use ICT that can be classified in the various kinds of educational and learning practices, which can provide great benefit to the learners. ICT provides an entirely new learning environment for children and, therefore, requires specific skills of the teachers and children as well (Noor-Ul-Amin, 2013). ICT use is a great way of enhancing critical thinking skills, evaluation skills and researching skills. For the young learners, the process of learning and activities will be different in comparison to children from secondary or elementary levesl (Noor-Ul-Amin, 2013). The integration of ICT through different attempts can be understood with examples like use of ICT in primary schools with the help of a tripartite classification of 'basic computer skills', which means development of the technical skills among the growing learners (Kennewell, Parkinson and Tanner, 2000).

Computers can be usedwith the information tools, which means they can be used to process and research information (Noor-Ul-Amin, 2013). Another significant use of computers is as a learning tool, where children can practice their knowledge and skills (Tondeur, Van Braak and Valcke, 2007). Newhouse and Clarkson (2008) classified justification for the use of ICT into 11 non-mutually exclusive purposes. These 11 classifications are associated with education in general and prove that ICT is appropriate for enhancing the learning and teaching experience in ECE. The study also suggests that even though ICT provides a virtual

world, it also specifically investigates reality by collecting data and interpreting them. This process also facilitates problem-solving and generating new data. ICT has the great capability of building knowledge, as well as for transferring and receiving feedback on knowledge obtained (Tondeur et al., 2007).

Gaining and obtaining new knowledge can be a very important process for learners and the active learning environment can be promoted by ICT that can authentically with the help of feedback from teachers and peers. The increased productivity can also be attained among the children with the processing speed of the technology. For the purpose of quality, the productivity of learning is very important, and ICT is very appropriate for supporting independent learning and a higher level of thinking. ICT also promotes collaboration and cooperation (Cross and Adam, 2007). ICT also has some of the specific intelligence tools that can be of great benefit for the learners who are physically disabled. It is found that these justifications can sometimes overlap according to Plowman et al. (2010), whose study focused on understanding the benefits of various intersections and overlaps. ICT can also help in developing the operational skills and allows to uses the existing knowledge of the world in various ways.

The aims of the research are, mainly to understand the integration of ICT in ECE but the controversial views that surround this issue require a more detailed understanding of ICT and its significance. ECE practitioners are required to be mindful about the debate surrounding ICT integration into ECE in order to ensure the positive development and well-being of young children. The significance and efficacy of the computers must also be determined because the computers are the most commonly used ICT tools in preschools (Plowman and Stephen, 2005). Therefore, the next part provides arguments from both sides —critic and proponent — for understanding the effect of ICT on the development and well-being of

young children. The discussion provides the more neutral perspective towards the advantages and disadvantages of technology in early childhood education.

2.5.3.1   The Arguments against ICT Use in Early Years

Computers were firstly used in school playrooms. Therefore, the general discussion is whether they are able to provide benefits when they are integrated with the education system for young children (Edwards, 2005; Elkind, 1998; Haugland, 2000; Plowman and Stephen, 2005). ICTs are the complete package of various technologies, while the most commonly used ICT is computers (Bolstad, 2004); these have been the most popular ICT tool for many decades (Siraj-Blatchford and Whitebread, 2003, Edwards, 2005). Most of the arguments of the researchers and educators are mainly concerned with the children's use of computers and computer games. One of the early debates was presented by Elkind (1998), which was mainly associated with the isolated use of the computers for playing or other activities. . According to Alliance (2000), computers are dangerous for the intellectual development and mental and physical well-being of children. Healy (2004) also expressed similar concerns related to the use of computers by young children and the influence of sponsorship by private technology companies.

According to the critics, the young children are often considered as the most vulnerable beings, and many factors can negatively influence their cognitive, social, emotional and mental development around technology. Some of the recurring issues identified in the literature related to the concern of the use of computers (Bolstad, 2004; Byron, 2008; UNESCO, 2010; Plowman et al., 2010) are:

- Physical harm can be caused to the children by using computer games for the very long periods of time.

- If the computers are used too often by t children, the problem of social interaction can occur, and children can become anti-social, isolated and aggressive.

- Another concern is that use of a computer can actually trespass on the normal child's normal cognitive development.

- The risk of children being exposed to crude content, related to violence, sex, crime and racism.

- Another risk is that the computer can replace the more productive and more effective play activities.

Plowman et al. (2010) specifically focused on the screen-based media technologies through which children in the current world specifically come in contact with one another, and that can increase the possibilities of isolation and lack of exercise. One significant concern is also raised by Miller (2005) who claimed that educators' reports about those children who are adept at using computers also show that they may lack imagination. Miller has urged scholars to engage in a wide-ranging debate about technology. The literature on whether computer games may cause violence is ambiguous (Griffiths, 2000; Linderoth et al., 2002). As a consequence, there seems to be an emphasis upon practitioners for considering what games may or may not be suitable for children's development.

Miller (2005) has followed the perspective of David Elkind. Therefore, he has also suggested that there is the lack of evidence related to the use of ICT, but it can significantly impact children and can help in regulating emotions, promoting problem-solving and encouraging imagination among children. The worries of Miller have been primarily unfounded (Cordes and Miller, 2000). The given argument can be considered to be very aggressive towards the

use of technology by the young children and, according to the argument, technology should be suspended immediately and barred from being used in ECE environments. Instead, the author has stated that children should be exposed to spontaneous play activities, sports, arts, music and gardening (Cordes and Miller, 2000). However, this approach has been criticised by a number of studies and even wholly rejected. According to the critics, the approach is considered as the old combination of panic and reminiscence (Buckingham, 2000, cited in Plowman and Stephen, 2005). The studies have also posited that some of the researchers and practitioners have over-reacted to the facts that arise whenever technological advancement takes place (Linderoth et al., 2002). It can be said that technological progress has been criticised from the start. However, technology has been accepted by society after some time and is now effortlessly assimilated into daily life (Pohio, 2009).

Another primary concern about the use of technology and computers is associated with the fact that the more time children spend with technology, the more they will lose interest in the traditional learning and playing activities (Hammed, 2014). However, some of the facts from the literature suggest that this concern is apparently unjustified. Pohio (2009) conducted a national survey to find out if the children between the ages of two and five spend approximately half an hour a day on computers and whether the time spent using computers increases with age. However, the results have shown that using computers at homes can help in enhancing their use for academic purpose and can also influence the academic achievement of children (Pohio, 2009).

Supporters of Steiner Waldorf education have taken a critical position and believe that children should only play and learn in the natural and non-artificial environment, which means explicitly that use of ICT must be rejected entirely; and it also rejects the use of toys made of plastic, such as Lego. The rejection of the mechanical and manufactured artefacts is mainly associated with and perceived from the de-humanising aspects that prevailed in the

industrialised society of the nineteenth century. However, It can be the reasoned assessment of the needs of children from the twenty-first century (Siraj-Blatchford and Whitebread, 2003). Siraj-Blatchford and Whitebread (2003) also argued that ICT applications are very educating as they can enhance the creativity and imagination among children.

Siraj-Blatchford and Whitebread (2003) also suggested that opposing the integration of ICT in ECE is mainly based on the fear that children can become anti-social and isolated in the learning process if technological methods are used for teaching them. Many of the objections raised by scholars and researchers towards the introduction of ICT into ECE are mainly based on the belief that children will become passive and isolated and will not be able to grab knowledge and to learn effectively from their environment. Children will not be able to experience new things if they are restricted to technology for learning (Pohio, 2009). However, the critical evidence contradicts these concerns.

2.5.3.2 The Educational Advantages of ICT Use in ECE

Some of the early literature studies in the past have considered that technologies can be a really powerful tool for children; and can influence their learning capabilities and encourage them towards creativity and exploration in a unique manner (Clements and Samara, 2003; Yelland, 1999). Several other studies state that for social development and social skills enhancement, ICT in ECE can work as a very useful tool (Fischer and Gillespie, 2003; Hertzog and Klein, 2005; Mouza, 2005; Kumtepe, 2006; Weiss et al., 2006). Technology can encourage children towards exploration, discovery, problem-solving, critical thinking and creativity. ICT can also help in developing the skills of self-guided instructions (Clements and Samara, 2003). A series of studies was carried out by the International Society for

Technology in Education (ISTE) that further advocates the efficacy of computers and technology and how these can create meaningful ways of learning for young children. The studies have proved that technology and computers can build an effective comfort level of technological skill among children (Pearman and Lefever-Davis, 2006).

The evidence from the contemporary literature also points to changing perceptions of ICT in ECE, and this is the reason that the number of ECE services that are using ICT is increasing, where the technology not only means computers, but various other tools included in ICT (Colbert, 2006; Edward, 2005;). Therefore, there has been a shift in the literature about analysing the advantages of ICT in education and the practitioners believe that ICT integration should be more thoughtful and monitored (Ramsey et al., 2006; Visser, 2000). There is another problem that many of the technologies are being overlooked as ICT tools by the ECE practitioners. These overlooked technologies are tape recorders, fax machines and overhead projectors. This is the reason that more contemporary and modern ICT tools, such as whiteboards and video cameras, are being used in the early years' learning environment (Erb, 2008; Ramsey et al., 2006; Tringham, 2006).

The global body of research and more detailed studies have brought about a shift in the perspective of the people towards the use of technology. Modern studies have identified many new ways in which ICT can be introduced and used to enhance the learning experiences of young children. The study of Cochran-Smith et al. (1988) was an early work of literature that argued the advantages of technology and acknowledged that technology could significantly improve the writing skills of children. Another significant study that observed the benefits of technology was by Hess and McGarvey (1987), which informed that technology could enhance the problem-solving, scientific and mathematics skills of children. Furthermore, Weir et al. (1982) have also asserted that have posited that technology can work as an effective tool for enhancing the learning abilities of the disabled children.

Colbert (2006) study gave an example ofthe ICT enriching playroom practice where the activity of storytelling can be done with the help of software, and where simple music skills can also be transferred to children. The benefit of the new technologies is that they are intimately bound with the process of language learning, stories and even arts. Another significant aspect of technology is that it provides exciting new ways of learning and also provides a plethora of the tools for the teachers and children to improve the process of teaching and learning. The technological tools can present information in a more creative and artistic manner (Sefton-Green, 1998).

According to the evidence presented by the existing literature, the idea of introducing ICT to ECE is not just imaginative or pervasive; this idea has been based on the evidence and the valuing appreciation of the technology (Haugland, 2000; Hayes and Whitebread, 2006). The preschool learning stage can be considered as very challenging and crucial in shaping the engagement and interaction of young children with society world around them because the various influences of this age will impact the future of children (Reed and Canning, 2010).

As Adams and Brindley (cited in Hayes and Whitebread, 2006) further note it is nursery teachers who are confronted by the difficulties and intricacies of integrating ICT into ECE and they often aim to solve these problems with enthusiasm and educative rigour. All practitioners and stakeholders have to work together for ICT to fulfill its potential (Colbert, 2006; Jordan, 2006; Ramsey et al., 2006).

The socio-constructivist Lev Vygotsky contended that there are two different types of learning tool: *psychological* tools such as language, art or diagrams, and *tangible technical* tools that are external, alter the environment and can be integrated with psychological tools (Vygotsky, 1930). ICT is a technical tool that can be incorporated with the psychological tools. This integration or incorporation into ECE should be done, according to Siraj-

Blatchford and Siraj-Blatchford (2006), so as to encourage positive dispositions to learn. As the UNESCO (2010) policy reports, children should be allowed to explore ICT tools so as to tailor them to their own learning.

UNESCO follows the example of Siraj-Blatchford and Siraj-Blatchford (2006) who set out the four key areas of learning with ICT: communication and collaboration; creativity; socio-dramatic play; and learning to learn. These are categories through which we can understand how ICT can support child development. The first category concerns children assisting each other during their learning with a range of technology, such as programmable toys or drawing programs. The second stipulation of 'creativity' involves using technology to adapt the contexts in which early learners follow their learning schemes. The third category of 'socio-dramatic play' involves using software and touch-screen technologies to promote social role plays; finally, the process of 'learning to learn' involves using ICT programs to allow even very young children to reflect on learning and support their Metacognitive development.

Again, following UNESCO, Hayes and Whitebread (2006) consider the use of ICT tools in depth in the playroom, in terms of how they may support child development while taking a more holistic approach to studying the surrounding environment. They add more categories of learning: ICT and literacy; ICT and mathematical understanding; ICT and science; creativity; problem-solving and playful uses of technology (games and simulations); visual literacy and painting; media education (digital animation); and learning music. The emphasis that Hayes and Whitebread put on learning is on helping children to gain confidence to learn creatively through ICT.

The use of ICT in promoting literacy among early learners is a common theme in the literature. Literacy is no longer constrained to reading and writing but also to becoming literate in the full range of communication mediums that surround young learners (UNESCO,

2010). Technologies in society are changing the way that we communicate, and children need to be literate in them. Software now develops literacy not solely for formal reading and writing but in order for the child to nurture their understanding, thinking and creativity. In this sense, as the UNESCO report agrees, the supposed gap between speech and writing that Vygotsky stressed, as well as the difficulty of motivating children to learn to write, can be bridged in part through the use of technology in the playroom.

Clements (2002a, 2002b) suggests that learning with and through ICT can enhance the learning of mathematics. This finding does assume, though, that practitioners are skilled in the proper software and aware of the ideal outcomes for learning. He suggests that children can organise and scaffold their high-order thinking through exploring ICT scenarios. We need to investigate teachers' actual skills with ICT and problematise such assumptions; this study assists in complicating such assumptions by giving teachers a voice through which to express their abilities with and attitudes towards ICT. Compounding this issue is that preschool teachers need to both engage and challenge individual learners in a complex manner in just one playroom session (Siraj-Blatchford and Whitebread, 2003). ICT tools can help alleviate such issues in teaching maths problems to young children but only if teachers are confident with software and have the appropriate ICT skills (Clements and Sarama, 2003).

The unique quality of ICT is the richness of the worlds that it may open up. Reality can be rendered symbolically in both electronic toys and in computer programs that replicate real-time scenarios. This involves planning that is closely linked to mathematical skills and, in turn, the ability for children to nurture these skills is called 'algorithmic literacy' (UNESO, 2010). Programs that promote this literacy include software that attempts to mirror everyday events or use imaginative scenarios to enhance and sharpen planning skills. For example, the early Russian program *PictoWorld* from the 1980s, developed by Moscow State University,

challenged users to navigate a robot safely out of a digitally rendered maze. For children who practiced on the program, using symbols to control the robot began to become intuitive, and so suggested a cognitive development in controlling.

Also, research by Cohen (1988; 1994) and Brooker and Siraj-Blatchford (2002) supports the idea that using animation and visual ICT aids can bring together learners from different backgrounds and with different first languages. It is ICT's status as supporting cognitive processes in an integrated curriculum that is most appealing to practitioners as it nurtures abilities to learn, create, think, communicate and collaborate.

2.5.4 Playful Learning through Technology

The increasing availability of technology at home and in early childhood settings has transformed the way of learning. Vygotsky has already informed us that play activities can be beneficial for children in the learning process, as in the play and playful activities the child may also behave beyond their age, which also enhances their learning process (Kervin, 2016). Similarly, the use of technology in playful learning can be beneficial for the young learners. Verenikina and Kervin (2011) found that play and play activities are often spontaneous, self-regulated and self-initiated for the pre-school children, which may not be goal-oriented. However, the playful activities intrinsically motivate young children to display their internal desire to engage with play. Play allows children to take control of their own actions and develop their autonomy. The studies have also informed us that play helps in fostering learning and language literacy skills and that developing language skills is very important for social interactions and social achievements (Kervin, 2016).

Play is considered as a combination of thoughts and actions. In the case of young children in the early childhood setting, the meaning of play is to associate their experience with the context of activities of everyday life. Children play and their playfulness is considered as an important part of development (Kervin, 2016). Social exchange, learning about self and environment, as well as developing a relationship with others through interaction are some of the examples that are associated with play. The authors have also considered play to be a tangible or an abstract experience, which is also a free activity for children. Vygotsky (2004) associated the topic of imagination and creativity with play, as he suggests that during play children combine their experience of everyday life to create something new. Therefore, imagination and creativity are also important skills associated with play. Sicart (2014) has considered play as a portable tool that is used by children as a way of expressing themselves and engaging with the world. Fleer (2014) has found that during play young children often find themselves on the crossroads between the physical world and the imaginative world. Therefore, the play is not just for fun, but also helps in the progression of thought which in turn enhances child development.

Play also helps children in the progression of thoughts that helps children to develop and engage in a learning process. Fleer (2014) has built her theory on the basis of Vygotsky's and Leontiev's theories and has improved the range of theory by adding the current and historical cultural perspective of play in the context of the digital play experiences. She has also postulated that psychological development of play among children firstly focuses on exploring the functionality of the object, which will later be helpful in providing the meaning through the process of social interaction. She also states that *"objects embody socially produced meaning"* (2014: 16) and further suggests that children's imagination during play can go beyond the socially constructed meaning of the object; and that children learn this through the development of play. The digital instruments are considered as learning tools by

educators and parents alike, and are also directly linked with fun and play. Such tools, such as mobile phone, iPads or Tablets have become the digital toys for children. Acts of play on these digital tools can be the child's own approach, which can allow them to explore and find new things. There are also various apps that promote playfulness for children. However, the use of appropriate digital apps can be beneficial in encouraging the learning process through playful activities.

Marsh and Hallet (2008) also identified the significance of playful learning for the development of language skills. Digital play can also be a significant part of language learning. Kervin (2016) identified the use of the iPads and providing it to children with different apps, and stated that digital apps could be a significant form of playful interaction. The digital technology has the potential of helping children to expand their language skills by developing a "*repertoire of language resources*" (Kervin, 2016: 70). The study further informs us that carefully selected digital apps can be beneficial in children's interactions by empowering them with learning opportunities. Adopting technology in the teaching and learning environment can also help in facilitating versatility in the children's learning experience, as it can provide many opportunities to children for reading, listening, communication and also writing. Digital technology can provide a range of activities and scenarios that can replicate real-world experiences for children (Amolloh, Lilian and Shaji, 2017). Game-based learning can be very beneficial for the children and also helpful in educating them. Researchers have asserted that digital interfaces are significantly built on the collection of visual elements. Playing on the digital tools also allows children to decode many important processes; this decoding is also seen in language learning (Amolloh et al., 2017). Therefore, the literacy extends beyond the acquisition of reading and writing skills and allows the children to use these skills in the appropriate context (Larson and Marsh, 2014).

Marsh (2010) reports that digital technology and the virtual world are becoming increasingly popular among young children and also provide many chances of engaging in playful activities. Therefore, the technologically-created virtual world can provide many play opportunities which can enhance the engagement of children in the learning process. Marsh (2010) states that "*in virtual worlds, children have opportunities to construct, reconstruct and perform identities and learn how to engage with others in online forums*" (p. 36). This helps in enhancing their engagement and gives them opportunities to develop various learning skills. The purpose of learning can be enriched through play that is based on technology (DeHaan, 2011). Different digital apps have the power and potential to provide authentic and challenging learning environments to children. Also, technology provides many artifacts to children, which can be used and manipulated for the purpose of learning. DeHaan (2011) has discussed the significance of the digital games that could become part of the playful activities in classrooms and can be helpful in second language learning. The study found that game-related media have been very helpful in improving the English spoken and writing skills of children, who did not have English as their first language. The study also suggests that language teachers can effectively use the digital game-based teaching and learning projects, as it can potentially impact the language learning skills of children (DeHaan, 2011).

Yelland (2010) also states that play can be considered as a rich and an effective medium as it can significantly help young children in developing physical, social, emotional and cognitive contexts. Play activities can serve as the best way for children to develop their autonomy, and to learn about personal self and their environment.The play is self-selected; it helps in activating the mind, and allows children to focus on their personal powers of learning. Therefore, playful activities can serve as the best activities for children in early childhood settings. Yelland (2010) further discusses the integration of technology in learning and playful activities. The author postulates that the lives of young children in the contemporary

world has become digital and most of them have their first experience with technology in their homes. Authors also assert that the use of technology can be a valuable context for learning and — with the support of the adults — children can learn to use technology effectively for the purpose of learning (Yelland, 2010). Therefore, it is important that digital technology being used in the early childhood settings should be playful in order to enhance children's engagement, activate their cognition, and allow them to explore new concepts and knowledge (Buckleitner, 2011).

Froes (2017) conducted research to examine the effectiveness of playful literacy and the use of technology. The author found that cognitive development of the children can be achieved through playful experiments. The role of play has been mainly associated with children's development and learning (Froes, 2017; Marsh, 2010). Play and playfulness have been associated with Piaget's theory of cognitive development that states 'learning by doing'. Froes (2017) also supported the use of technology in play and informed us that digital technology can be an integral part of learning. Technology allows children to develop multiliteracies and also provides the opportunity for multifaceted interactions. Since digital platforms and technology are an integral part of the lives of children, it can be effectively used to enhance their literacy and learning (Ejsing-Duun and Skovbjerg, 2015).

Fleer (2014) states that there is a significant relationship between play and digital technology use. Young children get many opportunities for interactive and responsive play activities. Therefore, technology can be effective in providing them with the opportunity to engage in language-rich interactions and to make real-life connections. Fleer (2014) also looked at the use of digital technology in playful activities from the perspective of motives and demand. Therefore, it is also important to understand the motives that can enhance children's engagement in the learning process and can create the learning demand among children. Therefore, for literacy development and language learning, children should be provided with

a playful digital environment, where they also receive the support of teachers to become effective learners (Kervin, 2016).

2.5.5   Use of Tablets in Education

In recent years, it has been found that children have increased the use of technology in homes and in schools (Endrizzi, 2012). Therefore, people believe that technology is the future of education (OECD, 2011). According to Livingstone (2012), technology has changed society from the top down, and mainly in terms of education. Google and many other search engines have flooded society with information. Teachers can also develop and enhance their educational skills through learning from Internet resources and can develop the skills of children through interactive smart boards (touchboards), laptops and Tablets. According to Serres (2012), the alarming technological shift in society is mainly due to the invention of writing as cautioned by Socrates. However, some scholars fear the widespread use of technology in classrooms, as they believe that it will destroy the tradition interpersonal relations (Mouissset-Lacan, 2012). According to Dutta and Bilbao-Osorio (2012), the use of technology is considered as a good solution for improving children's education.   Thibert (2012) asserts that young people are highly connected to the Internet, which can be beneficial for this age group. Technology offers limitless opportunities in both formal and informal education (see Deschryver, 2010; Redecker and Punie, 2011). The techno-social changes have led to different ways to think about the digital divide; this is considered as the unequal access to the technology (Warschauer and Matuchniak, 2010). The technological imbalance is created due to the lack of technical skills in some, while others have good skills to effectively use emerging technologies. However, despite the many advantages of technology, it remains challenging to be introduced in the classrooms (Underwood and Dillon, 2011).

Literature has also found that there is a lack of pedagogical strategies that can influence the academic performance of children (Alluin, 2010; Thibert, 2012). A CEFRIO report (2011) states that use of technology by young people is mainly done for amusement, and not specifically for education or learning: The report also states that "*ICT is omnipresent in the lives of Quebec's children, who use them continuously to amuse themselves, to contact their friends …*" (p. 6). There have been many studies that have focused on the impact of technology on the lives of children and their academic performance (Livingstone, 2012), yet the importance of technology remains restricted to the technology that counts at the time, and not the complete system of technologies. Several studies agree with this stance (Fourgous, 2010; Paryono and Quito, 2010); these support the view that educators and teachers play significant roles in applying pedagogical integration of technologies. According to the study of Thibert (2012), the impact of technologies should not be assessed on the outcomes but should be assessed on the basis of the learning environment in which the technologies are being used. The main issue in the current research is that realising the complete pedagogical potential of technologies for education is not clearly determined (Norris et al., 2012). According to Norris et al. (2012), it is important to realise the potential of the classroom teaching trends in three significant manners. The three ways of creating an interactive environment are promoting the use of smart boards, Tablets, and laptops. The studies have focused on these tools and assert that a combination of technology can be used in classrooms (Erstad and Arnseth, 2013; Türel and Johnson, 2012).

Elementary schools around the world have been invaded by Tablets in recent years; to date, no other previous invention has been that successful. According to Etherington (2013), over 10,000 children in Quebec use Tablets in their classrooms, and the number of children in the US using them exceeds 4.5 million. These examples explain the potential of technology in the education system, as it also motivates children towards learning (Underwood and Dillon,

2011). This device – the Tablet – has only been used in classrooms in recent years; therefore, there is a very limited body of literature present to explain the impact of Tablets in classrooms.

According to Johnson, Adams and Cummins (2012), Tablets are considered the most appropriate tools for sharing videos, images, content and presentations, as these tools are easy to use, highly portable and virtually compelling. Tablets provide the opportunities to children to use various applications and various interactive learning and language teaching processes. The use of the smart applications can help in providing new insight into opportunities and innovations in language learning. According to Siyanova-Chanturia (2017), the teaching and learning process will be totally changed by the use of Tablets in the classrooms. This is because technology has the greater potential of providing an innovative educational approach. Tablets are significant tools because they also make the process of learning on the go easier and more convenient for the children. They are as capable as computers with various appropriate language-learning software and applications. Researchers have also acknowledged the importance of the touch-sensitive screens, which makes the process of interaction and learning easier (Stockwell, 2015). Another benefit of Tablets is noticed in the vocabulary instructions in English as a foreign language (EFL). The vocabulary learning instructions given in the classroom can be limited for a range of reasons, but vocabulary learning through Tablets is more comprehensive, as they increase the access of the children to more detailed vocabularies. The major competence of vocabulary learning is to achieve proficiency in the language (Siyanova-Chanturia, 2017).

The study of Profitt (2010) has also explained the potential benefits of Tablets. Tablets allow children to view the complete content of the school curricula (Profitt, 2010). The benefits and advantages of Tablets are only present in literature because of the lack of empirical evidence and findings, and the works of scholars are mainly based on the perceptions and ideological

rhetoric. The gap in the literature and lack of sound empirical studies has been found despite the benefits of Tablets. This literature review provides the opportunity to understand some significant benefits of Tablets (Johnson et al., 2012); these are listed below:

- Tablets help in increasing motivation (Kinash, Brand and Mathew, 2012; Sachs and Bull, 2012);

- Tablets facilitate the sharing and management of, and access to, important information (Hahn and Bussell, 2012; Pamuk et al., 2013);

- Tablets foster the performance of learning of children (Churchill, Fox and King, 2012; Fernández-López, Rodríguez-Fórtiz, Rodríguez-Almendros and Martínez-Segura, 2013; Isabwe, 2012; Ostler and Topp, 2013);

- Tablets allow the application of a wider range of teaching strategies (Fernández-López et al., 2013);

- Tablets also enable individualised learning (McClanahan, Williams, Kennedy and Tate, 2012);

- Tablets help in improving reading (Fernández-López et al., 2013; Zambarbieri and Carniglia, 2012);

- Tablets also help in encouraging and promoting collaboration among children, and also between teachers and children (Geist, 2011; Henderson and Yeow, 2012; Hutchison, Beschorner and Schmidt-Crawford, 2012);

- Tablets help in improving computer literacy skills (Karsenti and Fievez, 2013);

- Tablets are highly portable tools (Henderson and Yeow, 2012; Hill, Nuss, Middendorf, Cervero, and Gaines, 2012; Kinash, Brand, Mathew, and Kordyban, 2013);

- Tablet Improves the quality of pedagogical support (Murray and Olcese, 2011);

- Tablet facilitates learning how to write (Murray and Olcese, 2011);

- The organisation of the school work and assignments become easy with Tablets (Churchill et al., 2012);

- Versatile presentations can be prepared by the children (Murray and Olcese, 2011);

- Tablet can help the child to solve their learning problems (McClanahan et al., 2012).

2.6   Role of Teachers in using ICT for Teaching

The role of ICT has become significant in the process of language learning. Since teaching itself is an art, ICT can make this artistic process more significant. The teachers and educators have also acknowledged the changes taking place in the field of teaching. A shift has taken place in teaching methods from the traditional classroom teaching to more comprehensive and important teaching through technology. The main trend that has been found in the literature states that the main attention is given to the curriculum subjects and teachers, in order to understand the proper function and role of ICT in the complex educational environment. One of the significant reasons is that teachers play an important role in enhancing the learning process for the children and they are also responsible for deciding what approach should be applied in the classrooms (Hattie, 2009). The teachers and educators experience many barriers to the successful integration of ICTs in the daily teaching approach.   The literature has also focused on the significant concept of identifying the relationship between the beliefs, attitudes, personal values and competence of the teachers and their ability to integrate ICT into daily teaching. This is because teachers are considered as the key player in the education system (Mueller, Wood, Willoughby, Ross and Specht, 2008). The effective integration of the ICT tools in the language learning classrooms mainly depends on the skills of the host. The knowledge and skills of the teachers are also important for this integration. Teachers are the host, who can make the language learning process through ICT more influential and motivating. Zainal (2012) discussed the case study of four

secondary school teachers who use ICT in teaching English as the second language. The study reports that *"use of technology is guided by the dynamic relationship between teachers" technological, pedagogical and content knowledge"* (p. 234). It was found that the use of ICT by the teachers in schools for language learning is a very effective method of teaching. The study found many other benefits; for instance, the use of ICT enhanced the language learning awareness and language learning motivation among children.

Also, it has been found that there is a unique tendency in the literature to draw attention to technology, portraying it as the 'new' technology. Some of the evidence from the previous research has shown that it is very significant that teachers have positive experiences with ICT. The positive experience of the teachers with the subject, which they are looking forward to teaching in the class, is important for making use of the new technology (Mueller et al., 2008). Some of the evidence from the literature has shown that for the successful assimilation of technology in the teaching and learning system, it is significant that the general pedagogical approach of the teachers must correspond with the specific characteristics of the technology (Zhao et al., 2002).

The common characteristic that is required for the successful projects is that the teacher finds a close connection between the curriculum and technology, and must accept that technology has an educational role, rather than being a technocentric approach. Some teachers may believe that use of ICT is just about the integration of technology in the educational or learning system; however, ICT has broader implications in the field of education. English language teachers may have various questions regarding the integration of ICT in the process; however, they must have clear knowledge and understanding of the process, so that they are able to support the learning abilities of the children (Yunus et al., 2010). The teacher may find the integration of ICT in the English language learning difficult for a number of reasons such as inadequate nature and delivery of the training to the teachers (Yunus et al., 2010).

This means that technology must be accepted to have the specific objective of the education, rather than considering the integration as merely a new approach, as it will be the end of technology if the teachers do not have the right approach towards the use of technology (Zhao et al., 2002). The findings of the previous studies have suggested that research should be focused on the important role of the teachers in integrating the new technology into the individual teaching environment and promoting the use of technology in childresn's learning (Hubbard, 2017).

The importance of the role of teachers has been not significantly discussed in the literature. However, teachers play the most important role in the whole process, as they are responsible for the delivery of the knowledge and skills to the children and also for increasing the competencies and learning abilities of the children. In the study of Hismanoglu (2012), the teachers who took part affirmed that they do not find themselves to be sufficiently competent for using ICT in the language learning classrooms. The results of the study explain the lack of training among the teachers, which make them less confident about the delivery of the study material through ICT (Hismanoglu, 2012). Before the assimilation of ICT in the language learning classes, the teachers are required to be provided with in-depth knowledge and skills for the positive and effective delivery of language learning skills to the children. Sometimes the teachers may be stressed and overwhelmed by the use of ICT because of their limited awareness towards technology (Soussi, 2016). The only way to overcome this problem is to enhance the capabilities of the teacher and to develop a positive perception of the teachers towards the use of ICT in EFL classes.

The success of the project of integrating technology in education is also based on the fact that child desire to participate in new technology. Most of the teachers in EFL learning often complain about the children, who are very poor in speaking and communication skills. Such children find it difficult to communicate in English when they are asked to do so, as they

become reluctant and simply do not dare to use English in the classroom (Levy, 2009). The evidence has shown that this reluctance of the children and lack of participation in second language learning is mainly due to the artificial environment of the class (O'Dowd, 2009). This is the reason why, when children are asked to communicate in English, they hesitate to communicate in the second language. For actual learning the children must be involved in the real situations and must be allowed to communicate about different situations so that the unnecessary fear of using English in the classroom can be easily eliminated (Levy, 2009).

The authentic and actual settings are required where the children can feel free to ask for the advice, can display their agreement or disagreement, can make decisions and can collaborate with their peers. The teachers can encourage the use of technology and computers by engaging and encouraging children to use technology for preparing an assignment, collecting research information, and other activities. Effective and efficient communication between the teachers and children is very important for seamless learning (Dörnyei, Henry and Muir, 2015). Thus, the teachers must promote effective communication. Computers can be effectively used as the second language learning devices. Some of the other forms of technological equipment that are used in classrooms are VCR, tape recorders and CDs. It is also significant that teachers must ensure they maintain the classroom learning environment and computers must not be turned into the centre of attention. Otherwise, this will distract the children from the main learning requirement. It has been found that in some circumstances, the computers can become the centre of attention, and this should be avoided (Moursund, 2007). Therefore, it has been found that more focused interventions in language learning through technology are required (Dörnyei et al., 2015). However, the approaches and strategies are required for preparing the more effective learning activities that can eliminate the computer as the centre of attention, and complete attention should be direct to the learning process. The language learning activities are to be designed creatively and innovatively so

that children focus more on learning and less on the type of technology used in the classroom. ICT tools can make the classrooms more learner-centred and interactive, resulting in the successful knowledge transmission by the teachers.

The use of ICT and assimilating it into the language learning process can ensure the effective and successful learning experience. The teachers are also required to be aware of the ways through which learning can occur (Divaharan and Wong, 2003). According to the evidence presented in the work of Roschelle et al. (2000), technology has the potential to improve the teaching and learning processes. Through this process, children can learn with the help of active engagement and participation in the real-life situations (Roschelle et al., 2000). One important factor for the language educators is to understand the perception of the children. More research is required to prepare evidence-based studies that can include the perceptions and the needs of the children. This will help the educators and teachers to design more interactive activities through ICT in language learning classrooms.

Apart from knowing how the process of learning takes place among children, teachers must also have good knowledge about the pedagogies through which children can learn the language and how this language learning can be enhanced with the help of ICT (Wilson, 2002). With the above evidence, it can be said that ICT can be very effective tool in enhancing the English language teaching and learning process and improving the experience of teachers and children, particularly in the case of EFL (Pedaste et al., 2015). The explosion of electronic devices has provided significant opportunities for teachers to select from the best available solutions that can suit the needs of the children and that can enhance their learning experience (Pang, 2016). The best available solutions can come from the empirical and evidence-based studies. EFL is a very important learning system all over the world. It is particularly important in the countries where English is used as the second language. The evidence about the children and learning interventions from such countries (like Saudi

Arabia) can help the educators and teachers to design more comprehensive learning activities (Soussi, 2016).

When children interact with computers, they also develop their motor skills as the process of using the computers involves the physical actions that specifically also enhance their development. The children also learn to gain control over their actions. They have the control over their learning process, by deciding when the actions have to be taken or not. However, one main argument is refers to self-pacing skills of the children because all children cannot learn at the same speed. Therefore, innovation and creativity are required from the end of the teachers to develop the creative language learning activities that can suit the abilities of all the children (Pang, 2016). The language learning activities will require more support and guidance of the teachers or the facilitators, as it will help boost the confidence of children and enhance their learning experience.

According to the evidence found in the literature, when implementing ICT in teaching and learning English, it is important that ICT skills training should be provided. It is also important that teachers should be provided with enough time to attain the required computer skills, as the use of technology will affect the educational performance of children (Samuel and Zitun, 2007). However, it has been found that, in many cases, required training is not provided; teachers are left to their own devices to figure out the process further. Such teachers have to get help from the online tutoring tools or the online practice community to attain the knowledge of technology before introducing it to their classrooms (Lave and Wenger, 1991). One advantage of this, though, is that theseteachers create personal learning networks (PNLs) (Couros, 2008) and connect with other educators over the globe to share their problems with technology and to get solutions to the problem. PNLs can be beneficial in the development of skills and competencies among the teachers. Such teachers are more efficient in delivering and transmission of language learning knowledge among the children.

Personal learning networks (PLNs) are developed to enhance the idea of creating personal learning environment (PLE), which is created with the help of the various web tools that are owned and used by the learner. This is the way through which the process of learning is shifted from institution to the learner and the process of learning encompasses the production of content, and transfer of content (Downes, 2007). Since 2007, the focus of technology leaning has been shifted to PLNs, and most of the learning in this process is achieved through connecting to other people. A significant example of PLNs or the purpose of language teaching is aPLaNet project (www.aplanet-project.eu). This is an important project that helps teachers to form their own PLNs for their professional development.

According to Perkins (2002), the process of continuing professional development (CPD) is a kind of personal and excellent tool that displays the passion a teacher has for their profession. This is the way through which teachers can connect online with their colleagues and can be able to implement the technology in an effective manner. Through this process, the teachers are involved in the process of ICT training for themselves and their colleagues. The meaning of being part of the larger ICT network is that language teacher, who are using ICT can regularly stay updated with new information and can get updates about new classroom technologies. However, the problem is that not all teachers have access to technology at their school, and this creates the situation of the digital divide (Pegrum, 2009). The teachers can overcome this problem of lack of technology by bringing their laptops to the schools or to the classrooms. One of the significant uses of ICT for helping children to learn a language through real-world situations outside the classrooms is called the process of tele-collaboration (Makaramani, 2015).

Tele-collaboration is a very important technology for creating a shared teaching and learning experience. This experience is facilitated by the use of Internet technology between the partners, who are distant from each other (Guth and Helm, 2010). Collaborative learning can

also be used to influence the children and to increase their interest in learning (Dooly, 2008). The process of learning is influenced by way of exchanging ideas, engaging in meaningful discussions, and taking responsibility for the knowledge generated.

For the process of tele-collaboration, children will be required to display individual accountability and responsibility to achieve the goals of the group (O'Dowd, 2011). Each member of the group should ensure he or she takes responsibility for their task in order to achieve the goals of the group task. The process of tele-collaboration also promotes social interaction, which can help in the intellectual development of children and improve their personal working skills (O'Dowd, 2011).

Another significant aspect of tele-collaboration in language learning is associated with intercultural aspects (Kohn and Hoffstaedter, 2017). Cultural awareness is the important part of learning a language because without having cultural awareness of the target language, it cannot be learned and understood effectively (O'Dowd, 2007). Corbett (2010) argued that the intercultural language which learners have to understand is how to interact effectively and how people connect with others and society as a whole. Corbett (2010) also states that the Internet provides a very significant opportunity to bring intercultural aspects to the classrooms and learning environment. The Internet also provides the opportunity to gain access to various authentic resources for learning the language and to understand different cultural practices. Guth and Helm (2010) state that tele-collaboration should be understood in the broader sense and should take into account in the intercultural aspects rather than just focusing on the pedagogical practice.

O'Dowd (2011) suggested that collaborative tasks are the best ways to increase learning and knowledge skills in children. This is because, through this process, children learn negotiation and develop their personal levels of competence. Social interactions could be a great way to

support development of the language skills. The use of technology can be very effective as it can easily connect different groups of learners in different parts of the world so that they can talk to each other, can exchange ideas, and can develop effective social interaction skills through telecommunication.

2.7 ICT and EFL

According to Isisag, 2012, many studies have suggested that the multimedia and media environment can be very supportive for learning a second or a foreign language and the language vocabulary. However, the material in these studies is mainly considered to be produced by the teachers, or to be commercial. The children involved in the process of language learning find computers a great source of information and for vocabulary learning. The computers and online platform allow children to interact and take part in online debates that are an excellent tool for the social construction of knowledge. Computers are a great source of information for the teachers as well as for the children. Learning EFL can be a very important process when the learning is initiated through computers. Teachers can access different information, learn new skills and get tips from other educators around the world so that they can enhance their personal language skills.

Elia (2007) has stated that ICT can also be a significant tool that can help in fostering intercultural competence, which is very important for the process of learning a second language. ICT provides a variety of approaches and learning styles that reinforce the significance of the learning material delivered in a different format. According to the study of Aparanjani (2016), ICT has a very interactive and dynamic nature, and ICT also has the capability of meeting the needs of learners. With such a dynamic nature, ICT provides a great platform to those learning English as a second language. The various ICT tools include the Internet, E-books, Audio Books and also Webinars that can help the learners achieve better

learning capability. Enjoyment can be part of the learning process that has the ability to captivate the learner and maintain their enthusiasm for personal discovery and interest. For language learning, it is very important that children have the enthusiasm and desire for learning, which on the other hand also improves the motivation of the learners (Tamo, 2014).

It has also been found that children enjoy working with ICT and they love using ICT particularly as the tool that can help in developing theie language learning skills (Yunus et al., 2013). ICT attracts children because it is both complex and challenging, and a source of fun; yet it has become an integral part of the everyday life. Lanni (2005) found that when ICT is used by children in the classroom, it can significantly improve their language learning skills and other skills related to the handling of information. The ICT skills allow the children to use creativity and innovation and allow them to use the various ICT applications for the purpose of language learning. The creative process and the integration of ICT make the language learning process more interesting for the young learners. ICT also provides the opportunity to the children to develop their personal skills and to share their knowledge with other children. When the ICT skills are mixed with the other skills that the children have, it can be an important benefit for them as through this process they can gain much more than expected. The knowledge-sharing process is very important in the modern learning environment. The children in today's modern society are required to be exposed to various resources to enhance their knowledge, skills and capabilities for becoming employable in the future (Leung et al., 2013). ICT in general provides the innovative approach to learning and knowledge sharing among the children, while the ICT tools provide the collaborative platform for sharing their knowledge with other children (Leung et al., 2013). The children's incidental and natural acquisition of technology skills provides them with information regarding the management of the hardware and software so that various complex tasks can be completed and solutions to the problems could be found. ICT has given rise to the e-learning

devices that can be easily used by the teachers and children for the process of language learning. The flexibility and anytime availability of the ICT tools have made them the powerful tools for language learning (Nejdl and Tochtermann, 2006).

Jarvis (1998) asserts that it is important to integrate the basic IT skills in the EFL classrooms, as it can help in developing the language learning skills and can equip the learners with the important technical skills. However, the application of the skills goes beyond the EFL classroom, as the children can apply it to the workplace and/or to the subject-specific studies at colleges and universities in the future (Noor-Ul-Amin, 2013).

Lanni (2005) lists some important skills and strategies that can be included in the ICT-based language activities:

- The skills of technology must include knowledge about using hardware and software.

- Navigation skills can also be included that encompass search, evaluation of sources, discrimination, skimming, scanning, material, types of texts, style, and information.

- The strategy for making the correct choice of suitable paths inside the hypertext/hypermedia so that desired outcomes or the results can be obtained.

- Defining the important characteristics of the information (origin, quality, relevance, reliability) (Lanni, 2005).

- Appropriate use of the search engines (that includes planning the search, setting the appropriate keywords, and using the variety of search engines according to the requirement of information.) (Lanni, 2005).

- Using information according to the pre-determined purposes and tasks.

- Using written language as the important means of communication (formal/informal); for example, e-mails, online chats and also blogs.

- Using spoken language as the means of communication as well, for example in video conferences (Lanni, 2005).

- The oral or spoken language can also be used as the means of communication during debates, discussions, reporting, negotiating and mediating inside the classrooms with friends, classmates and teachers.

ICTs can be considered as the new significant sources of information in comparison to the conventional classrooms if they are used in the proper manner. ICT can be an important asset for the foreign language learning classrooms. It is important to assert that the Internet is a significant tool that has the potential for aiding not just language learning, but the process of learning and users' ability to find new ways of integrating ICT in language learning. This means that general methodology is important (Windeatt, Hardisty and Eastment, 2000, cited in Lanni, 2005). Computers and the Internet have driven radical and far-reaching changes in the ways learning and teaching take place in the EFL classrooms. Lanni (2005) states that computers and the Internet are valuable resources, as they provide the opportunity to the teachers to make the teaching process more visible and comprehensive and also help in organising and analysing information. Therefore, the children get the opportunity of learning about different kinds of styles, media and texts that can help in improving language learning and language understanding.

Some of the most significant existing pieces of literature related to the employment of ICT in the English Language Learning are Alabi (2005), Aremu (2011), Aremu and Sulymon (2012), Darhower (2002), Durrant and Green (2001), Egbe (2009), Fehring and Green (2001) Gruber (1998), Oni (2007), and Oni and Osunbade (2009), among others.

According to Durant and Green (2001), ICT (i.e. information communication technology) is the way of distributing information with the use of electronic gadgets for the purpose of communication.

According to Alabi (2005), such technological information can be easily accessed by the learners with the help of computers, the Internet, and mobile phones. Therefore, it would not be wrong to say that ICT is the most important digital technology that is specifically used to disseminate information in the contemporary world. Alabi (2005) and Horstein (2008) believe that Internet literacy and knowledge about technology is vital in the contemporary education system of the twenty-first century. The various components of ICT, like video conferencing and tele-conferencing, can effectively help in teaching and learning the English language. Adeleke (2011) states that ICT can provide the supportive interactive instructional aids on various subject matters, help in understanding the instructional material, and can also support in evaluating the assessment progress of children, helping with the specific subject matter, assessment of a child's progress, and understanding of the instructional material. A series of computer-based programs have emerged in recent times for helping in teaching and learning the English language. Some significant examples of these computer-based packages are Computer-based Language Training (CBLT), Computer-aided Language Learning (CALL), and Computer-aided Language Assessment (CALA), among others.

The Computer-based Language Training (CBLT) can be employed in teaching a wide range of subjects that also include teaching languages. CBLT is basically software that was specifically developed to train children in the acquisition of skills in language learning without the assistance or support of the teacher. CBLT is an interactive multimedia application that can include videos, images, texts, animation and graphic videos, which can collectively create the effective interactive experience for children involved in language learning (Hubbard, 2017).

This digital tool (CBLT) is used in various countries for the purpose of language learning such as in America, Latin America, the African nations and Asian countries (Aremu, 2011). The digital tool has been significantly appreciated and acknowledged by the scholars for the purpose of teaching and learning English. Another computer-assisted language learning software is Computer-aided Language Assessment (CALA). It is considered as an automated package, and is specifically used for understanding or evaluating the language learning skills in children (Lin, 2014). Computer-aided Language Learning (CALL) is another computer package that is specifically to help the language teachers. The package helps the teachers to prepare Internet-based simulations for English as a Second Language (ESL) (Beatty, 2013).

According to The British Council's ICT in Schools project (2006), the arrival of the computer was the major innovation in the field of technology, as it involves all the four basic skills of speaking (video), reading (text, images), writing (text) and listening (sound) required in language learning (Davies, 2011). The use of the multimedia computers by the language teachers can make the process of teaching more effective and authentic. The combination of the video, images, sound and text allows learners to do more than one thing at a time. The need of the young language learners is to have the opportunity of practicing the target language in various ways (Gilakjani, 2012).

The main process lacking in most of the EFL contexts is being able to interact with other learners, with whom they can practice their skills. Technology has opened new ways and has the potential to overcome this limitation, as it can provide opportunities to the learners, where they can interact with others. Language learning is becoming very popular with the help of face-to-face interaction through video conferencing (Phillips, 2010; Hew and Cheung, 2010; Zheng et al., 2009). The learners, who are at distant places, can come together through video conferencing, where they can effectively communicate in the common language and can share their cultural experiences. Some of the popular virtual worlds are OpenSim, Second

Life, and Active World that allow the learners to have the experience of living in a 3D space (Lucke and Zender, 2011).

The virtual worlds provide the opportunity of collaboratively developing content, meaningful interactions, and conducting discussions and debates. Children can also use tools like email, blogging and collaborative development of wikis (Terrell, 2011; Wang and Vásquez, 2012; Woo et al., 2011). The technology has many tools through which the personal and professional development of the learners can be achieved. Technology helps the learners to get involved in interactive activities for composing, exchanging and editing content. This will help the learners to produce comprehensive output; as Gass (2015) argued, that comprehensible output is important for learners to develop language skills. The engagement with language is very important to develop effective and productive skills.

Some of the common ways of using ICT in language learning requires ensuring that technology works seamlessly throughout the activity, where it is being used as the cross-curricular tool (Leask, 2001). ICT cannot be considered as an additional skill, but it is the most important part of language learning. Without seamless technology, meaningful and appropriate interaction is not possible. The main role of ICT is to enhance and promote collaboration, but it also influences scaffolding and personalised learning (Sutherland et al., 2004). The technologies related to broadband are very important, as the broadband-related ICT allows the learners to interact with each other over long distances and can bring the non-native speakers into contact with native speakers that will further enhance intercultural understanding (Kern, Ware and Warschauer, 2008; Whyte, 2011).

In this technological era, the learners have the experience of technologies at a very young age, even before they start going to school, which means when they start school, they already

have some kind of digital skills that can increase their participation in the technologically-driven activities at a very young age (Battro, 2004; Facer et al., 2003).

Most of the children around the globe who have computers and mobile phones in their homes are highly conversant with the use of technology. For the purpose of language learning, some of the educators are even focusing on thedevelopment of interactive video games and implementing them in their lessons (Godwin-Jones, 2014). The tech-savvy teachers are also focusing on involving children in digital play so that they can create new language learning opportunities through computer games. Such computer games can be highly engaging for the young learners, and this process can be referred to as digital games-based learning (DGBL) (Hitosugi, Schmidt and Hayashi, 2014). These games are highly engaging for the learners because they include videos, images, sounds and text and also animation. The teachers are also focusing on integrating the element of problem-solving so that learners can work in collaboration with their peers. The collaboration can give rise to language learning activities (Godwin-Jones, 2014).

There are also some of the disadvantages of the digital games; these disadvantages are that digital games can distract children from the learning objective, and children can become involved in the race of winning the game before it is won by their peers. Therefore, the teachers have to place some restrictions in the classroom and will be required to ensure that maximum use of the digital games by the learners is specifically for language learning (Mawer and Stanley, 2011). The teachers will be required to develop the activities that do not take the fun out of the game but engage the learner in the learning process effectively. According to the study of Beckett and Miller (2006), the process of ICT can only be successful if it is used for project-based language learning (ProjBLL). The project-based learning means that English learning skills are acquired naturally. The language-based activities have to focus on oral, reading and writing activities; which means that all kinds of

language-based activities are important for learners. Therefore, the process of ICT for language learning can also be considered as the 'blended learning' (Bueno-Alastuey and López Pérez, 2014).

The definition of integration of technology in relation to the primary schools has not been standardised; therefore, it can incorporate a variety of meanings (Bebell et al., 2004). In some of the cases, the integration is considered to be very exclusive in terms of different kinds of applications, which can be used by the teachers in the ICT classrooms (Cuban et al., 2001). Another important interpretation of the technology integration has been understood by looking at how the teachers use ICT to enhance and support the existing teaching practices and how they are helpful in transforming the learning activities (Hennessy et al., 2005b). Another definition of integration of technology can be understood as evaluating the impact of ICT on the cognitive ability of the children (Lim, 2008).

2.8 Summary

2.8.1 Literature Summary

ICT has gained great popularity in recent years. ICT provides various interesting and innovative tools that are considered to be effective for the process of education (Griffith and Lim, 2014). There is no doubt about the fact that ICT can play a very important role in the everyday lives of people, but it is also an essential part of the 'Information age'. Yelland (2006) notes that, due to the presence of ICT in the current era, the nature of work and leisure time has changed and completely transformed (Brown and Murray, 2006). However, the use and presence of ITC are not yet unquestioned. The questions about the efficiency of ICT has been raised mainly in the context of ECE, where the significance of ICT in teaching and

learning is still unclear and it is a great topic for discussion among scholars and practitioners (Brown, 2006; Brown and Murray, 2006; Gibbons, 2006; Lindsay 2006; Plowman and Stephen, 2005; Somekh, 2007; Williams et al., 2000a, 2000b; Yelland, 2007). ICT is an important topic to be understood in terms of education and language learning because of the many pieces of evidence and benefits of technology discussed in the literature. Language is the most significant part of the human life, and it is also an important component of the personality of humans. English and ICT have become inseparable. English is a global language and has numerous functions. English is significantly used in various fields and is the most preferred language in the world. ICT provides an important and influential platform for the use of English in various aspects (Plowman and Stephen, 2005).

The process of ICT can be different for the teachers and for the learners. Though this process has been very effective for the English language learning or for second language learning, yet the evidence shows that there advantages as well as disadvantages in the process (Warschauer, 2003). The evidence in the literature review shows that there is also unequal access to technology that restricts the full implementation of ICT in English language learning. The 'digital divides' are still present in the world that restrict the full implementation of ICT (Motteram, 2013). However, the problem of the digital divide is preventable and can be eliminated with better resources. The changes in application of the ICT approach in language learning are very significant. English language learning will include many challenges and complications for the children, who have English as the second language. ICT is a very comprehensive approach that has been found to be very effective in the field of education. It is not only preferred for language learning but also has many benefits in learning many other subjects. Therefore, the advantages and benefits of ICT cannot be denied. ICT is not just effective for learners; the evidence discussed above has shown that ICT is also an important approach for the teachers and the teaching process. The

one-size-fits-all approach cannot work in the use of technology; it has to be adapted according to the various factors associated with the availability of technology, and the learning environment (Warschauer, 2003). Although the technology has the potential to transform the educational process, it also has to go through social and environmental hegemonies (Trinidad, 2003). To bring about the transformation in the field of language learning, the one-size-fits-all approach is not effective because the language learning process is also affected by the culture, values and learning abilities of the children. The strategies have to be designed according to the particular needs of the children and teaching styles of the teachers. The teaching approach is also influenced by the teaching environment and learning needs of the learners and different teaching styles have to integrate the new ICT use in teaching in different geographical locations. The strategy associated with the use of ICT in EFL in Saudi Arabia needs to be more efficient and effective according to the cultural values, geographical location, skills of teachers and learning capabilities of the children in the Kingdom.

The evidence found in the literature review describes the significance of ICT in EFL learning. ICT stands for Information and Communication Technology, which is not only effective in providing information, but also for communicating. Children and teachers all over the world are using the various ICT tools for English language learning, as it has the capability of meeting the needs of the learners as well as of the teachers. Therefore, ICT has transformed the teaching and learning processes in the classrooms, and has also supported in problem-solving, critical thinking and innovating among the various ways of language learning.

2.8.2 Research Framework

The role of ICT in education is to support learning either as an information tool or as a learning tool (Selwyn, 2011b; Tondeur, 2007; Tondeur et al., 2007). To inform an

understanding of the possibilities of ICT use in ECE, it is necessary to consider the dominant learning theories that have had a major bearing on both the form and content of how we think about children's learning in ECE. The theories of Piaget (1972), Vygotsky (1978), and Bruner (1977) are most important to consider in this research.

Drawing from Dabbagh (2006), Driscoll (2005), Ertmer and Newby (1993) and Dede (2008) has summarised the main tenets of each of the three dominant schools of educational thought – Behaviourism, Cognitivism, and Constructivism. It is the principles of learning in each of these theories that inform playroom practice in ECE and each position conceives differently of the child's position in the learning process.

1. *Behaviourism* argues that reality is external and objective, while knowledge can be gleaned from experience. Since learning occurs through experience, it is posited that playroom zones mould the environment to stage instruction-based learning that nurtures and changes the child's learning faculties.

2. *Cognitivism* argues that the world is mediated through cognitive representation; knowledge is, therefore, a negotiation between thinking and experience. Since learning is both experience- and thinking-dependent, playroom zones assist children in developing, through collaboration, symbolic constructs in the mind that underpin their knowledge and skills.

3. *Constructivism* argues that reality and knowledge are distinct, where the former is internal, and the latter is constructed. Constructivists posit that learning is an individual experience, constructed by the child, and in turn, playroom zones assist learners to create meaning that is both individual and gained through experience.

Considering the most dominant of these theories, it is thought that ICT can be introduced into learning environments to support one of constructivism's main tenets – proximal learning

(Vygotsky, 1978). However, such introduction relies heavily upon the pedagogical philosophy of teachers and the set-up of the physical and psycho-social contexts in the learning environment (Yelland et al., 2008).

Learning theories do not absolutely provide 'a simple recipe for designing effective learning environments; similarly, 'physics constrains but does not dictate how to build a bridge' (Brasford et al., 2000: 131). Thus, what follows is a consideration of the theory as is relevant to the context of playroom practice, considering the needs and desires of the many stakeholders involved, and their interrelations, as well as the resources they call upon.

In order for ICT integration in the playroom to enhance contemporary learning in a way that is modern and relevant, it is necessary also to consider the wider contexts of learning. A reflection of environmental and ecological factors acknowledges their influence upon practice; it also highlights the manner in which such an investigation's findings should influence the decision-making process of how best to learn with and through ICT (Rosen and Jaruszewicz , 2009).

Based on the aforementioned theories it can be argued that language learning can be seen as a competency-building process since language learning cannot be completely based on text but is rather a constructive exercise which involves learning language through our life experiences and interactions. In this form, learning of language involves building competency to learn a foreign language. The competency building approach is mainly supported by the constructivism approach to learning which indicates that people learn from experiences and interactions rather than through instruction. Learning a language is a competency because language can only be partially taught through instruction; for example, the vocabulary, informal communication techniques and other features can only be learnt through interaction and in a constructivist manner.

As far as learning strategies are concerned, Chamot (1987) found that effective second language learners did use a lot of Metacognitive and social/affective strategies. Accordingly, training on the use of Metacognitive and social/affective strategies seems to be important for success in planning a language course which, as Dam (1995) and Nunan (1999) posit, is helpful in maintaining or even enhancing children's motivation and autonomy in learning English.

However, not much research seems to have been carried out on the use of learning strategies by young and old second language learners. Abraham and Vann (1987) found different language learners using different learning strategies and related these to their background characteristics. In their study on the learner's belief about language learning and language learning strategies found that the children's differing beliefs were constrained by their different conceptions of the learning process. Learning strategies and age are two major variables contributing to individual learner differences in the process and mechanism of second language acquisition (Ellis, 1994). Skehan (1989) points out that factors like motivation, aptitude and age all influence strategy use, and concludes that strategies vary simply as a function of age; therefore, the strategies of learning and teaching with ICT have to be age-specific. The evidence associated with the early childhood education system reflects that age-appropriate activities and application in the language learning process are more effective. The teachers must be equipped with the ability to integrate the strategies according to the age and learning needs of the children. The Metacognitive and socially effective strategies can significantly enhance the process of language learning with ICT, and the Metacognitive capabilities of the individual can enhance the learning process. As evinced above, the development of the self-concept and self-perceptions can have an impact on the development of the competency skills (Siyanova-Chanturia, 2017).

ICT is useful in developing Metacognitive capabilities which can eventually lead to core learning-related competencies and consequently improvement in language skills.
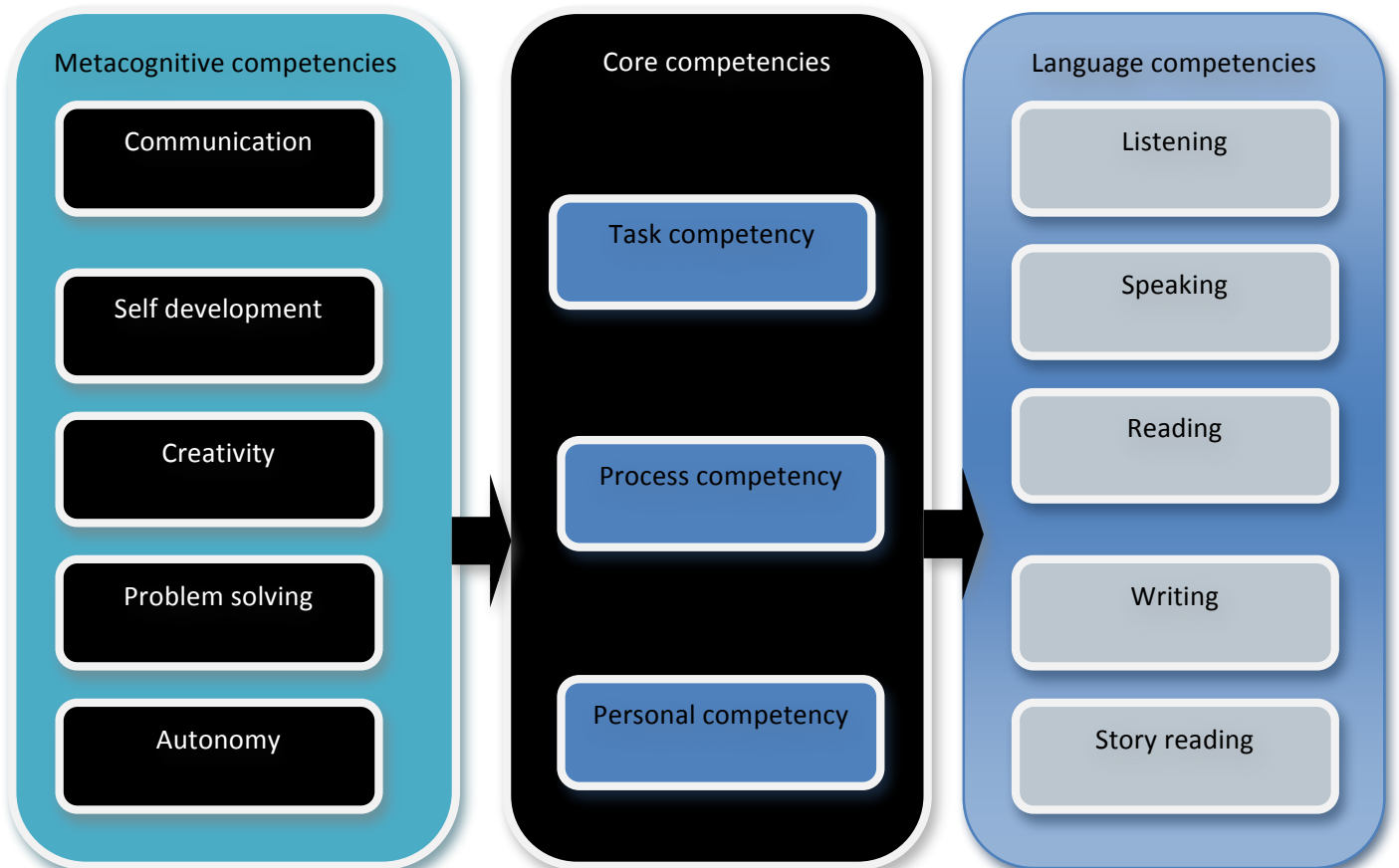
Figure 2 Initial conceptual framework

Source: The author

Competency is a general statement that describes the desired knowledge, skills and behaviours of a child graduating from a programme (or completing a course). Competencies commonly define the applied skills and knowledge that enable people to successfully perform in professional, educational and other life contexts. The competency is the most important element, and the competency-based language learning can be more effective for the children. Competency-based education has its roots in the behaviourist tradition and is considered very significant in the vocational training programmes. Such programmes help to develop the

professional skills in the children. Competency is called the 'critical work function' that helps to develop the task-defined setting, and competency-based tasks help to develop the particular skills and knowledge important for language learning. Competency also helps the children to learn the language in the authentic settings, which are encountered outside the classrooms.

Metacognitive Competencies refer to a person's awareness and feelings elicited in a problem-solving situation (i.e. feelings of knowing), and Metacognitive competencies are believed to play a role in many types of cognitive activities such as oral communication of information, reading comprehension, attention and memory.

Core Competency refers to the competencies that individuals need in general for improving their learning abilities. These are applicable to learning in general and not related to the specific subject or anything. Learning any subject requires knowledge and understanding of the processes involved, to understand the process of using the information synthesising it, and to arrive at solutions. This all works in a cycle which is tackled using core competencies such as knowledge of tasks completion and processes to complete the tasks, among others.

Theories such as CLT, MI theory and the Discourse Approach suggest that ICT is useful in developing children's Metacognitive skills such as creativity, problem-solving, communication, self-development and others. It leads to improvement in core competencies; three core competencies for children are identified in this research:

Task Competency: Can the child complete a given task, i.e. is he/she aware of what needs to be done?

Process Competency: Does the child understand the process that needs to be followed?

Personal Competency: Does the child have the personal skills such as being cooperative, ability to work in a team, ability to focus on the task, etc.?

Language Competency In terms of a child's ability to learn a foreign language, five key measures were identified. These are: Listening, speaking, reading, writing and reading stories. These are identified on the basis that:

- English as a foreign language means that the child has just started to learn English. They cannot thus be expected to have advanced English language skills.

- These five are the key skills that most teaching EFL programmes focus on.

- These are the skills that children learning EFL are tested on in the Saudi Arabian education system. This means new forms of evaluation were not required. This minimised possibilities of errors in evaluation.

Chapter 3   Early Childhood Education in Saudi Arabia

Until the middle of the twentieth century, education was simply out of the reach of most people in Saudi Arabia. However, after the formation of the Ministry of Education in year 1953 and the General Presidency of Female's Education in 1959, which were later merged, the education scene become very vibrant and exciting for the new generation of Saudi Arabia (Sayegh and Rahman, 2009). During the period 1953 to 1970, the number of boys who took admission in the secondary schools increased, from 290 to 2722 with the enrolment of 401000 boys. The number of the girls taking admission in schools had also increased from 511 to 7000. Many girls started preparing to become future teachers (Sayegh and Rahman, 2009). In 1963, The Supreme Committee for Educational Policy was established as the highest authority dealing with educational matters in the Kingdom. This highest authority of education had some specific purposes of promoting education in Saudi Arabia (Rahman and Alhaisoni, 2013). Thegoals and objectives of the authority have been highlighted in the study of Al Shumaimeri (2003) that lists its ultimate purposes:

1. The first purpose of the authority was to have the children eductated appropriately under the Islam.

2. The second purpose of the authority was to plant and spread the Islamic creed and to furnish the young children with the values, beliefs and ideas that came from Islam.

3. Another purpose was to equip the child with various skills and comprehensive knowledge and to develop the conduct of constructive development (Rahman and Alhaisoni, 2013).

4. The last and most important purpose was to make the society flourish socially, economically and culturally, and to prepare the young individuals of the country to become useful members for building a developed community.

In 1975, the Ministry of Higher Education (MoHE) was formed to supervise the universities and institutions providing higher education to the children. In the last few decades, the government of Saudi Arabia has taken some significant steps to assure the educational development of the boys and girls of the country, and the number of enrollments has also increased. During 2006 and 2007, the number of children enrolled at different educational levels had reached the milestone set. The number of children has been increasing at the elementary, graduate and teacher's levesl (Sayegh and Rahman, 2009).

With the increasing numbers of children, the number of the schools, colleges and universities is also growing in Saudi Arabia to meet demand. According to Alkhannani (2016), there are more than 25,000 schools in the country. In addtion, there are 21 Government-owned universities and 24 private universities and colleges, as well as many other educational and training institutions (Alkhannani, 2016). These significant efforts made by Government have increased the literacy level to 78.8%, which includes 84.7% of males and 70.8% of females.As a result of the actions and determination of the government and various ministries and governing bodies, Saudi Arabia has witnessed tremendous growth in the following areas over recent years:

1. The education advancement has ensured that social, economic and cultural objectives of the country should be fulfilled by the education system.

2. In recent years, illiteracy levels have significantly reduced.

3. The higher education activities have integrated various general and specific requirements of the economic and social development plans.

4. The general basis of the higher education has been improved by the diversification of the programmes so that the development of the country could be supported at every step.

5. It is also aimed that all the qualified people should be able to receive university education so that they can continue their education and make a better future.

3.1 Early Childhood Education System in Saudi Arabia

There are some differences between the practice and principles of the preschool education system, although a certain degree of harmony has been found worldwide that specifically underlines the features of ECE. Bertram and Pascal (2002) rewiewed 20 research studies; although these were not specifically about developed nations, they identified four common features that are found in the curriculum of the preschool children over three years of age. These features are:

1. The emphasis of the curricula is to use the holistic approach and to provide the structured approach for learning areas, rather than providing school-style education.

2. The curricula were based on the six key developmental areas – social and emotional, cultural, aesthetic and creative, language and literacy, numeracy, physical and environmental.

3. The emphasis was also placed on the play-based learning, activities and development of children through promoting independent thinking.

4. The playroom practitioners are seen as the facilitators who provide support to the children, rather than the class-leading role of teachers.

The National Association for the Education of Young Children (NAEYC, 2009) published the guidelines providing the basis for developmentally appropriate teaching approaches mainly in the US. The UK has also agreed to the guidelines (Siraj-Blatchford and Siraj-Blatchford, 2006) that includes the following key points:

- Balance is required to be maintained between the self- and practitioner-guided activities.

- The meaningful choices related to learning must be available.

- The broad scope of exploration.

- The learning activities vary between three significant categories: individual activities, small group activities, and whole group activities.

- The play is the important medium of learning but must not be considered as the only medium.

- The role of practitioners is to demonstrate the actions, ask questions, suggest various alternatives, and encourage problem-solving and also reflection.

- The development of the children is observed and recorded.

3.1.1 Principles and General Objectives

Certain goals of education are set in Saudi Arabia according to some sort of differentiation. The set goals are specifically for the children for understanding the tenets of Islam; another goal is to instill Islam ideals in children with the goal of providing them knowledge and understanding of living in the modern Muslim society, helping children to conduct skills in a meaningful manner, and helping to build the sense of a community of educated and learned people (Al-Sunbul et al., 1998).

The Ten-year Strategic Plan (2004-2014) of the Ministry of Education (MoE) was established in 2004. This plan specifically set many educational goals for the education of young people in Saudi Arabia. The first goal of this plan is very relevant for the preschool context, stating that "*the education of 4-6-year-old children and the consideration of kindergarten as an independent stage as compared with other educational stages in terms of its buildings and syllabi*" (MoE, 2005a: 13). This specific goal can be achieved through certain objectives:

1. To accommodate 40% of the children between the ages of 4 and 6 in the kindergarten setting by the end of the plan.

2. To update and enhance the programmes and activities for the early childhood education system.

3. The goal can also be achieved by the objective of supplying kindergarten with the specialised cadres so that stage class can be met at the rate of 10%.

4. To develop the tools and programmes that can help in measuring the preparedness of the children for preschool.

5. To develop the qualification programmes and personal preparation programmes at the kindergarten stage (MoE, 2005a).

The Ninth Development Plan 2010-2014 provides the guidelines for the more comprehensive and detailed system of education that has been reported by the highly qualified professionals for developing the child's capabilities and helping them to acquire innovative and cognitive skills (Ministry of Economy and Planning, 2010).

Many educational projects are being carried out in Saudia Arabia for the promotion and encouragement of educations. One important educational project is The King Abdullah bin Abdul-Aziz Public Education Development Project (2007), which is commonly called

Tatweer. This project has some specific objectives associated with education. The first objective is to improve the learning standards by deriving the best practices from the international projects; promoting an effective educational environment for developing high-quality national assessment; to provide effective feedback to the educational stakeholders regarding the performance of children; and develop the curriculum design, educational instructions and professional development (Tayan, 2017). Several initiatives have been taken by the project; such initiatives include various educational programmes and directives such as the Preschool Development Programme, the National School Development Programme, ESL English language programmes, Arabic language development; Mathematics and Science teacher development programmes, and 21st Century Skills (Tayan, 2017).

The national strategy for early childhood education (ECE) is named 'the Saudi National Strategy for Education in Early Childhood', and was implemented in 2010. This strategy has been successful in developing various aspects for fulfilling the wide range of the child's needs. For example, this strategy looks towards the child's needs related to education, health, safety and security, social protection, and media and culture.

The first strategy is to increase the number of preschools in the country, as well as to increase the number of children who attend them. A committee headed by the Deputy Minister for Education for Girls' Affairs was established in 2010 that was responsible for implementing this program. The aim of the committee was to open 13,000 public preschools by 2012. However, according to available evidence, 1172 nurseries have been established to date that provide employment to 5,967 teachers and have around 47,726 registered children (MoE, 2011). ECE gained an independent stage in 2009 for the very first time and developed its own budget and administrative building.

3.1.2 The Organisation and Structure of Preschool Education

The general education system in Saudi Arabia is divided into four specific stages:

- The children over three years of age and up to six years of age are provided with preschool education.

- Primary education for children begun at the age of six and this stage lasts for six years, which means from grade 1 to grade 6.

- Intermediate education starts at the age of 12 that spans three years, which means from grade 7 to grade 9.

- Secondary education is also three years which is from grade 10 to grade 12.

The primary and intermediate levels are compulsory for the children to complete, while the preschool and secondary education is optional for all children in Saudi Arabia. The academic year begins in September and ends in June. The preschool stage for the children aged between three and six is divided into semesters of 18 weeks. The education system of Saudi is considered as centrally organised that is specifically based on unified national curricula and syllabi for each educational stage that have been developed by the MoE. The curricula and syllabi are grounded or constructed on the basis of textbooks, and each educational stage has its own well-developed textbooks. The highest educational authority in the country is the Supreme Commission on Educational Policy that is responsible for developing secondary and primary educational policies at the nationallevel. It also develops educational policies for technical and vocational courses; these policies are implemented by the three principal institutions in various educational contexts; these institutions are the Ministry of Education (MoE), the Ministry of Higher Education (MoHE) and the Technical and Vocational Training Corporation.

The principal educational agency of the country is the MoE. The remits of the agency were restricted to the education of male children as recently as 2002, but when the General Presidency for Girls' Education (GPGE) was then combined with the Ministry, a unified organisation was created that also promoted education for girls (Oyaid, 2009). Now the responsibility of preschools and all the other schools is held by the Ministry; it also helps in supporting and promoting adult education and literacy and special education (Oyaid, 2009). The organisation also has the responsibility of constructing the guidelines, provision and maintenance of the educational buildings, and for supplying the textbooks and other educational material for all kinds of schools. The Ministry is also responsible for providing effective training of teaching staff and developing various comprehensive educational policy and curricula (Alamri, 2011).

All the national cooperations and institutions, as well as the national agencies associated with children's education, are coordinated by the Saudi National Commission for Childhood. They are also responsible for the formulation of the national childhood strategy, monitoring the application of Supreme Council initiatives, recording data on children's affairs, providing these data to appropriate organisations and endorsements, and endorsing research into children's affairs (UNESCO, 2010).

Two kinds of preschool exist in Saudi Arabia, which is specifically explained with the terms 'crèches' and 'kindergartens'. These educational centres are discussed later in the thesis as these institutions for the children are completely social and are directly associated with Early Childhood Education.

The ECE centres are called kindergarten; these are the preschools that are involved in providing three years of education and care for children before they proceed to elementary school (Al-Hariri, 2002). An educational methodology is used by these institutions that focus

on various developmental goals for young children. These developmental goals specifically focus on enhancing the children's ability related to linguistic, social, physical, psychological, emotional and cognitive development. The educators design the specific pedagogical programmes for maintaining an effective balance between play and education (Samadi and Marwa, 1991; MoE, 2005b).

The three levels of ECE are divided according to the age group of the children: "*KG1 (for under-4s); KG2 (4- and 5-year-olds); KG3 (5- and 6-year-olds)*)" (Hammed, 2014: 30). The attendance of the children in any of these three groups is optional, and parents can decide if they want to send their children to preschools before their primary education starts. Most commonly it has been seen that children attend the final year of the playschool before going to primary school. According to Madini (2005), one significant reason for not sending children to early years of school is because the parents in Saudi Arabia prefer to take care of their young children at home, and believe that one year of preschooling is enough for their children before sending them to primary schools. In 2007, 191,246 children were enrolled at ECE institutions (MoE, 2008).

3.1.3   The Preschool Curriculum in Saudi Arabia

ECE is emerging as the important educational stage in Saudi Arabia and the first document that specifically supported the concept of ECE was the 'Kindergarten Teacher Guide', developed in 1984. This document was presented by the General Presidency for Girls' Education (GPGE) and sets out comprehensive guidelines about how one should work with the preschool children. The document also promulgated the important right of teachers and heads for using their individual discretion and interpretation in their roles as educators.

The ECE project in Saudi Arabia was initiated in 1988. The GPGE is combined with the Arabian Gulf Programme for United Nations Development (AGFUND) and also with the United Nations Educational, Scientific and Cultural Organisation (UNESCO). The GPGE is the project that has been initiated to create an official preschool curriculum for the public and private sector schools. It also offers training facilities and equipment required for the implementation of the guidelines. This is also named the Developed Curriculum of Early Childhood Education (DCECE); it was developed in several phases, and the first edition of the final curriculum was published in 1991. The second updated edition was produced in 2005; this was modified to include more sophisticated details about the units (Samadi and Marwa, 1991; MoE, 2005b). In 1997, a teacher training guide was also developed to complement the DCECE (GPGE, 1997).

The aims of this curriculum were to enhance the standard of preschool education facilities and also to increase the capability of providing training to new staff. It also focused on providing training to the existing staff members and to enhance their level of teaching. This project also focused on developing a practical and theoretical framework for ECE so that the teaching framework can effectively work with the teaching requirements at this level (Samadi and Marwa, 1991; MoE, 2005b). The objectives of the DCECE were derived from the common educational strategy of the Kingdom of Saudi Arabia (1985), which is grounded on the values and the ideologies of Saudi society. These ideologies, principles and values are constructed on Islamic beliefs, cultural aspects and tradition, and also influenced by socio-economic factors. These policies acknowledge the basic needs of the child and the child's developmental requirements at this age (Al-Sunbul et al., 1998).

3.1.4 Attributes of the Developed Curriculum for Early Childhood Education

The first and second editions of the DCECE offer a theoretical perspective that is specifically based on the concept of 'Individual Learning'. This concept can be defined as

> "*learning that depends on the child's own activity, where s/he interacts with various educational materials and toys that are available in the educational environment, which assists him/her to discover his/her own abilities and improve them according to his/her growth model*" (MoE, 2005b, p 16).

The four learning objectives are also used to define the individual learning concept. These four learning objectives are: (a) continuous skills training for learning; (b) discovery and investigation promoting the process of learning; (c) learning bestowing to individual growth and development; and (d) using different knowledge resources for enhancing the process of learning for example: such as books, adults and peers (ibid: 45). The role of the teacher in this process has been defined and extended as a facilitator, who can help children in interacting with the environment, and engaging in experimentation and discovery (Samadi and Marwa, 1991). The DCECE objectives clearly accept the play-based and the discovery-based approaches that have been explained by the Developmentally Appropriate Practice (DAP). It aims is to provide the child-centred approach to be applied in the intense form. According to the interpretations provided by Piaget (1972), a more detailed and comprehensive approach is required, but these interpretations do not specifically target the broader socio-cultural factors on the development and learning ability of children, nor do they specifically put more emphasis on children's own activity in the environment that could relate to developmental stages of children. All these factors are determinant for their capabilities and willingness to learn specific skills and concepts.

It has been found, however, that in the current practice, these concepts and views are not clearly apparent. The number of teachers has slightly changed, and a mixed form of the

developmental and socio-cultural perspectives has evolved. This is called the modified perspective where the teachers are providing early education according to their experience in the field of education. This approach has been found to be evident in the Professional Development Training Guide (GPGD, 1997), where the teachers are provided with many new ideas and examples for scaffolding learning. Most of the educators are still influenced by the developmental perspective because it focuses on the children's readiness and stage of development as determinants of children's abilities (Plowman and Stephen, 2005). These are the two challenging perspectives in the educational field that have created tension and confusion in the implementation of the DCECE. This is a problem that is becoming a barrier for Saudi Arabia and has also been a problem for the pedagogical implications for practitioners situated in different locations (Plowman and Stephen, 2005, Plowman, 2014). Discussion and debate continue between the practitioners in the field so that an agreement could be formed (Plowman and Stephen, 2005).

3.1.5   The DCECE Structure and Components

According to the empirical evidence, the DCECE is divided into six educational units, which are specifically based on different subjects/themes. One further unit has also been added as a teacher's guide that is specifically related to the six learning units in the educational framework. The DCECE also encompasses practical advice concerning the factors such as children's behaviour (MoE, 2005b; Samadi and Marwa, 1991). These descriptions and explanations are designed to fulfill the needs of the teachers. The most striking point is that the curriculum takes into account the requirements and the needs of both qualified and unqualified teachers in the field of ECE.

The step-by-step guidance is provided by the curriculum for preparing various learning and play activities and also enhances the knowledge of the teachers with the help of practical examples for both experienced teachers and ECE children. The guidance also provides information about the theoretical, educational and job requirements, which are linked back to the important educational policies of Saudi Arabia. The practical part of the curriculum is clearly provided in this.

The DCECE is a very comprehensive and complete source for the teachers and trainers of kindergarten as well as children who are studying and acquiring knowledge in the field of ECE. The DCECE acknowledges the needs of the society and seeks summarise the philosophy of ECE in Saudi Arabia. It can also be considered as the important basis of detailed instruction for learning about the different aspects of ECE. It can also help the teachers to enhance their potential for exploration and discovery within the educational environment of the classroom, and it can also be considered as an important reference for preschool teachers in Saudi Arabia (Al-Hariri, 2002).

3.1.6   Preschool Environment Layout

The playrooms have been divided into various learning centres by DCECE that correspond to different activities. The self-learningenvironment is provided in public and private preschools because such learning environment can enhance the discovery and exploration skills among children (Samadi and Marwa, 1991; MoE, 2005b). The 'choice concept' is the main idea on which such organisations rely. Such an environment allows children to learn according to their choices and preferences and, through this, they gain autonomy and the freedom to choose according to their needs (Al-Shoaiby, 2010). According to the pre-determined

educational goals, the learning centres are prepared by the teachers. This preparation also considers the choices of the children and their growth and developmental milestones. Such an environment allows the child to choose the tool(s) through which they want to learn (Al-Shoaiby, 2010).

The 'choice concept'; is a very good initiative as it encourages children towards better and more useful learning and also opens the new doors of investigations and discoveries. It also enhances the problem-solving skills of the children and makes them learn how to communicate with each other. The children learn some very significant ground values of sharing, cooperating and maintaining harmony (Samadi and Marwa, 1991; MoE, 2005b). Such environment is more effective for children because it provided the homely ambianceof the learning centre and children connect with it due to the home-like resemblance.

The learning centres are specifically prepared based on the amount of available space, where the children can indulge in various activities and experiment, and that can provide a home-like environment to children (Rabaah, Doaa and Asma, 2016). When the learning centres are prepared, teachers also focus on the size of the play tools, if they are suitable according to the age and size of children. The teachers' guides are the documents that provide the information about the installation and organisation of the learning centres. This is the reason why, whenever a new technology is introduced in ECE, all the significant factors are considered. The new infrastructure must be in accordance with the developmental and educational needs of the children (Al-Shoaiby, 2010).

3.1.7 The Daily Programme

According to the current evidence, the DCECE is considered to be a balanced approach that can support various educational activities (Hanadi, Gregory, Jessel and Khalil, 2015). The five sessions of the daily programme are offered with balanced variations which include teacher-led activities as well as free activities (MoE, 2005b; Samadi and Marwa, 1991). There are also some group activities that have an alternative pattern including individual activities or quiet activities followed by noisy activities (Hammed, 2014). The different programmes are organised according to the growth and development of the children (Al-Hariri, 2002).

The role and responsibilities of the teachers are also well-defined, and the explanatory material is provided to the teachers with specific material, objectives and techniques to be used. According to the evidence, a typical day in the learning centres is as following:

A typical day consists of the following: morning teacher-led activity of 30 minutes; then children are taken for outdoor free play for about 45-60 minutes. Later a 30-minute meal period is provided. Then comes the time for some free indoor play in the learning centres and, at the end, a 30-minute period is dedicated to the end-of-day session. The last activity reviews the day's activities along with some relaxing music, games and stories.

3.1.8 Challenges facing Saudi Preschool Education

The preschool education in Saudi Arabia has significantly developed and grown. The preschool education system has also modernised according to the needs of the children, but it

has been found that learning centres are still facing many difficulties and challenges. Various studies have focused on evaluating the conditions and quality of ECE in Saudi Arabia (Al-Hawwaas, 1998; Al-Khatheelah et al., 1999; Al-Shoaiby, 2010; Gahwaji, 2006; Madini, 2005; Meamaar, 1998; Sabear, 1996; Suleiman, 1998; Zamzami, 2000). These studies have reported many problems and the practical concerns that hinder the quality of services, including the issues associated with the qualifications of the teachers, the problems of funding and infrastructure, capability and professional skills in the workforce, lack of parent support, attendance issues, high dropouts and low admission rates in comparison to the ECE standards in international practices. This is the reason that there is a huge requirement to bring the attention of the authorities towards the ECE services. The ECE services' quality needs to be improved, as they require the professional development courses for the teachers to enhance their skills and effectively manage the preschool classes. It is also important that teachers receive better information and knowledge so that they can provide the appropriate environment to the children and can create effective activities (Rabaah, Doaa and Asma, 2016).

Some researchers have shifted their attention to the DCECE national curriculum and the content of the document. These studies have also discussed DCECE's efficiency in the adoption of learning strategies (Al-Ameel, 2002; Meamer, 1998; Sabear, 1996), and have establised that the DCECE manual is not very appropriate or distinct enough and is unable to explain the individual learning strategy clearly to the teachers. The evidence included in the studies has postulated that there are significant needs for improving the ECE services (Al-Ameel, 2002; Meamer, 1998; Sabear, 1996). In 2012, The Early Childhood Education National Conference that was held in Riyadh threw light on various challenges and barriers in improving ECE initiatives. The Conference concluded that more efforts are required, and quality improvement in Saudi Arabia for ECE is very important. The Conference found that

there has been a lack of awareness among Saudi Arabian society, as people are less aware of the quality of education in the early years of life (Inan and Lowther, 2010).

The decisions made in the families about their young children can impact their future physical, social and mental development. Another problem is that no specific body has sole responsibility for the planning and the implementation of any initiatives or programmes. This is the reason why, due to the lack of direction, the parallel programmes are also affected because there is no overarching consideration about the interaction of these initiatives and how they will differ from each other or will overlap with each other (Inan and Lowther, 2010). The recommendations from the Conference included the option of learning from the international initiatives of ECE and getting benefits from them. The mentioned examples would assist in informing National Policy in Saudi Arabia. An advance endorsement was made to start new training and academic departments within universities to grow the number of professionals who hold expertise in the issues and requirements of ECE and who can represent on behalf of ECE. Equally, the departments of Jeddah LEA and ECE during MoE in their current yearly report regarding the Status of Academic Affairs in Learning and Education Management Departmen, in he report of 2011/2012 published under the Annual Improvement Plan (MoE, 2011), identified the three main challenges or obstacles that are being faced by the Early Childhood Education Department of the Ministry of Education. They also proposed some important solutions to the resolve the obstacles.

3.2 ICT in Early Childhood Education in Saudi Arabia

3.2.1 ICT in Saudi Schools: Policy and Strategies

The aim of education in Saudi Arabia is based on a very clear philosophy, which states that education must be sufficient to fulfill the religious, social and economic needs of the people in the country, and that illiteracy should be completely removed from the country (MoE, 2012). However, the education aim does not provide the details about the broader mission of education nor about anything regarding the use of ICT in education. In order to put forward an appropriate policy regarding the integration of ICT in the formal education system, a national project named *Tatweer* was launched by the government in 2007. This related to educational reform in the Kingdom of Saudi Arabia (Alyami, 2014). The project had six main objectives:

1) To develop the skills of the children by the use of Information Technology (IT) in the education system, thereby focusing on preparing skilful children for the future (Tayan, 2017).

2) To increase the potential of the teacher through the use of IT in all kinds of educational activities.

3) To provide an environment which is rich in information and which provides better opportunities for the children and teachers to access scientific content and educational sources (Tayan, 2017).

4) To improve the educational outcomes for the children, by enhancing the capability of the children and creating the future generations that have mastered the skills in Information Technology;

5) To participate in the creation of the most advanced IT industry in Saudi Arabia;

6) To increase awareness of the benefits of IT in the education system and of disseminating the knowledge related to IT throughout society (Alyami, 2014).

The objectives of the policy can form the basis for the national policy for ICT application in the educational system, although some of the stakeholders are still unaware of the complete information about IT. In her study, Oyaid (2009) discussed the impact of Saudi national ICT policy on the teachers from the secondary education. The impact and the use of ICT by the teachers in educating children were determined, and it was found that use of ICT in education was not specifically influenced by MoE policy. However, this may have been the case due to the lack of awareness and understanding about the use of ICT and in its implementation in education.

In 1991, ICT was integrated by MoE in the compulsory curriculum for the boys in secondary education, while in 2003 this provision was extended to provide ICT-based education to the girls receiving secondary education. Not only was ICT integrated as an important subject in education, but the use of computers has also been enhanced as they are being used in various other subjects in the curriculum (General Directorate for Planning, 2005). A number of the initiatives have been taken by the MoE for integrating ICT in educational contexts. These initiatives include the promotion of ICT through Learning Resource Centres (LRCs) and Digital Technical Centres (DTCs). This has allowed information to be collected from awide range of sources rather than being dependent on print media as the only source of information (MoE, 2008). Another important project is the Jehazi Project (2006), under which the teachers can buy laptops and computers under favourable purchase schemes, along with many other benefits.

In addition to many significant initiatives taken by the government for ICT and educating the children through the MoE, the government has also worked towards establishing the ICT

clubs that are open to the members of the wider community. Since 2006, these clubs are open to school children as existing school computer labs, but other people can access them outside of school hours. These ICT clubs also play a significant role in providing ICT training to the teachers and an opportunity for the children to learn ICT outside school.

3.2.2 The Introduction of ICT in Saudi ECE Settings

The situation of the schools in Saudi Arabia and the role of ICT in the schools are specifically based on the MoE educational policies. To evaluate the efficacy of ICT in the education system, it is important to understand the underlying assumptions about the quality of ICT and the ideal role that it can play in education. Arguably, it has been found that official policy focusing on ICT has been specifically based on the two main ideas associated with ICT in education. The first main idea is that the schools must be digitalised so that they can keep up with the rest of the world. According to this perspective, the integration of ICT can be considered as positive; and using ICT as the measure of quality also makes sense. To understand the benefits and advantages of ICT, it is important to put forward the correct definition of the concept. All integration is good, and it makes sense to use frequency of ICT use as a measure of quality. Consequently, a registered decrease in the use of ICTs is, by definition, bad. From this perspective, it is not particularly important to see ICT use in relation to the characteristics of the individual curriculum subject. This is what Gabriel Salomon refers to as a technocentric view of ICT in education (Salomon, 1991).

The second main idea is to promote the adoption of the radically progressive pedagogy so that full use of ICT in the system can be obtained. From this perspective, it can be said that ICTs are very valuable as they promote child-centred teaching and learning. This is because

ICT provides significant and wider access to information and also provides various arenas and platforms for social interactions. From this point of view, it is not significantly important to use ICTs as the individual curriculum subject, because the traditional understanding of the subjects cannot provide a strong basis for ICT, because it requires a transformed educational pedagogy. The complete potential for the innovative practices cannot be determined by a single model or subject; neither can they help in realising the full potential of ICT. Therefore, the complex learning situations or environment have to be developed through which various problems can be assessed and a more flexible system of learning can be achieved (Parette et al., 2010).

According to Parette et al. (2010), the new education system that includes ICT is mainly emphasising the skills development of the children; skills here specifically means '21st-century skills'. These skills mean that children should be able to access and process information and should have the enhanced capability of identifying the problems by using various problem-solving strategies (Vavik et al., 2010: 18). Through this system, the emphasis is placed on working through the traditional curriculum and the subject boundaries, but, according to this perspective, if the teachers stick to the traditional method for teaching the curriculum subjects, they will be considered old-fashioned. The lack of enthusiasm among the teachers can come from the general opposition to changes in the process of education and, therefore, such teacher can be accused of lacking conscientiousness about their personal theory of practice (Mueller et al., 2008).

Many preschool activities carried out in schools of Saudi Arabia have ICT devices, which are used by the teacher and children simultaneously. However, it has been found that there is a lack of developed and contemporary pedagogy for the use of ICT in an educational context (Mueller et al., 2008). The study of Al-Dayel (2009) is based and focused on the preschool teachers of Riyadh. The study works towards identifying the barriers that preschool teachers

face in using ICT in Early Childhood Education (ECE). The author postulates that general dissatisfaction regarding training levels has been found among the teachers (Hammed, 2014). Also, the lack of clear planning and lack of strategies have been found regarding the integration of ICT in education at the preschool level. The assimilation of ICT in education requires an adequate and appropriate infrastructure as well as a skilled and qualified workforce. Although the objectives mentioned in the general national ICT policy promote the use technology in education, the policy lacks specific instructions or plans relating to ICT integration into ECE (Hammed, 2014).

According to the available evidence, there have been tensions and conflicts among the educators and education practitioners to find the effective approach for integrating technology in the early childhood learning environment. There are various studies that have discussed the need for the revision of the preschool teacher application under the DCECE objectives. Khomais (2007) has highlighted that it is very important to examine the compatibility of the present learning objectives with DCECE pedagogies. Other studies have also identified the issue concerning the level of understanding of the practitioners about providing appropriate supervision in the learning environment, and this is mainly due to the lack of training in ICT (Al-Fadel, 2000; Al-Ameel, 2002). Furthermore, it has been found that the parents of young children have a different attitude from that of the professionals and researchers, as the parents have a more academically focused approach towards the use of technology in ECE.

The introduction of ICT as an important learning approach within the playroom formally began in 2010. The decision to integrate ICT in preschool learning was made by the MoE and Jeddah LEA. This decision was taken in response to support the Quality Improvement Programme for ECE services, which was specifically launched by the Early Childhood Education Department in 2010. The Quality Improvement Programme for ECE is based on

140

the Early Childhood Environmental Rating Scales-Saudi Arabia version (ECERS-SA) (Hammed, 2014). The study of Sylva et al. (2006) is dedicated to discussing the efficiency of the Environment Rating Scales, which is a standardised tool for improving and measuring the improvement of the Early Years provision. The environment rating scales are used by many national and international authorities for the Early Years provision as well as for LEA. The scale has been specifically guided by findings from the Effective Provision of Preschool Education (EPPE) Project (Sylva et al., 2004). This indicates that there is a strong relationship between the introduction of technology in the early years and long-lasting benefits for the children. The environment rating scales providea very structured approach to the assessment and quality assurance.

Despite several attempts by the government to encourage the use of ICT in early childhood education, there is still the issue of integrating ICT at this level. There is also a lack of evidence and research, and the significance of ICT in ECE is still unexplored (Sylva et al., 2004). Some of the evidence from the international research provides a significant picture of the integration of ICT in ECE. However, it has been found that there is still a lack of studies related to finding the significance of ICT in the ECE of Saudi Arabia. It is also unclear what an appropriate technology for young children could be (Sylva et al., 2004).

Chapter 4 Research Methodology

4.1 Introduction

Spirkin (1983) defines methodology as "*a system of principles and general ways of organising and structuring theoretical and practical activity.*" Spirkin (1983:29) further states that methodology could be regarded as *"a system of socially approved rules and standards of intellectual and practical activity"* which should be oriented with objective logic and which should be guided by formalised methodological principles, precepts and techniques.

To Remenyi and Williams (1998:32), methodology pertains to the *"overall approach to a problem which could be put into practice in a research process, from the theoretical underpinning to the collection and analysis of data"*. In the same vein, the methodology is described by Collis and Hussey (2009:11) as the *"overall approach to the entire process of the research study"*. Based on the aforementioned definitions of the term 'methodology', it becomes clear that the construct of methodology pertains to a systematic approach that is aimed at addressing the research problem.

Saunders et al. (2007) illustrate the entire research methodology in the form of an onion wherein the research problem lays at the centremost layer, thereby connoting that several layers have to be peeled, one after the other, in order to reach the centre-most layer where the problem lies. In addition, Crotty's (1998) and Creswell's (2009) research design frameworks present research design elements that must first be explored in order to effectively address the

research problem. Hence, this chapter discusses the methodology employed in order to achieve the aim and objectives of the present study.

This chapter provides a discussion of the manner by which the effect of the use of ICT in the learning of EFL by foundation-level children (5-6 years old), in Saudi Arabia, has been investigated. Furthermore, discusses the research paradigm adopted, the overall research design or strategy employed, the methods of data collection and analysis used, the research procedures followed, and how ethical considerations were addressed in this study. The structure of this chapter is as follows: (1) the research questions; (2) purpose of the research; (3) nature of the research; (4) research paradigm; and (5) data collection.

Figure 3.1 below summarises the chapter, as it shows the key components of the present study, namely: (1) research philosophy used (i.e. pragmatism); (2) theoretical frameworks followed; and (3) the research design adopted (case study approach using mixed research methods that include semi-structured interviews observation and children's tests).

Aim: Investigate children and teacher' experiences of the use of ICT in the learning EFL in foundation level children (5-6 years old) in private schools in Saudi Arabia

Aim and Objectives

Research Philosophy

Theoretical Frameworks

Pragmatism

Research Design

Piaget's Constructivism:

The basis for learning is child-determined exploration and guided discovery, and not direct teaching.

Vygotsky's (1978) Social Constructivism Theory: Social interaction plays a key role in the development of cognitive skills.

Case study approach using mixed methods (Children's tests, observation and semi-structured interviews)

Figure 3 Research plan

Source: The author

The first and foremost aspect of any research is to identify the purpose of research such as its theoretical and practical contributions. Identification of the purpose helps in identifying the objectives that the research aims to achieve. This research involves identifying how the use of the Tablet affects Saudi preschool children's ability to learn EFL; both through children's own learning and teachers' delivery. This research establishes whether the Tablet improves the Metacognitive and core competencies of individuals and if this leads to an improvement in their ability to learn EFL.

Identification of research methodology begins with the identification of the research philosophy which itself comprises of three parts: epistemology, ontology, and methodology. As the title indicates, this research adopts a mixed methodology which is derived from pragmatic epistemology and mixed ontology. The aim is to investigate the impact of theuse of the Tablet on children's ability to learn EFL. Human learning particularly in the context of early childhood is complex and should be examined using methods and information collection tools that take into account its complexity. It is often advised to use multiple methods to obtain multiple perspectives (Creswell, 2009). Most past research on children's learning of EFL has used qualitative methodologies (Karsenti and Fievez, 2013). There are several reasons for this, such as generalisability, validity, and reliability. However, the case of children learning is not as simple to evaluate as that of adults; in adults, it may be possible to look at their exam performance or class tests but in the case of children, especially preschoolers, the evaluation is often subjective. This is so because the exam is a system, which itself is being taught to the children so that their performance in exams may not be sufficient by itself to evaluate the learning of the preschool children. In order to adequately establish the link between using a Tablet and its impact on learning EFL among young children such as preschool children, it is essential to use a number of methods such as direct observations and combine these with more obvious evaluation methods such as test results.

This is useful to understand the impact of the use of the Tablet rather than merely noticing an improvement in performance; for example, the improvement can be because of several other factors such as teachers teaching better, or more interesting content, or simpler curriculum. Contextualisation of the use of the Tablet and its impact on EFL learning is essential, and this is only achievable through use of both qualitative and quantitative approaches.

Quantitative methods are useful in establishing whether there is a definite improvement in children's ability to learn EFL as a result of the use of the Tablet. However, just knowing whether children's ability to learn EFL has improved after use of the Tablet is not enough. A qualitative approach is rich in context and can better contextualise our understanding of how and why the use of the Tablet may affect children's ability to learn EFL. A qualitative approach is useful in several ways: Firstly, it helps establish whether the improvement seen (if any) in children's ability to learn EFL is as a result of the use of a Tablet, or something else. Secondly, it helps understand the mechanism through which the use of the Tablet has improved children's ability to learn EFL so as to further refine the use according to the mechanism in order to further improve the effectiveness of the use of the Tablet to achieve the goal of learning EFL. A qualitative approach is also useful in accommodating diverse perspectives. The quantitative approach is too structured to accommodate diverse perspectives, while a qualitative approach will help the researcher gain a holistic perspective on the matter as well as learn ways to improve the usability of the Tablet in teaching EFL.

Since both qualitative and quantitative research approaches contribute to the objectives of this research, a mixed methods approach is adopted. This is also in line with the pragmatic epistemology which underlines this research. This is discussed in more detail in this chapter. Data for this research were obtained using structured exams, interviews with teachers, and observations. This was to ensure that the researcher has collected holistic data on the investigated phenomenon as discussed later in this chapter. This research adopts an

experimental case study design. Because ICT tools such as the Tablet are currently not used in Saudi preschool education, the only way the researcher could analyse its impact was through an experimental intervention.

4.2 Research Questions

To complete any research, it is important to consider the role of the research questions to be able to provide guidance in the research process (Creswell, 2009). Bassey (1999: 67) defines research questions as *"the engine which drives the train of inquiry."* Robinson and Lai (2006) also define these questions as the anchor for planning a research because they provide important clues on how to make research decisions. The questions identified for this research were formulated within the professional/personal contexts (Plowright, 2010); these are:

- How does ICT affect the Saudi preschool children's EFL learning?

- How do children interact with ICT in relation to language learning?

- How do teachers interact with ICT in relation to language learning?

The first research question aims to identify the effects of ICT on preschool children's EFL learning. Past research has looked at the use of technology in teaching foreign language (Al-Mahrooqi and Troudi, 2014; Davis, 2006; Hismanoglu, 2012; Houcine, 2011; Isisag, 2012; Kalnina and Kangro, 2007; Kirubahar, Subashini and Santhi, 2011; Kisby, 2011; Mullamaa, 2010; Padurean and Margan, 2009; Rahimi and Yadollahi, 2011; Salehi and Salehi, 2012).

However, most of this research has been focused on higher levels of education and not on preschool children. Part of this could be blamed on the perspective that young children should be protected from technology rather than exposing them to technology. This research is based on the perspective that, given the essentiality of developing skills in technology use,

rather than shielding young children from technology we should adopt a strategy of deliberate and careful exposure of young children towards technology. This research looks at the issue in the context of preschool children.

The second research question focuses specifically on how children interact with ICT in relation to English language learning. It is critical to understand the mechanism of interaction between the use of ICT (i.e. Tablet) and improvement in language skills. For this purpose, the Metacognitive and core competencies are added as intermediary variables as shown in the conceptual framework. Past research has not looked at the mechanism by which use of ICT may help in improving knowledge construction ability of children. Lack of understanding of this mechanism may prevent us from adequately using ICT to improve knowledge construction ability. This is particlarly relevant for preschool children who have little or no prior knowledge of the use of ICT tools such as a Tablet. Learning their mechanism of knowledge construction, particularly with the aid of ICT tools such as the Tablet will help properly integrate ICT in the early education curriculum.

In the same vein, identifying the possible challenges in using a Tablet for teaching EFL in Saudi preschool education is critical. This is stated in the third research question which focuses on how teachers interact with ICT in order to supporting English language learning. The teachers may face unique challenges both in terms of their own skills as well as the skills and capabilities of thechildren. Knowing these challenges will help refine the implementation of ICT in early childhood education.

The research combines the knowledge gained from all three research questions to identify a Tablet integration strategy for the Saudi preschool system for teaching EFL. These research questions aim to signify the practical relevance of this research which is to help and

contribute towards the development of an ICT integrated curriculum for Saudi preschool children. Figure 4 below shows the research design:
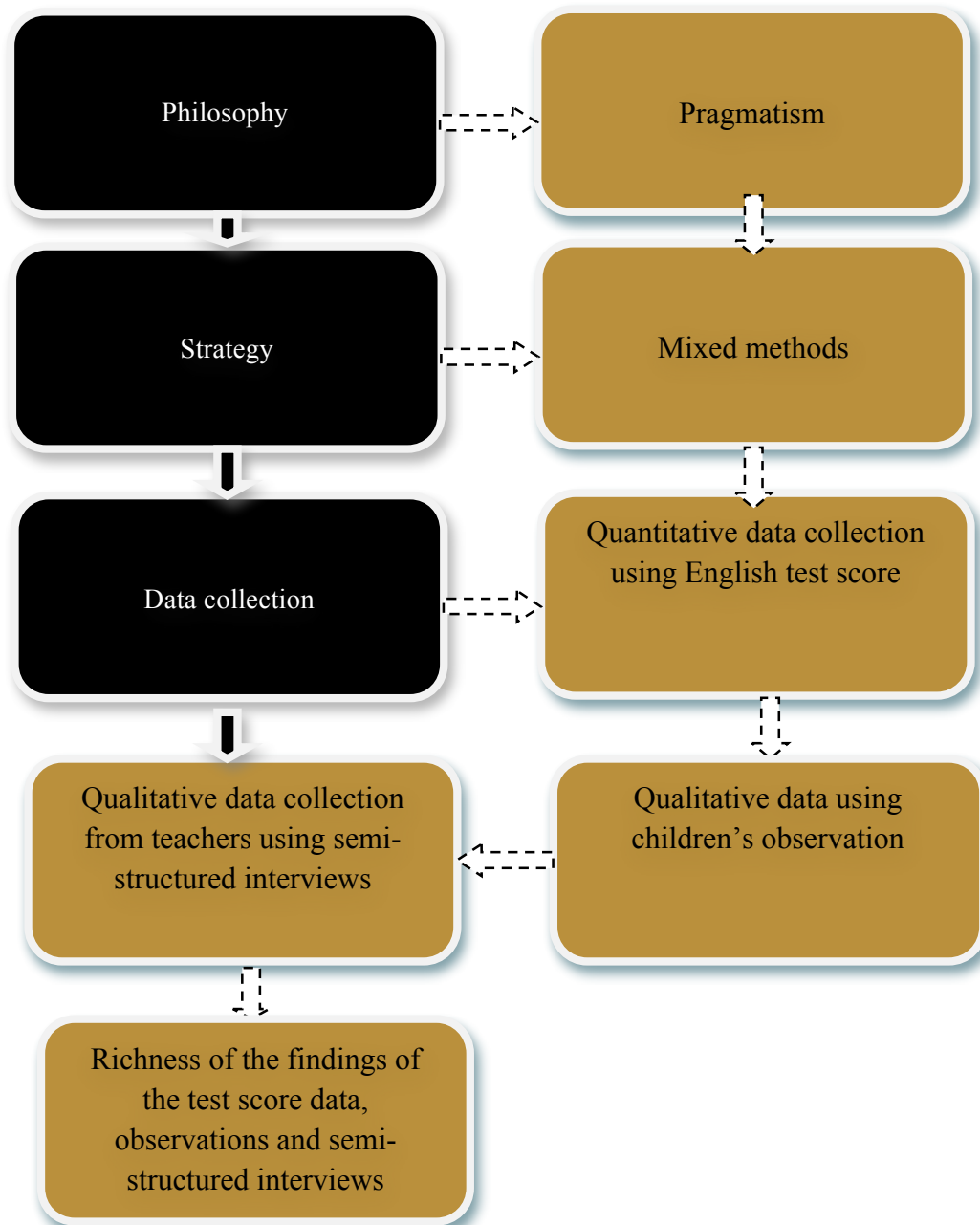
Figure 4 Research design.

Source: The author

4.3   Purpose of the Research

One important motive for conducting this research is the huge gap in the literature about how and why the use of ICT tools such as Tablets may affect the ability of preschool children in learning EFL. Lack of knowledge of this 'how' and 'why' has been the main stumbling block in effectively deploying technology for improving the knowledge of children from an early age. While past technology was considered too complex for children to use, but the introduction of gadgets such as the Tablet has made it quite intuitive and easy for very young children to use. This research is aimed primarily at understanding how the use of Tablets can affect the ability of Saudi preschool children in learning EFL. In other words, the researcher wanted to understand the mechanism or the process through which the use of technology promotes improved learning of EFL. Therefore, for this purpose the research question that has been framed to investigate this is: How does ICT affect preschool children's English lanuage learning? Understanding the effect of ICT in the learning process is very significant to understand that ICT can improve the educational process and can also improve the EFL learning. Learning this mechanism is essential to clearly develop a mechanism for integrating technology in early childhood education for EFL or even for general learning.

The initial literature review helped in forming the conceptual framework which indicates a possible link in the use of technology and improved Metacognitive abilities which then helps in improving core competencies which eventually leads to improvement in language competencies. Literature also revealed several Metacognitive and core competencies which could be part of the process of development of language competencies in preschool children. However, the framework is merely conceptual at this stage and needs to be established. Also, missing variables need to be identified.

4.4   The Nature of the Research

This research aims to understand how the use of ICT tools such as the Tablet affects Saudi preschool children's ability to learn EFL. The previous chapter identified the need to investigate this issue in order to integrate technology into education from the preschool stage. Currently, ICT tool-related research is largely focused on secondary level education and above. With the current level of penetration of technology in human society, it seems imperative to get the children ready from an early age to overcome the challenges in future. Technology-based education is different from traditional education in the sense that it gives a lot of control to the learner. Maximising the use of technology for education is a skill and, like other educational skills, must be developed for an early stage. Since the children need to use this method of learning later on in their lives, it is advisable to equip them with this from the early stages of education. The problem, however, is that children are too young to understand how to use it and hence we must develop a mechanism of using technology in early childhood education so that it fits well into the manner in which children learn. Since the construction of knowledge differs significantly between children and adults so should the manner in which the two groups are taught. This may apply to ICT intervention as well. This research looks at specifics of how Tablet use affects children's ability to learn EFL, and why. This will then help the researcher in determining ways of integrating ICT in preschool education in Saudi Arabia. Most past research has ignored investigating the usefulness of ICT-based education for preschool children. Hence, this research takes on that challenge and provides the basis for the development of consistent intervention policies/mechanisms for integrating technology in preschool education in Saudi Arabia. The approaches developed in

the context of western nations are not entirely applicable to this research context where significant cultural differences exist.

4.5   Research Paradigms

Positivist epistemology focuses on generalising the worldview of a problem while interpretive epistemology focuses on contextualising the views. The positivist epistemology is not comprehensive enough on its own for this research because it does not provide a means to examine human experiences, perceptions and behaviour in an in-depth manner. This is required because the aim of this research is to evaluate how the use of ICT affects the learning of EFL among Saudi preschool children. It is quite difficult to measure the key aspects of this research quantitatively because it is almost impossible to structure a questionnaire which will accurately reflect the relationship between the use of ICT and learning of EFL among preschool children. However, this was addressed by statistically analysing the test scores for the English language competencies of children on five scales: Listening, Speaking, Reading, Writing, and Reading Stories.

However, quantitative data alone were not sufficient for this research because the limitations of quantitative methods mean only a certain amount of information could be included. Qualitative data were used to obtain in-depth insight into the perspectives of the teachers who can provide insights into their perceptions of how Tablet use may be affecting children's language skills. In addition, the researcher collected observation data as well to ensure that she observes how the children interact with Tablets and how it affects their learning abilities. This has been done in order to find out how children interact with ICT in relation to language learning. It is important to understand this interaction to assess how they are adopting the

technology and how it is affecting the learning process. The researcher has to immerse herself in the situation to get a good understanding of the context. Therefore, it is pertinent to say that this research has an interpretivism aspect to it. In this respect, this research adopts both positivist and interpretivist epistemologies.

Because this research adopts both positivist and interpretivist epistemologies, the overall research epistemology is pragmatist. The present study adopted the pragmatist paradigm because it is well suited for studies that explore social reality (Wahyuni, 2012). Pragmatism has been regarded as the most appropriate research philosophy to adopt for this study because, as Wahyuni (2012) explains, within the context of social science, any given research undertaking should be a reflection of social reality. Since the present study is grounded in educational research, it is, therefore,

> "essentially concerned with exploring and understanding social phenomena which are educational in nature, mainly pertaining to formalised and/or spontaneously occurring social, cultural, psychological processes which could be termed as education" (Dash, 2005:1).

In this case, research cannot be objective as espoused by the positivist paradigm. According to Britt (1997: 13), positivism regards the values and views of the researcher as having no influence on "*what was studied, how it was studied, what was analyzed, what theories were chosen as competing explanations, and how it was reported: Science was scientific by definition.*" Positivism, therefore, assumes that reality is measured by looking at it through a one-way, value-free mirror (Sohb and Perry, 2005). In contrast, however, educational research which is circumscribed within the confines of social reality cannot be investigated through the lens of a one-way, value-free mirror primarily because the social reality construct itself would tend to regard knowledge that *is "local and specific to a particular research project conducted in particular circumstances with particular participants"* (Hughes, 2001: 38).

However, and in the same vein, social reality within the context of educational research cannot be understood using a purely interpretivist philosophy which assumes that reality is only socially constructed and subjective because observable phenomena were also used to provide credible data. Hence, the prerequisite for the reflection of social reality distinguishes the present study from being purely interpretative; in that it requires only the subjective interpretation of the researcher. Here, knowledge is considered to be both (1) local and specific to understanding the effects of ICT use on the learning of EFL (the particular circumstances) by foundation-level children in Saudi Arabia (the particular participants), and (2) underpinned by observable phenomena (the learning of EFL and the effects of ICT use on such a learning process). Thus, within the context of this research, a mixture of ontology, epistemology and axiology is an acceptable approach (Wahyuni, 2012). Indeed, Wahyuni (2012) considers pragmatism as a research philosophy that regards objectivist and subjectivist views as being not mutually exclusive. Hence, within the context of pragmatism, a false dichotomy exists between positivism and interpretivism. In addition, pragmatism considers the measurable world as being inextricably linked with an existential reality, *"a reference to an experiential world with different elements or layers, some objective, some subjective, and some a mixture of the two"* (Feilzer, 2010: 8). The pragmatist paradigm regards a research philosophy as *"a continuum, rather than an option that stands in opposite positions"* (Wahyuni, 2012: 71).

According to Wahyuni (2012), ontologically, pragmatism considers social reality as comprising multiple external realities where the researcher can choose a view that can best address the research question. Epistemologically, pragmatism considers acceptable knowledge as comprising *"either or both observable phenomena and subjective meanings"* that aim at providing *"acceptable knowledge dependent upon the research question"* (p. 70). Moreover, pragmatism focuses *"on practical applied research, integrating different*

perspectives to help interpret the data" (p.70). Methodologically, pragmatism uses both quantitative and qualitative methods — a mixed-methods approach. When applied within the context of the present study, ontologically, the research considers social reality as being made up of diverse views. Epistemologically, the present study considers acceptable knowledge as being made up of the findings from children's tests (i.e. measurable phenomena and observation — that is, subjective meanings). In the interpretation of collected data, this study relied on practical applied research which involved statistical analysis of children's test results and qualitative interpretation of observation results.

This research is part positivist because it is based on the perspective that ICT intervention is likely to have some impact on all children's ability to learn EFL. This is a general assumption that is applicable and verifiable in all contexts; so to learn whether the use of the Tablet will lead to improvement in Saudi preschool children's ability to learn EF or not, the scientific approach may be suitable. This research is also part interpretive because it is based on the view that the mechanism through which ICT influences the construction of knowledge varies from individual to individual. In order to understand how different individuals may use the Tablet to learn is critical to achieving the aim of this research. It is thus essential to learn about different individuals' experiences in order to develop recommendations for the integration of the Tablet in teaching EFL. Hence, this research contains both interpretive and positivist philosophies and consequently a pragmatist standpoint was considered most suitable.

Pragmatists ascribe to the philosophy that the research question should drive the methods used, believing that epistemological purity alone does not get research done (Johnson and Christensen, 2014; Leech and Onwuegbuzie, 2008). Being a pragmatic researcher gives room for flexibility in investigation techniques that attempt to address a selection of research questions that arise (Leech and Onwuegbuzie, 2008).

In line with pragmatist epistemological stance, mixed ontology was considered useful for this research. As a result, this research mixed subjectivist and objectivist ontological standpoints, as pragmatism recommended. Objectivist ontology helped in establishing whether there is clearly a case for the introduction of ICT-based learning for preschool children. In other words, objectivist ontology helped in establishing whether the use of the Tablet has a positive and verifiable impact on Saudi preschool children's ability to learn EFL. Subjectivist ontology looked at how the use of the Tablet may be changing various competencies of individuals which may eventually lead to improved EFL learning. It also helped the researcher understand the various challenges in integrating ICT for preschool education.

Positivists had used quantitative measures such as test scores as a single measure of improved performance. Oliver and Conole (2003:389) term this as *"a common tendency in evaluation to measure what is easily measured."* However, the researcher believes that such an approach limits our ability to understand how preschool children learn.

Research methodology is driven by the research questions. The nature of research questions, as well as the author's perception of the data and their availability, also affects the choice of research methods (Saunders et al., 2015). This research is looking at several factors which can be primarily divided into three stages:

- First, whether the use of the Tablet improves EFL learning among Saudi preschool children

- Second, what is the mechanism/process through which the Tablet improves EFL learning among Saudi preschool children?

- Third, what are the experiences of the teachers and children in using a Tablet for learning and teaching EFL?

The experiences of the teachers are useful in understanding the possible challenges that may need to be overcome in order to successfully implement a Tablet-based curriculum in Saudi preschool education. Mixing methods can help one understand the diverse views and assumptions, using different methods of collecting and analysing data (Creswell, 2009). Hence, in this research, the multiple methods approach and a mixed methodology are adopted.

In addition, the first step in the examination is *"the establishment of reliable, working alliances with significant individuals in the child's life"* (Meisels and Atkins-Burnett, 2000: 233). In order to gain a clearer picture of children's learning process, as well as teachers' methods for dealing with issues that arise, data were collected using different methods and from different sources. Pragmatist philosophy supported the use of multiple methods and the use of multiple data sources. This supports the use of a mixed methodology for this research.

4.6   Data Collection

This research investigates how the use of a Tablet affects Saudi preschool children's ability to learn EFL by employing a mixed methods approach which is underpinned by pragmatistism. As a pragmatist researcher, this research is in a better position to combine the quantitative portion of the research with the qualitative portion (Leech and Onwuegbuzie, 2008). This research is driven by the methods to answer the research questions (Johnson and Christensen, 2014; Miles and Huberman, 1984). Therefore, the researcher developed a novel conceptual framework which was used to enrich qualitative and quantitative data to answer the research questions. Combining a number of research methods is one of the benefits of pragmatist research which this research aimed to benefit from.

In addition, for this study, the qualitative method is appropriate because it will help the researcher gain insights into an under-researched field of the role of ICT in preschool education. It would be almost impossible to get the preschool children to comment on their experiences, so the best option is to observe them in practice and try to learn from what we observe. In this case, this research uses two sets of observations; one by the researcher herself and the second by the teacher. Teachers' observations were discussed through the interviews.

The researcher employed the use of both quantitative approaches to measure the levels of engagement, and the qualitative approach to gain a deeper insight into what is observed so as to explore the similarities in the data collected. This enabled the researcher to delve further into a dataset to understand the nature of this research and to use one method to verify findings from the other method (Leech and Onwuegbuzie, 2008). Furthermore, one of the weaknesses of qualitative research is the ability for the results to be easily influenced by the researcher's personal biases. However, with the quantitative method which prevents researcher bias, the strength of the quantitative method in this research overcomes the weakness of qualitative research. In this research either qualitative or quantitative approaches alone cannot answer the research questions and hence it is essential to combine the two to achieve the objectives of the research. It is, therefore, pertinent to say that a mixed methods approach is suitable for this research because it makes use of both standardised techniques and less structured techniques.

Feilzer (2010) suggests that there is a chance that mixed methods design leads to cumbersome findings so that the various methods complement each other rather than lead to conflicts. In this respect, Creswell (2009) suggests that designing, analysing and discussing mixed methods research requires careand reflexivity.

Yin (2009:63) puts forward that "*mixed methods research can permit investigators to address more complicated research questions and collect richer and stronger array of evidence that can be accomplished using a single method alone.*" For example, in this research, it is essential to see how the children are using Tablets to learn EFL from both children's and teachers' perspectives.What also needs to be identified is what other challenges the introduction of the Tablet in EFL learning for preschool children might present.

The mixed methods approach is suitable here because it is based on the idea that the use of quantitative and qualitative approachesin combination, will provide the researcher with a better understanding of the research problem than either approach alone can provide. Mixed methods allows overcoming disadvantages of one approach with the other; for example, the quantitative approach allows generalisation but does not allow discovery of new knowledge, while the qualitative approach allows us to discover new knowledge but lacks generalisation. Using the mixed methods approach in this research helped in two ways:

- The quantitaive approach allowed the researcher to confirm which of the Metacognitive and core competencies can be improved using ICT for learning EFL.
- The qualitative approach allowed the researcher to understand how to effectively use ICT for learning EFL.

This better understanding will result from the fact that mixed methods offers strengths that make up for the weaknesses of quantitative and qualitative methods if applied separately (Creswell and Plano-Clark, 2007). The design starts with the gathering and analysis of mixed data, both qualitative and quantitative, and then the learning from all types of data are combined to generate overall findings (Creswell and Plano-Clark, 2007).

For this study, observations were used to explore how preschool children interact with Tablets and how it affects their learning of EFL. Similarly, semi-structured interviews were

used to understand how teachers interact with Tablets; what challenges teachers face in using the Tablet to teach EFL; and how a Tablet can be integrated into the curriculum to make it more effective.

Quantitative data were collected using th escore of the tests conducted before and after Tablet intervention. Qualitative data were collected using observations and semi-structured interviews with the teachers. Like the tests, interviews were conducted before and after the Tablet intervention. The interviews before the intervention were conducted to identify the best manner in which Tablets can be used; that is, to plan for the intervention. The interviews conducted after the intervention were to learn about teachers' experiences and concerns. In addition, the researcher also collected data through observations to see how children are using the Tablet to learn EFL.

4.7   Research Design

A research design is the set of methods and procedures used in collecting and analysing measures of the variables specified in the research problem. There are three kinds of research designs: case study, experiments and surveys. The present study adopted a case study approach. Yin (1984, cited in Patton and Appelbaum, 2003:60) defines a case study as an empirical inquiry that explores and investigates *"a contemporary phenomenon within a real-life context where the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used."* It typically combines data collection methods which include interview, archival searches, observation and questionnaires (Eisenhardt, 1989). Lee and Baskerville (2003:181) define a case study as *"an in-depth,*

multifaceted investigation of a particular object or theme where the object or theme gives it its unity."

This study focuses on the use of ICT in the learning of EFL in Saudi Arabia. It is also anchored on the recent attempts by the Saudi government to introduce English as a subject in the curriculum of elementary education subsequently attesting to the increasing importance of teaching EFL to younger children. Particularly, the main purpose of this study is to explore children's and teachers' experiences of the use of ICT in learning EFL at the foundation level (children aged 5-6) in private schools in Saudi Arabia.

With the increasing involvement of technology in education, the role of ICT in education has become significant. Therefore, this research explores the effect of ICT in EFL learning among the preschool children and how children engage with ICT for the purpose of learning. Teachers play the central role in the process of training and leaning; therefore, the study also explores the process of teachers' engagement with ICT in the context of supporting EFL. The experience of teachers and children is very important to understand the overall effect of ICT in learning EFL.

The setting of the study was '*Here to Grow'*, a private school located in the central urban part of Al Riyadh. The school uses a combination of American Curriculum and Arabic National Curriculum.

The data collection methods used in this study were (1) children's tests, (2) observation, and (3) interview. The choice of data collection methods was influenced by a study conducted by Gahwaji (2011) in a similar research area. Gahwaji's study entitled *The Effects of Using Interactive Teaching Programmes on Preschool Children's Literacy Development: Case Study* primarily investigated the effects of using interactive teaching programs on literacy development of preschool children.

4.7.1   Case Study Design

This research involved allocating Tablets to children to learn EFL. The Tablet was carefully programmed to ensure that children could not use any other app (except for those which could not be disabled as these were system-integrated). Allocation of the Tablet was one per group of three children during a special activity hour. The study began with the researcher interacting with the teachers in charge of the classes that were going to participate in the study. She carefully explained to them what she intended to do and what the purpose of the research was. The purpose of the interaction was to further refine the data collection strategy. Understanding how the school functions, what the key aspects of the curriculum are and other such issues was essential for this study.

English test scores for children were obtained before and after the introduction of the Tablet. These tests were designed to measure EFL skills on five aspects: Listening, Speaking, Reading, Writing, and Reading Stories. In addition, the researcher prepared observation and interview protocols based on the conceptual framework.

During the session, the teacher had one Tablet which she used to demonstrate to the children what to do and how to use the Tablet. As discussed above, most of the apps on the Tablet were disabled, and only the apps which were system-integrated were retained. New apps for EFL and some additional general knowledge apps in English were installed. This was done just in case the children chose not to use the app that they were asked to use. The idea was to see if they can explore more than they were asked to and, for this purpose, new apps were installed so that even when they explored other apps, they learned something related to EFL. All the apps on the screen except the Google Chrome browser were English learning apps with PEGI rating. (PEGI) Pan European Game Information - is a content rating system

established to help adults make informed decisions when buying video games or apps for children through the use of age recommendations and content descriptors.

4.7.2   Data Collection

Data were collected using English test scores, interviews and observations. The experiment was conducted using ICT devices (Tablets with apps). Touch-enabled ICT devices were considered most suitable for this research because it ensured that children could use them without much effort and guidance. Seeing and touching are two senses which are intuitively developed at the very early stage. The results of the pilot study confirmed that other forms of ICT tools such as laptops and PCs are too complicated for young children; instead, touchscreen devices can be used intuitively by children.

Before data collection the researcher conducted a pilot study preliminary session with the management and teachers to discuss what the researcher was intending to do and what the best approach to take would be. The researcher wanted to ensure two factors:

- The experiment should not cause any disruption in the day-to-day activities of the teachers as this would have invalidated the experiment and findings.
- It was essential that teachers and management were comfortable with the design and implementation of the experiment as, failing this, they would have either not supported the research or would not have participated in the intended manner.

Since teachers knew how they operate in the preschool it was considered most suitable to take their feedback on conducting the experiment correctly. [See Tables K and L in the appendices.]

Then researcher met the teachers for the preliminary interaction and to organise the classroom environment before the start of the school term. During the preliminary session, the researcher clarified that she is trying to understand the impact of the use of graphical ICT devices on learning of EFL among preschool children. Essentially, the researcher was looking for ways to give ICT devices to the children and use these for EFL learning. She would then evaluate the performance of the children immediately before and after the intervention to see if the use of ICT has led to any marked improvement in the EFL learning capabilities of the children. Teachers were asked for any specific suggestions they had regarding what kind of apps could be used and what their suggestions were for different aspects of intervention. The meeting focused on the discussion about installing ICT devices in one class and on administering the English test when the children came to class. Also, teachers handling the experimental class (ICT class) were informed that ICT tools would be used in the classroom in order to know how these ICT tools can affect the learning and teaching of EFL and whether there would be differences in teaching EFL with the aid of ICT tools and without them.

Another meeting was conducted during the pilot study with the owner of the preschool, head of preschool, head of English Language and all the preschool's teachers. In this meeting it was suggested that the best approach would be to bring only five Tablets for the experiment and let the children share the devices. Those involved in the meeting recommended arranging another meeting with the teachers to identify the most suitable apps for the experiment because it was essential that these apps aligned with the content that was being taught to the children as per the curriculum.

In the meeting with the teachers, discussion was focused on which apps to install for the experiment. A list of apps was prepared – six apps were selected for use throughout the experiment and another two apps were selected for teaching lessons from time to time; for example, an app related to learning words on transportation was installed for two weeks and

then removed and, in place of that, apps related to animals were installed. This was usually done at the beginning of every new unit.

The apps used in this study were as follows:

Spelling Bee

Socratica, LLC   Education

[3] PEGI 3

Dr. Seuss's ABC

Oceanhouse Media, Inc.   Books & Reference   Education

[3] PEGI 3

123s ABC Kids Handwriting Game

TeachersParadise: Learning games for kids & adults
Educational   Education

[3] PEGI 3

All By Myself - Little Critter

Oceanhouse Media, Inc.   Books & Reference   Education

3 PEGI 3

ABC Games to Teach Children Letter Sounds Phonics

Intellijoy Educational Games for Kids   Educational Education

3 PEGI 3

These apps were selected based on the following criteria:

- It should be working on the Android platform as the Tablets provided were running Android operating systems.

- These should have PEGI certification which means these should be suitable for young children.

- These should be related to EFL.

- The apps should be available for off line use. Although the Tablets were Internet-enabled, Internet access was only provided from time to time when the teacher wanted the children to search something online; usually at the beginning of a new unit.

Six apps were selected because, as the teachers said, too many apps would have confused children, while selecting fewer would have either led to them giving up or not exploring enough. These six apps were selected by the ranking/feedback given to these apps by other users. These apps were installed on all the android Tablets provided for the intervention along with Google Chrome browser with safety setting set to most secure, which meant that any content not considered suitable for children was not shown.

Teachers were informed that the researcher would visit the class during the intervention to carry out the observation. Permission for this was already obtained from school authorities, relevant teachers, and parents of the children studying in the class.

During the intervention, teachers gave Tablets to the children and showed each one how to use them when handing over the Tablet. Each teacher spent around one minute with each child showing them how to use the Tablet — like clicking on the icon and clicking on the images. The idea was to teach the children that if they wish to see more about something they will need to click on it. Also, teachers showed them how to type in the alphabet to find what they wanted to see or to find answers to questions. Apps were selected so that the questions were self-explanatory as the children could not have understood the questions on their own. The teacher also had a Tablet which she raised from time to time and showed the children how to use it. In each lesson, the teacher took a total 10 minutes, including one minute to demonstrate to each child in person as well as two to three minutes to explain to the whole class how to use Tablets. Tablets were in protective covers as there was a strong chance of mishandling as the users were quite young.

Figure 5 Tablets with Installed App

Source: Photo taken by the Researcher

Data were collected in three stages. At the first stage, group 1 (G1) teachers were interviewed. Also children-participants of G1 were observed six weeks after the introduction and use of the ICT intervention. G1 children-participants were observed weekly from 1 February 2015 up to 15 March 2015. Hence, G1 was the experimental group at the beginning of the term (25 January 2015) up to the half term break on 22 March 2015. All G1 children were given the school standard in-house English Language Test at the beginning of the term (pre-test). All G1 members were given access to the Tablets and the apps with the guidance and instruction of the teachers, whilst no group 2 (G2) members were provided with Tablets. Hence, G2 was the control group.

The second stage, six weeks later, was on 22 March 2015. The researcher interviewed the experimental class G1 teacher to ascertain her reflections on her experience about the use of ICT in teaching EFL and her observations about its effects on the children's learning of EFL. Also, post-English language tests were conducted with all G1 children.

At this stage, there was a switching-over point, whereby G1 children were no longer given access to the Tablets. Hence, G1 which was the experimental group at the beginning of the term now became the control group. At this point, all G2 children were given school English Test as a pre-test. Also, G2 teachers were interviewed. At this point G2 children were given access to the Tablets and became the experimental group.

The advantage of this switching-over point was that all G1 and G2 children were given the same chance to experience the ICT intervention (an ethical issue), and it was also envisaged that it would help the researcher validate whether or not the improvement in the learning of EFL was in fact due to the use of ICT.
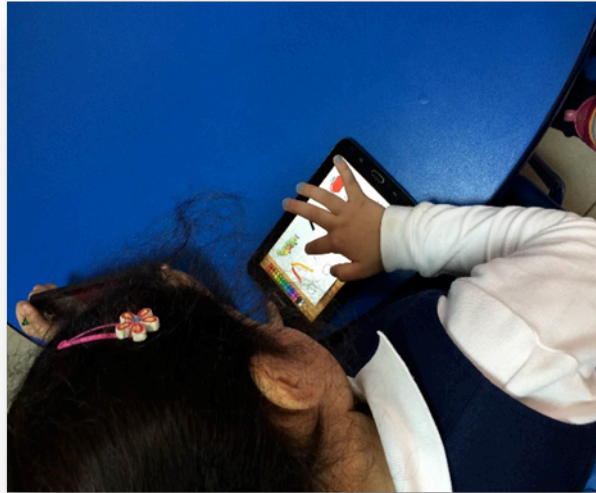
Figure 6 Member of G1 using the Tablet

Source: Photo taken by the Researcher

Figure 7 Member of G2 using the Tablet

Source: Photo taken by the Researcher

At Stage three, six weeks after Stage 2 (specifically on 17 May 2015), the researcher interviewed the teachers of G2 to ascertain her reflections on her experience about the use of ICT in teaching EFL and her observations about its effects on the children's learning of EFL. During this period, the English Test was administered to all G2 children as a post-test.

All gathered data were organised and coded accordingly. For the analysis of data collected from the children's tests, the present study adopted Gahwaji's (2011) method of data analysis that used SPSS. Data collected through the interviews and observations were manually processed using the thematic analysis technique. Table 1 below presents the timetable of research activities followed in the present study.

Table 1 Timetable of Research Activities followed in the Present Study
Source: Created by the Researcher

Weeks		Tasks
1.	(Jan 4th)	- Meeting the school's director (consent form)
		- Meeting the head teacher (consent form)
2.	(Jan 11th Pilot study week)	- Meeting the class teachers (consent form+ Interview+ discuss how we could do the English test for the children)
		- Sending the consent form for the children' parents
3.	(Jan 18th)	**During the half-term break**
		- Preparing the class's environment
		- Installing the technology devices
4.	(Jan 25th)	**The beginning of the 2nd term**
		- English Language Test for G1 children (pre test)
		- Interview the teachers of G1
5.	(Feb 1st)	G1 Observation
6.	(Feb 8th)	G1 Observation
7.	(Feb 15th)	G1 Observation

8.	(Feb 22nd)	G1 Observation
9.	(Mar 1st)	G1 Observation
10.	(Mar 8th)	G1 Observation
11.	(Mar 15th)	- English Language Test for G1 (post test) and for G2 as (pre test) - Interview the teachers of G1 as (post interview) and G2 as (pre interview) - Preparing for the switching over point
12.	(Mar 22nd)	**Half term break (switching over point)**
13.	(Mar 29th)	G2 Observation
14.	(Apr 5th)	G2 Observation
15.	(Apr 12th)	G2 Observation
16.	(Apr 19th)	G2 Observation
17.	(Apr 26th)	G2 Observation
18.	(May 3rd)	G2 Observation
19.	(May 10th)	English Assessment Test for G2
20.	(May 17th)	Interview the teachers of G2
21.	(May 24th)	Meeting the head teacher
22.	(May 31st)	Meeting the school's director (end of the term)

4.7.3   Data Collection Methods

The data collection methods used in this study were (1) children's tests, (2) non-participant observation, and (3) semi-structured interviews

Children's Tests:

According to Piaget's constructivist theory, child-determined exploration and guided discovery, as opposed to direct teaching, serve as the basis for learning. In addition, Ciampa (2012:3-4) asserted that "*the constructivist goals of learner control, autonomy support, choice, active problem-solving, and use of relevant and authentic texts in beginning reading instruction are preferred to explicit, teacher-directed instruction.*" Thus, Piaget's constructivist theory underpins the stated benefits of ICT use in educational settings. In

particular, it is reflected in Weber's claim that (2011: 565) ICT provides *"better access, more control, and greater freedom for e-learners";* as well as in Sharples et al.'s (2005) view that children need to cultivate a reflective, 'Metacognitive Awareness' (meaning an understanding of their own learning processes) of their own creative and safe engagement with ICT.

Similarly, Vygotsky's (1978) Social Constructivism Theory posits that social aspects or factors such as friendships and a sense of togetherness are important to learning. Social interaction plays a key role in the development of cognitive skills (Chung, 2012). Chung (2012) explained that Vygotsky (1978) subsequently developed the 'Zone of Proximal Development' (ZPD) theory to further illuminate the reason behind the positive effect of social interaction on an individual's cognitive development.

ICT tools are viewed as devices that enhance social interaction and child play when applied in educational settings (Gahwaji, 2011). Plowman and Stephen (2005) also found that there is a positive relationship between play and learning, highlighting the advantages of introducing children to ICT at an early age. These findings strongly support the assumptions behind Piaget's Constructivist Theory as well as Vygotsky's (1978) Social Constructivism Theory. Overall, the children's tests will be used to assess the effectiveness of using these ICT tools in their learning of English and subsequently provide support to or evidence against the aforementioned learning theories.

The children's tests were used to investigate the impact of the usage of ICT tools on their learning of English and subsequently provide support for or evidence against the aforementioned learning theories. The children were tested twice during the study in order to gauge the effectiveness of the ICT intervention. Test scores of each child were obtained for all tests. The test was the same which was used in the preschools to test progress of children in the past; in this respect the test was the same as the baseline. The only difference was that

instead of a single end-of-term test the researcher asked the teachers to conduct the English language test twice — once before the experment and once after. [See appendice H.]

Open Observation:

Regarding the assessment of children in early years' foundation stage Palaiologou (2010) talks about using a number of assessment tools to assess children's performance. In particular, she talks about using different observation techniques to assess children's performance. Observation technique is used in this research to assess how children are interacting with the Tablet and how the use of the Tablet may be affecting their EFL learning.

This study used open observation to record changes in Metacognitive, core and language skills of children. All G1 members were initially given access to the Tablet and the apps, while no G2 members were provided with a Tablet. Hence, G2 served as the control group. Then there was a switching-over point; whereby G1 members were no longer given access to the tablet. Hence, G1 which was the experimental group at the beginning of the term now became the control group. At this point, all G2 members were given access to the Tablet and hence became the experimental group.

Semi-structured interviews with the teachers:

EFL teachers for both groups G1 and G2 were interviewed before and after the ICT intervention. For the interviews before ICT intervention, the main objective was to learn about:

- How teachers teach,

- What the issues are that they face in teaching EFL to such young children, and

- What suggestions they had regarding the ICT intervention experiment.

Several suggestions made by the teachers were used to plan adequately for ICT intervention. For example, teachers suggested that instead of giving one Tablet to each child it was better to arrange them in groups of three and give one Tablet to each group.

Another set of interviews was conducted with EFL teachers at the end of ICT intervention to learn about their experiences, challenges they faced, and the suggestions that they have for integrating ICT in preschool education.

4.7.4 Access and Sampling

This research involved conducting an experiment where children were given touchscreen Tablets to use and the researcher observed them over a period of time. Because the researcher was going to observe all the children in the class as well as the teachers it was essential to ensure that all of these individuals agreed to participate in the research. This experiment was to be conducted in a preschool nursery in Saudi Arabia and the sample was restricted due to the following reasons:

- As the experiment involved complete involvement of the researcher, this meant that the researcher could only conduct one experiment at one time.
- Because the researcher was going to observe the children it was essential to take permission from parents of all of the children in the classes included in the experiment. This was the main hurdle in increasing the sample size. The management of 11 schools were contacted for collecting data and out of this, the management of seven schools rejected the request. Out of the remaining four schools where management granted permission to conduct the study, in three cases the researcher could not obtain the

permission of all of the parents. This left only one school where the management, the teachers and the parents of all the children agreed for the researcher to conduct the study.

The participants included teachers teaching EFL to preschool children at '*Here to Grow*', a private school located in the central urban part of Al Riyadh. The school management was contacted, and their permission was obtained. After obtaining management's permission, the permission of the teachers and the parents of the children who were likely to participate in the intervention were contacted, and their consent was obtained. None of the teachers or parents objected.

With regards to sampling, it is important to mention here that, according to Saudi law, the workforce in kindergartens was composed of female teachers only; therefore, men were not allowed to access school due to cultural differences. Therefore, the sample comprised female teachers only.

4.7.5   Other Considerations

To ensure methodological coherence, respondents were given sufficient prior information as well as time to prepare themselves for the interviews. Respondents were also given sufficient time to ask for any explanations before or during the interviews. Interviews were transcribed completely including the behaviours of the respondents.

All information was disclosed completely and truthfully to the participants. Respondents were also given the right to voluntary participation and freedom to withdraw (Flick, 2007). No compensation was provided; however, light refreshments were offered to the respondents

for their participation in the research. Their permissions was also sought to include their names in the acknowledgement section of the thesis. Respondents were informed at the time of consent that no other form of compensation was to be provided. The researcher also guaranteed the protection of privacy and anonymity of the respondents.

4.8   Ethics

Ethical considerations relevant to the present research are centred on the following ethical issues: (1) the use of human participants in the study; (2) privacy for the participants and the confidentiality of the information that they have provided; (3) data protection; (4) the requirement for informed consent of the participants; and (5) vulnerable populations.

To address the first ethical issue, the researcher ensured the protection of participants from any form of physical or psychological danger during their participation in the study. This was done by explaining to the teachers and parents of the children-participants what their participation would entail. The researcher explained in detail to them that the ICT intervention would consist of the Tablet, and described the app that would be used. The researcher also explained the mechanics of the switching-over point wherein all G1 members will initially be given access to the Tablets and the apps with the guidance and instruction of the teachers, while no G2 members would be provided with Tablets. Hence, G2 will serve as the control group. Then, the researcher explained that there would be a switching-over point, whereby G1 members would no longer be given access to the Tablets. Hence, G1, which was the experimental group at the beginning of the term, will now become the control group. At this point, all G2 members would be given access to the Tablets, with the guidance and instruction of the teachers, and hence will become the experimental group. The researcher

made sure that this information was clearly understood by the teachers and parents of the children-participants.

The researcher also explained that the research activities were adopted from a previous study by Gahwaji (2011) wherein no physical or psychological harm was incurred by the participants. Furthermore, participants (teachers) and parents of the children-participants were debriefed after conducting the study. All participants (and their parents — in the case of the children-participants) were given the opportunity to decide whether or not to continue with their participation in this study. They were given the prerogative to withdraw at any stage of the investigation, and they were informed of their right to do so.

To address the issue of confidentiality of information about the participants and their respective responses, no further contact with the participants was made after the administration of the research instruments which include the following: the English Assessment Test and Evaluation; Open Observation for Children and Teacher Participants' Schedules; and Teachers' Interview Schedule. In addition, the confidentiality and anonymity of all participants were upheld throughout the research. Furthermore, permission was obtained from parents and school authorities for the use of any images of children-participants taken during the study.

To address the issue of data protection, the researcher made sure that the collection, storage, disclosure, and use of research data obtained from the participants strictly and fully complied with the Data Protection Act of 1998, which places obligations relevant "*to fair and lawful data collection and processing*" (Matwyshyn, 2009:238). This was done through the inclusion of the following clauses in the Parents of the Children-Participant Debriefing Form (see Appendix): (a) "The information your child provided will only be used for the thesis, and will not be disclosed to any third party, except as part of the thesis findings, or as part of the

supervisory or assessment processes of the University of Roehampton"; and (b) "The data your child provided will be kept until December 2017 or submission of the thesis, whichever is later, so that it is available for scrutiny by the University of Roehampton as part of the assessment process." All collected data were stored and pass-worded in the researcher's personal computer. The researcher had sole access to these data.

A potential hazard that was considered was the emotional distress that participants might experience during the conduct of the study. Since this study also involved the participation of young children, the risk of emotional distress has been considered to be likely, due to the inverse relationship between perceived self-efficacy and depression (Bandura, 1977). Young children who perceive themselves to have a low sense of efficacy in the learning of English as a Foreign Language or in the use of information and communications technology tools may lose faith in their capabilities and fall easy victims to "*stress and depression*" (Bandura, 1977: 144). The same principle applies to the teacher-participants who have low perceived self-efficacy when it comes to the use of ICT tools. To address this issue, study participants (teachers) and parents of the children-participants were debriefed after the conduct of the study.

It was explained to the teachers and parents that they have to be more emotionally sensitive towards the children. There is the possibility of emotional stress among the children due to the lack of efficacy to adopt the technology. Therefore, it was explained to the parents that it was necessary to support their children when at home. The parents were debriefed about the emotional and mental support that they could provide to their children. Self-efficacy is associated with the generation of positive thinking skills; therefore, parents were asked to motivate their children to use and understand technology. Parents were also asked to praise the efforts of their children and to encourage them towards specific performance attainment.

To address the issue of vulnerable populations (i.e. children-participants), the researcher informed the parents that participation of their children in this study is justified in this particular research undertaking, and that results from a previous study [i.e. Gahwaji's (2011) study] indicate that the present study would not be harmful to children. Furthermore, the researcher asked permission from the parents to allow their children to participate prior to data collection. If permission was not granted, then they were given the right not to let their children take part in this study.

The parents of the children-participants were very enthusiastic and agreed to the participation of their children in the research. Most of the parents believed that integration of ICT would be effective in the learning process and would also help their children to enhance their learning skills. Some of the parents were concerned about the ability of their children if they would be able to cope with the research and change in the learning patterns. However, the researcher and the teachers also helped parents to understand that this process will be done under the guidance of and with the support of teachers, and every child would be under observation, so no child will be left out.

The aforementioned researcher's responsibilities to study participants — which include the provision of a voluntary informed consent, the right to withdraw from the research and protection of children-participants — were dispensed in accordance with the BERA (2011) ethical guidelines for educational research.

4.9   Data Analysis

4.9.1   Variable Identification

The researcher reviewed existing studies to understand how ICT affects people's language skills. Most of the past research has focused on teenage years, and hence there was a need to develop a new framework to understand how the language skills are developed in preschool children. The researcher found that there are two components which affect preschool children's language competency. The first one is children's Metacognitive competency which refers to general problem-solving skills such as creativity, problem-solving and autonomy as well as general skills such as communication and self-development. The second one is the core competencies which refer to the competencies that individuals need in general for improving their learning abilities. This includes process and task competencies which are essentially technical skills which the children need for leaning any subject including EFL. In addition, it includes personal competencies such as the ability to share information, ability to focus, ability to identify the relevant information from the irrelevant one, and others. For measuring the performance in terms of EFL, five key language skills were identified: listening, reading, writing, speaking and reading stories. The idea was to see not only whether the child's performance improves in terms of the tests but also in general life, that is, are they more confident and comfortable in speaking and reading English? Language is a codified method of communication which is understood similarly by all the individuals who understand the language in question. Learning a language requires not only being able to score well in exams, but also the ability to use it functionally in day-to-day life. For this reason, it is essential to consider language as a competency skill, rather than as a subject. In this respect, this research also looks at learning EFL as a competency which, like other

competencies, needs to be developed through conscious efforts. In the case of preschool children, this conscious effort needs to come from the teachers and curriculum designers.

Overall, in this research, there were three categories of variables at the beginning. The first was Metacognitive competencies, the second was core competencies, and the final one was language competencies. However, the researcher kept the additional text of the transcript in a separate bracket to see if that text itself can be assigned to another variable which was not considered in the conceptual framework. As the results in Chapter 4 indicate, this data analysis found two additional themes: Teacher's role (teacher training on use of ICT; teacher involvement in using ICT; construction vs instruction) and ICT utilisation in preschool education (ICT integration in course design; ICT-based course exercises; independent skill development; interactive/multimedia content).

4.9.2 Quantitative Data Analysis

Data collected for the children's tests which consisted of test scores for the English Language Assessment Test were analysed using SPSS.The quantitative analysis of the data is very important to provide the empirical evidence of the research. The quantitative data are also significant to determine the difference in the experimental group and the control group. In this respect we need to understand how ICT affects the EFL learning among the preschool children and how the children iteract with ICT for EFL learning. The scores provided through the quantitative analyses help to determine the answers to these questions. The higher engagement with the process helps in improving the post-test scores of the child and helps in providing the information about the improvement in the Metacognitive competencies and core competencies.

For the statistical analysis, it is significant to determine the mean scores of the two samples. Therefore, the two samples from which the scores are determined are the English language tests that are taken before and after the experiment. The research was carried out by comparing the means of the two samples only, which is one before the ICT intervention and the second after the ICT intervention. The mean test score is obtained for the competencies associated with listening, speaking, writing, reading, and reading stories. These are some important competencies that are also significant for the learning of a language.

The mean scores in the research are obtained for the five different competencies and the mean scores are compared to find if the children have achieved some improvement in the reported competencies. The specific aim of the scores obtained from the pre- and post-tests was to collect the qualitative data and establish significance of the research. It is important to understand the improvement of children in using the English language. Since all the children are fluent in Arabic the appropriate data collection for quantitative analysis becomes very important. Therefore, the differences in the mean scores of both the samples have helped in providing effective data.

4.9.3   Qualitative Data Analysis

The first and foremost step in the analysis of interview data was the preparation of the data for analysis. Interviews were conducted to collect qualitative data. However, since not all respondents were fluent in English (even though they are English teachers), the interviews were conducted in Arabic. All of the respondents spoke fluent Arabic, as all of them are native Arabic speakers. A content translation — like faithful translation — produces the precise contextual meaning of the original discourse within the text and the constraints of the

text's grammatical structures (Flick, 2007). However, this method is not suitable for this study since the Saudi dialect is substantially different from that of the Formal Arabic language (Farghal and Shunnaq, 1992). Another is the recognised translation method; in this method the translator normally uses the formal and generally accepted translation of any institutional term (Gruber, 1993). This method was considered; however, eliciting various perceptions from different interviews may prove tedious and requires huge time and effort. Finally, the researcher instructed the translator to combine both idiomatic translations (Gruber, 1993) that normally reproduce the concept of the original. However, this method tends to omit noises or meaningless words (Mossop, 1990) by preferring colloquialisms and idioms where these noises or meaningless words are extracted from the original word. Communicative translation is a type of translation of the exact contextual meaning of the original (Gruber, 1993) such that both content and language are readily acceptable and comprehensible to the audience (Jianzhong, 1998). Furthermore, the researcher discussed the research objectives and methodologies with the translator in order for the translator to produce a near cultural equivalent to the concepts and constructs of preschool children's learning.

Data collected from observation of children participants which consisted of field notes were coded and manually analysed. According to Brophy, Snooks and Griffiths (2008:136), for less structured observation such as open observation, data "*can be coded and analyzed in the same way as the texts of interview transcripts — carefully relating the codes to the evaluation aims and objectives.*"

Thematic analysis was used to analyse the data. In the current study, specific questions were developed. It is worth mentioning that this study applied the quantitative method on the impact of Tablet use on EFL learning among preschool children. The analysis was based on

the questions set for the interviws. Therefore, codes were established based on the variables explained in the conceptual framework section at the end of the literature review. Consequently, the coding followed two procedures. The first was prior coding, where the categories were based on what has been obtained in the previous study. Second, open coding was used for the purpose of defining the new categories that arose during the examination of the data. As a result, it has created two new categories called the *teacher's role* and *ICT utilisation*.

Chapter 5   Data Analysis

5.1   Analysis of Interviews before ICT Intervention

Prior to the ICT intervention, interviews were carried out with teachers to find out how they intend to introduce Tablet in the classes and what results they expect. Themes for these interviews were based on the conceptual framework but the researcher was open to find the hitherto unidentified themes.

The conceptual framework describes that the learning of EFL is most likely to take place through the development of Metacognitive competencies and core competencies. Therefore, aim of the the first round of interviews was to understand not only teachers' experience of teaching EFL but also how they expect ICT intervention to affect Metacognitive, core and language competencies of children.

The researcher first wanted to know whether the respondents agreed with the researcher's conceptual framework. Respondents agreed that Metacognitive competencies of individuals are critical for education not only learning EFL. As one of the respondents commented:

> "Skills such as communication, creativity, and self-development are critical for children to develop their overall knowledge. I mean what we are doing here is not teaching the subjects but rather developing their skills which will help them learn easily in future."

Another respondent agreed:

> "This is what true knowledge is. I mean what else do? We teach children. We use gameplay and other techniques to teach these things only. We do not teach subjects, but we teach them how to learn from things around them so Metacognitive competencies are the most critical things for us at this stage of learning."

All of the respondents strongly agreed that Metacognitive competencies are critical for learning EFL and one of the most common aspects of preschool education is the development of Metacognitive competencies. However, respondents also suggested that developing Metacognitive competencies takes a long time and there needs to be a systematic approach, so that the entire time that the children spend in school is spent on developing their Metacognitive competencies. As one of the teachers noted,

> "this is what we try to do all the time, but this is something that takes years of persistent efforts. It is needed for everything really. Not only education but also for working and even living socially."

Respondents agreed that for teaching EFL, development of core competencies such as the ability to identify useful information and then using the information to accomplish something is essential. This is basically an application of the personal competencies in an educational context. Respondents agreed that development of core competencies is critical for education.

5.1.1 Metacognitive Competency Development and Teaching EFL

Metacognitive competencies such as communication are critical for learning languages because most individuals learn languages through communicating with each other. Language is used for communication, and this communication is essential for learning any language. Respondents in the interviews agreed that Metacognitive competencies are critical for learning EFL for Saudi preschool-level children.

Learning language is different compared to learning other subjects; it cannot be purely instruction-based, and individuals need to use their own cognition to practically implement the knowledge. For example, individuals need to understand the use of a word in different sentences and contexts. This means that language learning is very specific to the individual.

Consequently, it requires a great deal of self-involvement and self-management; hence self-development skills are critical to learning languages.

5.1.2   Core Competency Development and Teaching EFL

Respondents agreed that core competencies are critical for learning EFL for Saudi preschool-level children. Core competencies are critical for learning because it ensures that children are able to systematically utilise their information to construct knowledge. For example, children learn how to systematically approach a problem and how to find its solution methodically. They must know what process they should/could follow to solve a problem.

Core competency is often learnt with teachers' involvement because teachers instruct children how to identify the problems, how to select a process for solving the problem, and how to identify possible solutions. This is a systematic process which is taught through practical exercises. All of the teachers agreed that core competencies are critical for any formal education system including EFL. As one of the teachers explained,

> "learning of languages such as how to construct sentences using words and right grammar need to be taught to the children."

5.1.3 Developing Metacognitive and Core Competencies of Children and Impact on Ability to Teach EFL

Respondents indicated that for developing Metacognitive and core competencies, the teaching plans are designed so as to focus on the development of these skills. For example, one of the teachers commented,

> "I encourage all of the children to stand up and speak about different things in the class. By this, I look to improve their communication skills and confidence which I know will help them in future."

Developing Metacognitive competencies is far more difficult compared to developing core competencies, as one of the teachers noted:

> "Metacognitive competencies are more related to the personality. Now we all look to develop children's personality but some things we cannot. Like some childrenare introvert by nature so we cannot turn them into extroverts. Core competencies can be taught through lessons and all. We can have exercises, lesson plans so that it helps the childrenin developing core competencies."

The views were expressed by other teachers. For example, one of the teachers from Group B commented,

> "Metacognitive competencies are developed over a very long time period. It requiresachange in personality and nature of the individual. But core competencies like how to solve problems can be taught. That what the teachers do in fact."

One teacher from Group A commented:

> "For all subjects, teachers use their own techniques to teach how to solve problems related to that subject. This means that core competencies are related to subjects. I mean there isadifferent process of solving maths problems than solving science problems. Similarly, English language competencies such as making sentences, reading stories require different skills which we can teach. These can be taught."

The respondents, thus, agree that developing core competencies is easier as compared to developing meta-competencies because developing latter requires long-term sustained efforts to bring about desirable changes in people's personalities and behaviour. Core competencies

are technical in nature, and teachers for different subjects use their own strategies such as lessons and exercise planning to enhance these core competencies.

5.1.4 Key Challenges in Teaching EFL

Respondents were asked about the challenges they currently face in teaching EFL to children. Teachers listed numerous challenges they currently face in teaching EFL. One of the most common challenges that the teachers spoke about was the poor preparation to teach English. Teachers acknowledged that they have to often use Arabic to explain words in English and, as a result, they are not able to teach English the way they want to. As one of the teachers commented

> "most of the children have little basic knowledge of English, so we have no choice other than using Arabic to teach them even English language. I know this is not at all effective, but we have little choice."

Another teacher made the same comment:

> "I agree with your view. We do use the Arabic language to explain the meaning of English words and even to teach grammar. But to be honest, you will see this not only at preschool education level but, actually, this is a common practice in teaching EFL at even higher education standards in Saudi."

Teachers thus agreed that poor knowledge of English among children forces the teachers to use Arabic as a medium of instruction even to teach EFL. When asked if this could be changed, one of the teachers commented,

> "the problem with young children is that they do not ask if they do not understand. So I choose the safer option. By choosing Arabic, I make sure that all of the children will understand what I am saying. If I choose English, then some children will definitely not understand, and they will not even ask."

Lack of adequate teaching material is another key challenge mentioned by the teachers, who indicated that there was a lack of appropriate material for teaching EFL. According to one of the teachers:

> "if you look at the material and the exercises it is so different from other subjects that we teach. Our EFL teaching model is simply adopted from abroad, and I believe this is not suitable for our children."

Respondents suggested that the books that are provided to them are not suitable (in their opinion) to teach EFL to Saudi children. As one of the teachers suggested:

> "I find it so difficult to teach children using these books. The problem is that it is a long course and I have to finish this during the session. Now, this makes me rush through the lessons even though I know that mychildren are not learning. If you talk to other teachers, they will confirm."

Indeed other teachers confirmed that the EFL course is poorly designed, particularly in terms of being too complicated for them to teach.

When asked, teachers suggested that they have not received any formal training in teaching EFL. They got the jobs because they had teaching experience and knew the English language, but they have not received any formal training to teach English. One of the teachers commented,

> "at higher levels, they look for teachers who have some certificate in teaching English but for preschool levels, no such training is required. In fact, when I receive such certificate I will not be teaching here but in some higher level class. It's not only for English only but for other subjects also. I don't think any of the teachers in these schools have received any training to teach."

According to another of the teachers:

> "I think the preschool level teachers need more training than anyone else because we deal with young individuals who know very little and who area completelyblank book. We can through our efforts help these children develop their overall skills so that they will become very efficient learners. The problem is that we do not know how to do so. I think it is more critical for us than for teachers teaching higher level children because those children already know a lot and do not need as much support as compared to the ones we teach."

5.1.5 Teaching EFL Better

One of the teachers commented:

> "I think we should focus on quality rather than quantity. We should not look at how much content we are covering in the session but rather on what kind of knowledge we are giving to the children."

Other teachers also agreed that overload of course content often affects their ability to teach adequately; one commented:

> "I think they should let the teachers control the content. There could be books, but teachers should have the flexibility of teaching whatever they can."

While this is a useful suggestion, may not be practically implementable because this would lead to a discrepancy in the level of knowledge delivered to every child. There needs to be some form of formalised system. However, at the same time, it can be useful to give more control to the teachers in terms of how they teach.

Teachers also recommended that there should be more involvement of the children, and that lessons should involve not only instruction but also the involvement of the children. However, course design does not involve child involvement but rather teachers teaching children, with children merely expected to copy what the teacher delivered. Teachers suggested that they should be given more control to design lessons so as to improve interaction and communication among individuals. In other words, teachers recommended that the current course design and method of instruction are not conducive for development of Metacognitive competencies.

5.1.6 Use of the Tablet in Teaching EFL more Effectively

Teachers more or less agreed that use of the Tablet is likely to improve their ability to teach EFL. One teacher for Group A commented,

> "I think the tablet will be very useful. It will overcome many of the problems that we discussed. We can use to teach them using multimedia which of course is much better than books alone."

Regarding whether the use of the Tablet is suitable for children as young as those studying in the kindergarten schools, one of the teachers commented:

> "See, most of the children today are heavily exposed to new gadgets such as the Tablet because older people in their house use it all the time. So this is something that they already know a bit about. If we can use this to improve education, then I do not see why not."

Another respondent supported this view and commented:

> "Today most of the parents give their children Tablets and iPhones to play games. If we can use this to teach them something, then I think it will be a wonderful thing. There are some children who have not been exposed to these gadgets. By using them in schools, we can expose them to these gadgets as they will need this knowledge in future."

Regarding teaching EFL using Tablets teachers were quite sure that using a Tablet will be quite useful. One teacher from Group B commented,

> "Tablet or any Tablet can be useful for teaching English. Children can see videos, listen to rhymes, and learn pronunciation. This is difficult for us to teach but when they see videos in English, they will be able to learn quicker."

Another teacher commented,

> "of course it will be good, especially in improving their pronunciation. When we talk, we still talk in mostly Arabic accent, but there are so many apps on Tablets which young kids can use to learn."

One of the teachers, however, disagreed:

> "Tablets may be useful for older kids but not for young ones. I mean they are anyway difficult to control as they are not able to focus in class. If you give them Tablets, how would their ability to focus be affected? I am sure that it will be more distracting for them and they will be doing things, maybe learning how to use the Tablet but not learning English."

These opinions indicate that while Tablets can be potentially beneficial in teaching EFL, there is a possibility that it might have a negative impact. The researcher intended to observe to see what potential benefits and negative implications emerge from the use of Tablets in teaching EFL.

5.2   Quantitative Analysis of English Test Score

The first analysis undertaken was the comparison of the English tests score for all the children before and after ICT intervention. The data were first checked for normality of data which is considered useful for most statistical tests (Tabachnick and Fidell, 2007). Skewness and kurtosis are two commonly used methods to check for normality of data.
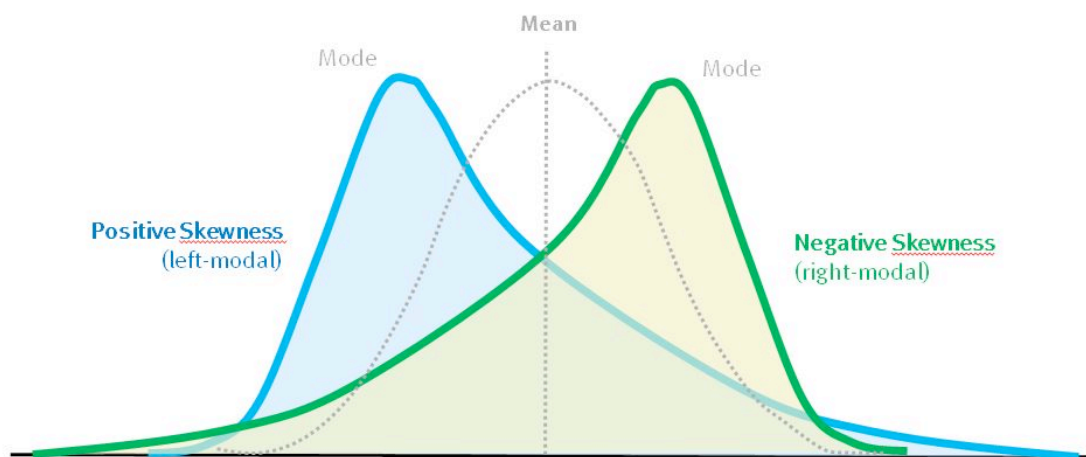
Figure 8 Negative and positive skewness sample

Left-tailed distribution indicates clustering of responses on the right-hand side. This is known as negatively skewed distribution. The positively skewed distribution is right-tailed indicating more responses clustered on the left side. Positive kurtosis indicates peaked distribution as compared to normal distribution while negative kurtosis indicates flatter distribution as compared to normal distribution. This means that closer the kurtosis and skewness values are to zero the better the distribution of the variable is (Pallant, 2005).

Morgan and Griego (1998) recommend that as long as the value of statistics standard errors is not above 5.5, the distribution can be considered as normal. Curran et al. (1996) suggest that, for normalised distribution, skewness should be less than 2 and kurtosis should be less than 7. The skewness and kurtosis values, as well as the values of statistics standard error wich are given in Table 2 below. According to the results, all the variables are normally distributed.

Descriptive test results for the English tests sores for both the groups before and after ICT intervention are given below:

Table 2 Descriptive test results for the English tests sores before and after ICT intervention

	Group A (1)		Group B (2)	
	Pre-ICT	Post-ICT	Pre-ICT	Post-ICT
Mean	32.84615385	41.76923	36	38.64706
Standard Error	3.441537659	2.491405	1.843111	1.738283
Median	36	45	35	37
Mode	38	46	45	46
Standard Deviation	12.4086405	8.98289	7.599342	7.167123
Sample Variance	153.974359	80.69231	57.75	51.36765
Kurtosis	1.655164319	2.673007	-1.59763	-0.79998
Skewness	-1.524797548	-1.87479	0.185935	-0.00328
Range	40	30	22	25

Minimum	6	20	25	25
Maximum	46	50	47	50
Sum	427	543	612	657
Count	13	13	17	17
Confidence Level (95.0%)	7.498466397	5.428306	3.907221	3.684994

Kurtosis for all group scores is less than 7, and skewness is less than 2, indicating that the data are normally distributed.

Children's test scores for the English Language Test were then analysed using SPSS. Usually paired t-test and Analysis of Variance (ANOVA) can both be used to test whether the mean of different groups is equal or not. The t-test is a hypothesis test that is used to compare the means of two samples while ANOVA is a statistical technique that is used to compare the means of more than two samples. In this research, the test involved comparing means of two samples only (one before the ICT intervention and another after the ICT intervention). Thus, a t-test was used for comparison of means in this research. Tables 3 and 4 below show the output of the children's t-test results.

Table 3 t-Test: Paired two sample for means for Group A

	Pre-Test	Post-ICT
Mean	32.84615385	41.76923077
Variance	153.974359	80.69230769
Pearson Correlation	0.912493865	
t Stat	-5.755802054	
P(T<=t) one-tailed	4.54017E-05	
t Critical one-tailed	1.782287548	
P(T<=t) two- tailed	9.08034E-05	

t Critical two- tailed	2.178812827	

Table 4 t-Test: Paired two sample for means for Group B

	Pre-Test	*Post-Test*
Mean	36	39
Variance	57.75	51.36764706
Pearson Correlation	0.877850623	
t Stat	-2.971251904	
P(T<=t) one-tailed	0.0045016	
t Critical one- tailed	1.745883669	
P(T<=t) two-tailed	0.0090032	
t Critical two-tailed	2.119905285	

Test results for both Group A and Group B indicate that the pre- and post-intervention mean test scores for both the groups are statistically different with the post-intervention scores higher than the pre-intervention scores. This indicates that ICT intervention did help in improving the English tests scores for both groups. What is interesting to note is that the improvement in the scores of Group A was much higher than the improvement in scores of children in Group B. Reasons for this are discussed later on in the observation and interviews data analysis. Next, the scores across the five learning dimensions were compared:

Table 5 Comparison of mean of test scores before and after ICT intervention

Group A			
	Pre-ICT intervention	Post-ICT intervention	p-value
Listening	7	9	0.003
Speaking	5	9	0.000
Writing	8	8	0.048

Reading	6	9	0.001
Reading stories	6	7	0.068
Group B			
	Pre-ICT intervention	Post-ICT intervention	p-value
Listening	9	9	0.103
Speaking	6	8	0.038
Writing	7	8	0.073
Reading	7	8	0.042
Reading stories	7	6	0.088

Data indicate that for Group A scores across four dimensions improved as a result of the ICT intervention while the score for writing remained the same. However, the change in scores for 'reading stories' was statistically not significant while the English test scores for 'Listening', 'Speaking' and 'Reading' improved significantly after ICT intervention.

For Group B, scores across three dimensions improved while the score for 'listening' remained the same and the score for 'reading stories' actually declined after the intervention. However, only the rise in scores for speaking and reading were found to be statistically significant while other improvements were not as statistically significant.

The results indicate that ICT interventions are most likely to help in improvement in speaking and reading with a possible improvement in listening as well. However, it may have no significant impact on Saudi children's ability to read stories in the English language and also their ability to write. The reasons behind this are discussed in the interviews and observations analyses.

5.3 Children Observation Data Analysis

Data collected from observation of the child participants which consisted of field notes were coded and manually analysed. According to Brophy, Snooks and Griffiths (2008: 136), for less structured observation such as open observation, data "can be coded and analyzed in the same way as the texts of interview transcripts - carefully relating the codes to the evaluation aims and objectives."

The observation was semi-structured. As mentioned before, some of the themes were identified using the review of existing literature. This was used to form a conceptual framework (described at the end of Chapter 2). The themes within this conceptual framework were used as the protocol for observation.

The researcher observed that many of the children had basic knowledge of Tablets probably by observing their parents or older siblings at home. Most of the children exhibited familiarity with the use of Tablets like touching the screen to open an app and shutting down apps, and swapping screens to go to another screen. Even when Tablets were being distributed for the first time, and the teacher was going to explain how to use them, many children commented that they know how to use them. Although not proficient many children have had some exposure to the Tablet. This highlights the fact that ICT has penetrated our lives through the use of these gadgets such as Smartphone and Tablets to a great extent, and harnessing their ubiquity for learning purposes can be quite a valuable opportunity. Some children even exhibited knowledge of some commonly used apps and they were seen demonstrating these to their friends. Most of the children were seen showing their Tablet screen to others in order to share some piece of information.

In total 1071 observation items were noticed. These items were categorised according to different themes that they belonged to.

Table 6 Number of observations categorised according to the themes from the conceptual framework

Category	Sub-categories	Number of observations	% of total observations
Metacognitive competencies	Communication	55	5.43%
	Self-development	79	7.80%
	Creativity	137	13.52%
	Problem-solving	87	8.59%
	Autonomy	123	12.14%
Core competencies	Personal competency	109	10.76%
	Task competency	68	6.71%
	Process competency	50	4.94%
Language competencies	Listening	101	9.97%
	Speaking	78	7.70%
	Writing	73	7.21%
	Reading	79	7.80%
	Reading stories	32	3.16%

Table 6 indicates that most of the observations were for creativity followed by autonomy and personal competency. In fact, in some cases, these two themes were found to overlap. In autonomy, the most common observation was that after the first session most of the children were able to look for certain pieces of information online without assistance. In addition, many of the children were able to look for additional relevant information. For example, in

Group A the teacher asked the children to find information on their favourite animal. One of the children started looking for information on lions but then moved on to explore the difference between an African lion and an Asiatic lion. In the class, he was able to articulate that his favourite animal is the *"big lion with long hair on the head"* (i.e. mane). Furthermore, the child explained that there is another lion which is similar but smaller than the lion he likes. Similarly, another child suggested that his favourite animal is the "*dog which looks like the wolf*" (he was referring to the Huskey breed). Many children were thus able to explore more and look for information additional to what they were asked to complete the task.

The researcher was able to see that all of the children were comparatively more excited when learning through Tablets than when they were learning in the class through instruction. They had more energy and were clearly more involved in the work. What was interesting was that the children were even more willing to take instruction when they were told that they would be using Tablets; and after receiving the Tablet, their focus and attention shifted to it. It wasclear that children were quite interested in using the device. Most of the children completed the tasks or genuinely attempted to complete the tasks given to them when using Tablets, but when not using Tablets, the same level of commitment to completing the tasks was not seen. In terms of complexity and creativity the most common observation was children moving from one topic to another linked topic.

ICT and Metacognitive Competencies

One of the key objectives of ICT is to improve the Metacognitive competencies such as autonomy, creativity and problem-solving capabilities of children. Development of these Metacognitive competencies is critical not only for English language learning but also for the overall academic development of children.

Communication: observation found that interpersonal communication between the children decreased as a result of the use of ICT. Most of the children seem absorbed with using the Tablet, and there was little communication between them. In the context of classrooms, this could be considered good because children are not expected to communicate during lessons. However, during the exercises where the children were allowed to openly communicate with each other, the level of communication between the children decreased substantially while using Tablets. While in other group exercises children were seen playing with each other, during the use of Tablets this aspect was missing. Whatever communication the researcher observed was with children seeking assistance from each other or showing each other something that was of mutual interest. In some cases, theresearcher observed that the children turned down any communication from their friends while working on the Tablet; for example, if one child tried to talk to other children, that child will either not respond to the first child's request to communicate or will just answer and then cease further communication.

When they had no Tablet, the children were seen chatting, forming groups and engaging in activities; however, once they were handed Tablets most of the children seemed too absorbed by working on the Tablet. In certain case, it was seen that even those children who were not provided with Tablets formed a circle/group around the children who had the Tablets; but even in this case the activity was limited to only staring at the Tablet screen. It was noted that verbal communication and eye contact between the children was missing. Out of the 17 children in Group A, only nine instances of communication were noted during the first hour when they were given Tablets. In the case of Group B which consisted of 13 children, the number of such instances was slightly higher at 11, but the quality of that communication was poor in the sense that the children only spoke briefly and to seek some assistance in using the

Tablet. There was no chatting, group formation or engagement among the children. This indicates that Tablet-based learning may lead to more individualised behaviour.

Self-development: The next Metacognitive competency that the research focused on was self-development. Self-development is a Metacognitiv eability which may also lead to self-improvement in learning, and hence methods of teaching which improve the self-development competency of individuals are critical. In this study, the researcher found that use of Tablets did lead to some degree of self-improvement, but this was not significant enough to suggest that use of Tablets will definitely lead to improvement in self-development.

Focus and concentration are extremely difficult to achieve in preschool education as are still getting used to sitting in the class and paying attention to the lessons. One of the key things that researcher wanted to observe was whether the use of ICT helps in improving focus and concentration among children. Concentrating and focusing on lessons is one of the things that are critical for future development years as well as learning about any subject including English.

The researcher's observations indicate that while the focus and concentration of children did improve during the use of Tablets, the focus and concentration often depend on the level of interest that individuals have in the subject. Tablets are like a channel which provides individuals with the information that they seek and in a way improves focus and concentration because individuals feel in control of their environment. In instructed lessons, individuals lack control, and this often affects their attention particularly if they have little experience of staying in a controlled environment.

The data reveal that most of the children were not able to focus on lessons if these are delivered using a Tablet or involved using a Tablet in any manner. The concentration level of

children dropped albeit not too much. This could be because the children were provided with a stripped-down version of a Tablet in which most of the apps were removed as these were considered inappropriate for the children.

Children's persistence to learn about a particular topic improved significantly after the introduction of Tablets. What the researcher found was that children continued to look for interesting topics and there was a degree of persistence in learning. For example, child A11 was noticed browsing for the 'Dalmatian' breed of dog on one of the apps. When he finished looking for the information, he continued to look for more information on the dalmatian breed. There were at last nine more instances recorded in which children exhibited persistence towards learning.

Persistence is one of the key attributes of learning particularly in foreign languages because it is not the mother tongue of the learners, so they have to practice harder to learn how to pronounce different words. This pronunciation is critical because one of the most common uses of foreign languages is verbal communication. If the children do not know how to pronounce words it would be difficult for them to use these in communication. Learning of foreign language thus requires practice which comes with persistence.

Creativity: Creativity is one of the key attributes of ICT-assisted learning because it allows individuals with vast amounts of information. Being creative enables children to make connections between one area of learning and another and so extend their understanding. This area includes art, music, dance, role-play and imaginative play. Creativity can be enhanced by allowing children endless possibilities to explore different issues and multiple perspectives. Several observations can be listed under creativity such as:

- Imagination.
- Originality (the ability to come up with ideas and products that are new and unusual).

- Productivity (the ability to generate a variety of different ideas through divergent thinking).

- Application of knowledge and imagination to a given situation.

- The ability to produce an outcome of value and worth.

In this study, the researcher also observed that creativity of the children improved as a result of the use of Tablets. Children were seen as more creative; for instance one of the children asked the teacher which of the animals is stronger, a tiger or a lion. The teacher said that they are both equally powerful. While searching for information on 'lion' and 'tiger', he managed to find information on a 'liger' (a hybrid between lion and tiger) and instantly claimed it as his favourite animal. The reasoning he gave for this is that, because this is both tiger and lion, it is likely to be more powerful than a tiger or a lion. He searched for tiger and lion in the animals' app and found about the liger; he was then seen searching for more info on ligers. Even the teacher was surprised because she had never heard of a liger before.

Originality is one of the key aspects of creative Metacognitive competency. There were several instances when children were seen looking for things that they imagined. For example, one of the children was seen looking for "sky steps", i.e. stairs which go up to the sky, and another child was seen looking for "flying boy", i.e. the boy who could fly. Another child was trying to search for how he could become Spiderman. What was interesting in this whole exercise was the diversity of the things that children were interested in learning about. Not all of these concepts were linked to their studies but rather emerged from their curious minds. Many of these ideas were completely original and some were influenced by the things that they have seen or experienced; for example the child who was searching for the "flying boy" and one who was trying to learn about how to become Spiderman were inspired by the movie Spiderman but the idea of "sky steps" was an original idea. There were many other

instances which indicated that children thinking of some original ideas/ concepts. The evidence from the observations indicates that children were able to apply their knowledge and imagination to come up with random ideas. For example, two children wanted to play *koora* using theTablet; koora is the Arabic name for the game in which two players throw the ball to each other. The two children wanted to use their own Tablet to throw balls at each other, very similar to the online gameplay in which players located remotely play with each other online. The two children have not been exposed to online play and hence using their Tablet to play a game was an original concept and application of imagination.

There were several other instances which indicated that children were applying their knowledge and experience of the real world, combined with their imagination to come up with original ideas. This indicates that the use of the Tablet did improve the Metacognitive competency of creativity in the children.

Problem-solving: The problem-solving ability of children did seem to improve as a result of the use of the Tablet. Teachers set many fun exercises for the children, and it was noticed that over time their problem-solving performance improved. The scores of the apps were noticed, and in 26 of the 30 cases, the performance of children improved with the use of the Tablet. These exercises included some math problems and some puzzles.

Autonomy: Use of the Tablet improves autonomy as witnessed in the observations. Children required instructions on how to useit in the first two lessons but by the third lesson the children were already aware of how to use the Tablet, and they showed little interest in the instructions. Tablets allowed the children an environment of self-control, and this was evident in observations. Children were interested in using Tablet, but they were pursuing their own interests at the same time. For example, on several occasions the researcher noticed that

children did not show interest in reading about things that the teacher asked them to read on the Tablet or to do things that they were asked to do. Instead, they exhibited greater interest in browsing for things of their own interest. In most cases what the researcher noticed was that children were searching for superheroes. In this respect, ICT was a source for them to learn more about things that they were interested in.

From the observations, it can be inferred that motivation of children improved as a result of the introduction of Tablets. Most of the children seemed quite keen to study. This could be because of several reasons, but the most convincing one is that they were quite keen on using Tablets instead of in learning the subject. Children had often seen their parents and other children in the family using electronic devices. For these young children, it was interesting to use Tablets and to show their friends the things they can do on the devices. Learning the English language was thus a secondary outcome because, in order to be able to use Tablets and do what they wished to do, the children had to use English.

Children exhibited a great amount of energy while learning through Tablets. In all but two cases the child who had the Tablet did not stop using it until his/her allocated time was over. In the two cases when the child did give up using the Tablet, they give it to their friends to show them something. In other words, they did not entirely give up the usage of the Tablet but rather shared it with their friends.

The feedback of the teachers also indicated that children show a greater degree of energy when using Tablets for learning English. They seemed more interested in accomplishing the tasks and did not stop when the task was completed. This is different than the normal classroom model where children tend to stop when the work is completed.

Core Competencies

Personal competency: Personal competency refers to self-conceptualisation, autonomy, and self-direction. Personal competency is essential in order for children to develop their overall learning capabilities. Observation of the children revealed that their personal competencies somewhat improved but not all personal competencies were improved as a result of the use of Tablets. For example, children exhibited greater autonomy as a result of the use of the Tablet. They were able to complete their tasks with fewer instructions as they had more lessons with a Tablet in use. For example, by the third lesson, most of the children were aware which app they needed to open for the particular task. There seemed better collaboration among children as well; in many cases, children were seen offering and seeking help from each other when they did not know what to do. In general, without the use of Tablets, most of the children, who did not understand what to do, used to sit down and wait for the teacher to ask them if they have any problem. But with a Tablet, children were seen actively seeking help from peers when they did not understand anything; this was sometimes in the form of actually asking classmates to help them understand or sometimes just looking at what other children were doing. This was the most noticeable change in the personal competency of individuals.

Task competency: One of the key aspects of learning is developing task competency. Task competency of the children showed a marked improvement as a result of the use of the Tablet. By the third session of using a Tablet, most of the children in Group A were able to perform their tasks as instructed. Similar trends were seen in the case of Group B with most of the children becoming adapted to the task by lesson 3. Also, when the teacher made a slight alteration to the task, some of the children were able to complete the altered tasks without the need for additional assistance. Some other children were able to complete the tasks by following the individuals who understood what to do. What was interesting was that even the children who misunderstood the task were able to complete them.

For the exercise, tasks were arranged in three levels of difficulty based on the complexity of the task. Most of the children were adept at completing the tasks of level 1 complexity, but only a few were able to complete the level 2 complexity tasks by themselves. Some were able to complete it using help while others misunderstood what they had to do. Almost all of the children were able to complete the task correctly.

Table 7 Comparison of task competency at different stages of the experiment

	Task completed correctly	Task completed incorrectly	Task incomplete
Group A - before Tablet lessons	3	7	7
Group A - in Tablet lesson 1	2	2	13
Group A - in Tablet lesson 2	4	6	7
Group A - in Tablet lesson 3	5	7	5
Group A - in Tablet lesson 4	4	9	4
Group B - before Tablet lessons	0	5	8
Group B - in Tablet lesson 1	0	2	11
Group B - in Tablet lesson 2	1	4	8
Group B - in Tablet lesson 3	4	5	4
Group B - in Tablet lesson 4	2	8	3

There were some mixed results. For example, for Group A, the number of incomplete tasks actually improved after use of Tablet, but then the number of incomplete tasks decreased with subsequent sessions. This could be because in the first session children were too busy learning about the Tablet, so they did not pay enough attention to the task itself. Also, there is a possibility that children found it challenging to use the Tablet and this may have affected their ability to complete the tasks.

Results indicate that most of the children understood the task from start to finish and were able to complete the cycle of task leading to some form of output, albeit wrong.

Process competency: In order to test process competency, one test was developed. This test was conducted only once at the end of the Tablet intervention to see if the children have learnt how to use the Tablet and whether they could complete the process as asked. The test was divided into three levels and was conducted after three sessions of use of the Tablet to ensure that all of the children had some exposure to using the Tablet. In the first level, each child was simply given a task which they needed to complete. In the second-level test, children were required to perform a task and show it to the teacher; the teacher would then ask them to perform an additional task using the output of the first task. One more level was added in the third-level test where the output of the second task was to be used for the third task. These tests were designed to see if the level of complexity in a process that the children were able to handle improved as a result of using the Tablet. Results indicate that process competency of some of the children improved as a result ofthe use of the Tablet, but the results were not significant enough to suggest that continuous use of Tablets may lead to improvement in the process competency of children.

Table 8 Test of process competency after ICT intervention

	Process completed	Process incomplete
Group A - process complexity level 1	11	6
Group A - process complexity level 2	5	12
Group A - process complexity level 3	2	15
Group B - process complexity level 1	6	7
Group B - process complexity level 2	0	13
Group B - process complexity level 3	2	11

The results indicate inconsistency in process competency as a result of the use of the Tablet. It is possible that with time and continuous use of Tablets the process competency of children may improve but, based on results, it is difficult to say that any such improvements can be attributed to the use of the Tablet. It is understandable that when children repeat certain processes, they get used to the process and are able to follow it. This test was aimed at understanding whether the process competency of children improved as a result of the use of the Tablet and wanted to eliminate the possibility of any improvement due to individuals getting used to the complex processes.

Language Competencies

Listening: Observation data indicate that the listening ability of children improved significantly after ICT intervention. The average test scores also indicate that listening ability of children improved significantly for Group A children while for Group B children this ability was already quite high and remained unchanged. It was noticed that the children were able to understand even the difficult terms which they were not able to understand before the ICT intervention. The researcher's observation indicates that part of the problem could be the poor linguistic skills of some teachers. Due to differences in teachers and software's pronunciation children were often confused, leading to poor performance in listening tests, particularly for Group A. However, with a Tablet, their listening skills improved as most of the apps they used employed English linguistic pronunciation. Group B was already performing very well in listening tests because of the good English pronunciation of the teacher. This indicates that Tablets can help bridge the linguistic gaps created by teachers' lack of linguistic skills.

Speaking: While listening skills only improved for Group A after ICT intervention, speaking skills of both A and B groups showed marked improvement as a result of the use of the Tablet. The researcher observed that children's skills improved not only in terms of their pronunciation but also in terms of their ability to speak difficult words. It could be because one of the apps used in the Tablet taught children how to break down difficult works and then try to pronounce the words by pronouncing different parts. It was seen that teachers were not able to teach children specific skills in how to speak and there seemed to be a gap between how teachers explained and how children understood. However, with a Tablet, it was seen that some of the children were trying to articulate what they read on the screens even though it was not required. The benefit of the Tablet was that children's minds had to independently process whatever they saw on the screen and take action based on what they saw. This mental processing gives children better skills in learning how to speak. Children's understanding of the language did improve with the use of the Tablet, but it was most likely because they could see visuals of the words. For example, when looking at panther and cheetah, they could see the differences between the two; thus they could distinguish between panther and cheetah.

Writing: Writing skills of the children did not seem to improve significantly in the English test scores, but in the observations, it seemed to improve somewhat. Children were able to somewhat correctly spell the words and use their knowledge to make up words. However, the English writing tests required a different kind of skills — that of making up sentences and of filling in blanks. This was not included in the exercises undertaken on Tablets. In other words, no attention was paid to improve the tested writing skills by use of Tablets; however, the observations were not sufficient to suggest conclusively that the use of Tablets will help improve the writing ability of children.

Also during her observations, the researcher did not see any evidence that the writing skills of children improved as a result of the use of the Tablet. In fact, she observed the contrary;

when the autocorrect option was turned on most of the children tended to rely on the autocorrect suggestion rather than putting in an effort to type in the whole words or sentences. So, rather than learning to write they were seen getting used to the autocorrect option.

Reading: Observations indicated that the children's reading skills in both groups showed remarkable improvement as a result of ICT intervention. Children were seen mumbling words, trying to read what they saw on Tablet screens. In some cases, children were even seen trying to correct each other's pronunciation. What was noticeable and encouraging was that the children were trying to use some English words when communicating about something they saw on the Tablet screen. During the observations prior to the ICT lessons, most of the children used common Arabic words even when talking about things they learnt in English lessons. Part of the problem was that the teachers were using the Arabic language to instruct children; for example, quite often teachers were seen translating words into Arabic rather than using visuals to explain to the children what they meant. It affected children's ability to understand the words in English as they could not understand the words in context. However, this seemed to improve significantly with th euse of the Tablet because children could see and understand the use of words in various contexts; this helped them use the words in different contexts which seemed to boost their ability to read.

Reading stories: This is one of the aspects where the researcher expected a great deal of improvement but could not find much. Part of this finding could be blamed on the kind of stories that were presented to them using the Tablet; the children seemed uninterested in the stories. It seemed that when they were presented a story which they could relate with such as the story of Aladdin, their ability to read went up but when they were asked to read stories

which were set in the English context such Snow White or Cinderella, their ability to read went down. It seems that use of some familiar words in the test improved their ability to read; this could be because they could use their knowledge of the familiar words to understand the context and were thus more comfortable in reading even long sentences.

One of the most interesting observations in this research was that children were more comfortable in reading sentences with some familiar words than when all of the words were unfamiliar. It would be interesting to see if the children would be capable of reading Arabic stories translated into English because then they would be able to understand what the sentences are likely to mean. However, this might contextualize their learning, and they may still struggle to learn to read something that is not familiarly contextualised. It may be helpful to gradually introduce them to read stories by translating Arabic stories into English and then slowly increasing their level of difficulty.

Additional Observations:

Use of Tablets seemed to improve the ability of children to remember words of English. Out of the 101 instances recorded for remembering in 53 instances, children remembered the word correctly, and in another 22 instances, the children remembered the word almost correctly. In the instances when the children remembered the word correctly the use of Tablets was clearly evident because children had to use the English language to use a Tablet. Whatever they wished to search for, they had to type it in English and, following this, they saw the word and the visual on the screen. It was probably the relativity of the word and the visual image which helped the children in remembering the word as they drew a link between the two (word and visual).

213

The researcher also tried to observe if the children are able to apply their knowledge of English in new contexts. There was mixed evidence of such application of words. Some children were able to apply the words to make up small sentences or search terms of their interest. For example, one of the children was able to search for "big lion" after learning the words 'big' and 'lion'. Similarly, another child was able to search for "flying boy". There were several other instances where children were seen successfully or unsuccessfully trying to apply a combination of words to come up with search terms. Some children were also able to look for words of interest from the index using their understanding of the first alphabet. For example, the child was observed going to alphabet S in the index looking for information on spiders. Children were not aware of the spelling of the word but were able to locate the spelling by scrolling down on the index of search items. Another child spelt one letter after another until the word he was looking for appeared at the top of the list. He was instantly able to identify the word and clicked on it.

One of the children was seen combining words to create words. He saw the spelling of the word 'spider' and added "mn" to create the search term "spidermn". There were several instances where children were seen creating words. What was even more interesting was the response to incorrect search queries. When one word did not present the desired search results, some children erased the whole word and typed a new one, while some others made changes to the existing word they typed. This showed their belief that part of the spelling was correct. In some cases, children were seen giving up searching for the particular word and starting to search for something entirely different.

5.4   Teacher Observation Data Analysis

The classrooms and the teacher's presence in the classroom were observed for the purpose of understanding the involvement and role of teachers in the intervention. The classrooms were observed for a period of 2.5 to 3 hours every day. The variation in the timing is mainly due to the availability of the participants, as well as the timing of the start of Tablet intervention. The intervention was carried out to understand the integration of the technology among the preschool children. The data collected from the observation of the teachers include the field notes and manual analysis. The teacher's observations are important because the teacher plays the central role in the process of teaching and learning EFL.

A conceptual framework has been applied in the research based on the themes identified from the review of the literature. The first observation is that teachers were not very confident and were hesitant about using a Tablet; and there seemed to be some confusion among them. The teachers have the information about the use of technology, but they have not used the technology in EFL. This has occurred as a significant problem for the teachers when interacting with children using the Tablets in the class. The main aim of the teachers is to help children in the development of the Metacognitive competencies and task competencies. However, teachers were finding difficulty in integrating technology in the classroom in the first place.

The themes that have been used for the observations have been generated from the review of literature that explains the significance of the role of teachers. The themes for the observation have been divided into four main categories — 'understanding technology, teacher's interaction, using technology for learning and motivation and using effective teaching strategies' — that can enhance the learning process. The four different themes have been

divided into different sub-categories to get detailed insights of the teacher's role in the intervention. This is also significant to understand the barriers and opportunities that teachers experience during the integration of technology in EFL.

Table 9 Number of teachers; observation items divided under different themes

Category	Sub-categories	Number of Observations
Understanding Technology	Lack of confidence	48
	Able to explain the use of Tablets	67
	Personally assisting children to use Tablets	89
Teacher's Interactions with technology and children	Teacher not interacting with children and sitting idle	67
	Limited interaction with children	87
	Interacting effectively with children.	97
Using Technology for Developing Competencies	Using special instructions to teach	45
	Using Arabic for Explaining new words	87
	Using various ways to develop competencies and restricting the use of L1	77
Using Effective Teaching Strategies and Motivations	Motivating children	98
	Not motivating children	88
	Motivating children with and encouraging them	75

Understanding Technology

It was observed that teachers are not very well trained in guiding the children about the use of Tablets. Most of the children were able to use the Tablet from the start because of the basic knowledge they already had of using them. However, the teachers were not very used to using Tablets in the classrooms with very young children because of the lack of training and lack of the pedagogical approaches that teachers can use in teaching English as a foreign language to the young children. One of the main reasons for teachers being unable to teach children about the use of Tablet is due to the under-use of technology in schools. The schools

with effective access to technological tools have found difficulty in integrating such tools in the classrooms for a range of reasons. One of these reasons could be institutional constraints, as the children were provided with Tablets very late in the study. The teachers also encountered personal barriers.

The observations stated that teachers had been experiencing lack of confidence; despite this, though, some of the teachers were able to communicate with the children and were also able to teach them about the use of the Tablet since most of the children were able to use the Tablet. The teachers took the initiative to help those children who were using a Tablet for the first time by explaining and helping children. This approach is very important for enhancing the engagement of the children, as well as to enhance personal confidence and competency in teaching EFL. The child-teacher communication is at the core of teaching and learning EFL. The more sophisticated and engaging involvement of the teachers with the children also helps children to develop confidence and interest in learning. However, no significant interaction apart from a discussion on basic knowledge of Tablets was done. The teachers were not significantly involved in the learning process, as the interaction of children with technology was largely based on the autonomy of the children.

The first barrier that was observed was the lack of professional training in English. Most of the teachers included in the study do not have professional certification to teach English to the preschool children; also they had not received any kind of formal training in interacting effectively with technology in the classroom and helping children to use the technological tools. The teachers found the use of technology discomforting, as they did not know much about what they must do with the Tablets and how they should start teaching children about them. The teachers had no knowledge about preparing the lessons so that they could effectively teach the children, only a basic understanding about the use of Tablets, so they took the initiative to teach the children about using a Tablet. However, most of the children

already knew to use the Tablet, and they were able to swipe the screen, opening and shutting down the apps, and other actions.

The knowledge of the children explains the extent to which we are exposed to technologicy from our very early years. However, the lack of knowledge among the teachers also displayed that integrating technology in education and mainly in EFL is not a simple process that can be applied with the theoretical approach. The hesitation and lack of confidence of the teachers can be a significant barrier to successful integration of technology in the classrooms; this is because teachers are at the centre of the education system and also they have an important role to introduce new educational techniques in the classrooms. The lack of confidence of the teacher can obstruct the future learning process. When bringing changes in the educational system and in the teaching and learning approaches, it is also important to look at introducing social and pedagogical changes. The teachers are mainly adapted to their normal teaching and learning process; therefore restructuration of the teaching approaches may require innovative techniques to enhance the teachers' abilities.

The teachers in the classrooms tried to interact with children in using the Tablets and to engage the children in the process. However, the use of the Tablet in the class was a very new process for the children that also distracted them from the main purpose of learning. According to the interview data, it is clear that teachers have a good understanding about the development of Metacognitive skills in children. Teachers also agreed that for lifelong learning, they must encourage children to develop Metacognitive competencies, core competencies and language competencies, but it was observed that teachers have little or no understanding of how to develop these skills among children and how to encourage EFL learning. It was also observed that the lack of confidence among the teachers and prevailing confusion about the use of technology is associated with their experience of teaching EFL in the traditional way. The teachers have been adapted to teach EFL in the traditional manner.

However, it has been found that development of the Metacognitive skills and language learning skills may take years; therefore, some of the teachers were initially not very enthusiastic about using and teaching the use of the Tablet.

The teachers of very young children in the classroom were not well trained. Training of the teachers is significant because the teachers should know and must be able to integrate technology into the classrooms. Teachers should also be well trained for using the ICT model effectively for skills acquisition. However, the teachers were not well acquainted with the virtual environment in the classrooms. The teachers must be at the centre of applying and integrating technology, and they can do it effectively only if they are well trained.

Teacher's Interaction with Technology and Children

According to the observations, a large number of the teachers were not interacting with children. A total of 291 observations were done to understand the teachers' interaction with the children. It was observed that most of the teachers were not interacting with the children but instead were sitting at the front of the class, watching the children without making efforts to understand and know what children were doing on the Tablets. One of the main reasons for this observation is the lack of knowledge of the teachers in helping children to use technology; one key factor in this context is the personal barriers that teachers encountered while using technology in the classrooms. These barriers include the different teaching philosophies adopted by different teachers, thedifferences in the belief and attitude of the teachers, personally perceived value of technology, and lack of comfort in using technology.

The teachers, who do not really perceive the value of technology or who are not personally comfortable with using ICT for personal use, were mainly displaying a lack of interaction with children. The teachers were sitting idle because they did not have the pedagogical approach or strategy through which they could have interacted with children to develop their

Metacognitive skills through use of the Tablet; this is the reason for the teachers' lack of involvement with the children. Another reason for their lack of involvement and interaction with is that teachers believe that Tablets are easy for children to use. The young children do not have to have developed strong motor skills in order to use computers or more sophisticated technological tools. However, using Tablets was easier for the children; therefore, the teachers wanted children to involve themselves in the process and get engaged in learning. The teachers, who were new to technology, were not able to effectively communicate by using the Tablets and applications with the young children.

The majority of the teachers in today's educational system are trained with the traditional model of teaching and learning. Therefore, it is important to note that internalisation of the rules, regulations and norms influence the way through which teachers use technology. The traditional teaching and learning approaches are mainly teacher-centred, and lack the learner-centred approaches. Therefore, the experiences, beliefs and values of the teachers are aligned with their practices in the classrooms. The teachers do not have sufficient knowledge about the use of technology in the classroom. Also, as mentioned in the interviews, teachers find the lack of appropriate teaching standards and curriculum may hinder how they effectively interact with the children. The teachers also lack the competency in using the various applications in the Tablets; although the classroom teachers were able to understand the use of software, they were not able to understand how the software or the application must be used for teaching. Another problem that teachers were facing in the classroom was that children were more engaged when using Tablets than they were the least concerned about the exercises and were more interested in playing with the Tablets.

Teaching EFL is a very significant part of the social changes taking place in the society. Integrating technology into teaching and learning is also new for the teachers, especially for the teachers who are involved in teaching very young children. Developing the Metacognitive

competencies, core competencies and language competencies among young children can be a very difficult process because the teachers are required to help them develop their confidence. The attitudes and beliefs of the teachers can have a positive or a negative impact on the teaching and learning process. The teachers who held a positive attitude towards technology were able to interact effectively with the children; however, those who expressed doubts about using technology and were not convinced by the information provided before the intervention were likely to interact less with the children. However, it was found over the period that the teacher was able to interact effectively with the children: 97 observations were done to analyse this interaction, which was found to be effective and meeting the teaching and learning needs of both educators and learners. It was found that teachers were interacting with the children in searching new words and finding information about their favourite plants and animals. Teachers interacted with children personally and were also keeping checks on what information they were searching and how effectively they achieved this.

Using Technology for Developing Competencies

The main aim of the research is to develop understanding of the use of ICT in EFL learning. The process of EFL learning is mainly associated with the development of Metacognitive competencies, as well as core competencies and language competencies. The Tablets introduced in the classrooms were used differently by the teachers to enhance skills and competencies of the children. The first observation is associated with the use of special instructions to enhance the use of technology; these instructions by the teachers were different according to their knowledge and experience. Some of the teachers asked the children to seek help from their classmates in finding new information, while other teachers wrote the words on the board and asked the children to search for them in the Tablets. These instructions helped the children in developing their communication skills, as well as task and process competence. However, the communication skills of the children were affected

because they were more involved in using Tablets than interacting with their teachers and friends. Some of the teachers were making efforts to encourage children to communicate with their friends, while others mainly focused on providing instructions to the children.

For helping children to develop creativity and problem-solving skills, teachers used many new words and asked children to find their meanings. Teachers also introduced many fun exercises like jumble words and puzzles to enhance the problem-solving skills of the children. While the children were searching for the information, the teachers took special efforts to see what children were doing on their Tablets. During the intervention, the new visual and audio apps were also used that helped children in speaking new words in English and to understand their pronunciation. The observations of the teachers' initiatives in using technology in the class showed that teachers were not very adamant about the correct use of grammar. The main aim of the teachers was to enhance the focus and confidence of the children. It was also observed that it was difficult for the teachers to adapt to the transformation in teaching and learning process. Teachers were unaware about the curriculum and strategies that can be used to enhance grammar skills of the children.

The teachers had limited access to the technical support, and support of other colleagues. At some point, most of the teachers felt unable to use special instructions in engaging children in learning English. Some of the teachers asked for support from their colleagues to in explaining to them about the special instructions that they can use to enhance the learning process. It was observed that teachers were not able to engage children in casual communication, which is a critical activity for learning EFL. Sometimes the teachers also encountered difficulties in engaging children with the applications because children easily get bored of using the same application again and again. Thus, it was difficult for the teachers to maintain the focus and concentration of the children. Some of the teachers were concerned about the time allocated to use of Tablets and wanted to engage children in casual

communication with each other because they found that longer the children used Tablets, the more difficult it became to control the behaviour of the children.

The lack of effective exercises was another significant problem. Teachers were unable to develop and design new exercises for the children because of the lack of knowledge and training they had, and stated that they were not able to teach the children in a more play-oriented manner. Tablets restricted their approach of teaching, which could be more effectively done with play way method. Another complication that was observed was that most of the teachers used Arabic words and sentences to explain meanings to the children as the very young children were not able to easily understand the words if they were in English. It was also observed that some of the teachers were troubled, as some children could not use Tablets as they had little or no knowledge of English and teaching them on Tablets was very difficult for the teachers; however, it was also observed that some of the children were effectively able to search for new words. Teachers provided limited support to such children, while others required more support.

Seventy seven (77) observations were done to find what approaches teachers are using to develop different competencies in children. Therefore, it was found that some of the teachers employed communicative strategies; for instance, teachers engaged the children in pair work and asked children to use Tablets in pairs. This was a significant step in helping children to develop various competencies. The teachers instructed the children to use only English words and to collaboratively work towards finding the meaning of new English words. This enhanced the communication between children. However, it also reduced the chances of real-life situations that are more significant in developing language competencies. The teachers asked the children to use the puzzles that were specifically designed for the preschool children. However, the children often asked for the meaning of words in Arabic. Some teachers restricted the use of the Arabic language in the class and used pictures to explain the

meaning of the words. It was found that this approach for developing competencies in English is more significant.

Using Effective Teaching Strategies and Motivations

It was observed that teachers wanted to motivate children towards the use of Tablets but found difficulty in motivating them to find new words. Although the three sessions were taken for the teachers to explain about the use of tablets, they were not able to use the content on the tablets. Ninety eight (98) observations were done to find if teachers are motivating children. Some of the teachers used motivations skills to encourage children to using a Tablet and find new words. For instance, one of the teachers asked the children to find or search for something that is their favourite. Children started searching for words but the teacher was not sure if the children were searching for correct words or not. This example shows that teachers are not sure about what they are teaching to children and how children perceive what they are being taught. There is great confusion among the teachers about the use of the correct approach through which they can motivate children to engage in EFL learning. The children were free to explore and learn whatever they wanted to; achieving the main goal was also a major concern.

It was observed that one of the teachers was concerned about the way children were using Tablet; for example, children had access to various apps and could search for anything on the Internet but this also distracted them from what they were being taught by the teachers. For instance, one teacher explained to the children about animals and asked them to search for 'leopard' which is a wild animal. However, when children started searching, they searched for various other animals including wild animals, domestic animals, and pets. Although it was good that children could access the vast source of information, it became difficult for the teacher to continue the class on a single topic. The search done by children was not

224

consistent, and it jumped from one topic to another. The teacher found difficulty in maintaining the equal flow of information and knowledge in the class. Some of the children were able to find different information, while others could not found anything.

Teachers were unable to maintain the equal flow of information because of the lack of integrated lessons, supportive curriculum and supportive material. The lack of practice strategies was the most significant problem that was faced by most of the teachers. However, one significant step that was taken by one of the teachers to motivate children to find a new thing on a particular topic was through observing and guiding every child personally to find information about the only topic that was being learned in the class. The teacher also motivated and encouraged the children to exercise autonomy by finding information on their own, and asked them to stay on one topic until the she had checked that every child had searched the same information. This approach is also significant in teaching and learning EFL for young children because it explains about using the technology in a controlled and effective manner. It also ensures that information is being equally shared among all the children. Although children's self-development is important, it is only so in general terms. The responsibility of the teachers is towards every child. Teachers are also responsible for identifying the weaknesses of children and allowing children to improve upon themselves.

The positive attitude of the teachers towards the use of technology is mainly associated with benefitting children and encouraging learning. The teachers used the Tablets in a more traditional manner. The traditional approach is mainly associated with teaching one topic at a time and using different strategies to explain the single topic. English is a vast language, and every single word may have different meanings and synonyms. Therefore, the teachers found that this traditional perspective should also be integrated into the process. One of the teachers mentioned that some of the children came from families where the parents or other family members were not highly educated. Therefore, it was difficult for them to teach anything to

225

the children at home. This is the reason that children are highly dependent on teachers. Therefore, teachers used different strategies to engage every child equally with technology. However, the more the children are engaged in using Tablets without supervision, the more their communication with others is reduced, and their isolation is increased.

Teachers played no role in motivating children towards self-development and creativity, as children personally get engaged in the process of self-development, by finding information. Creativity was also the intrinsic skill of the children. The art and craft applications were deliberately installed on the Tablets helped to improve creativity among the children. However, the teachers did not take any effective efforts towards motivating and encouraging creativity; this is because they had limited access to information and also lacked the administrative support to develop creative Tablet games, exercises or applications. The child had become more self-dependent, but that was not associated with the role of teachers, as teachers was very low in confidence about what and how they were teaching in the class. Teachers were also not able to engage children in the exercise developed for problem-solving. In the end, the teacher found that the use of the Tablet is mainly based on the choice of the children. The young children were more interested in playing games and doing some creative activities on Tablets instead of focusing on learning applications. Therefore, it can be said that observational finding is in line with the research findings.

5.5   Interview Analysis

Post-ICT intervention interviews were conducted with teachers teaching EFL in order to learn about their experiences as well as learn about what possible changes can be made to make use of the Tablet in teaching EFL more effectively.

5.5.1   Impact of use of Tablet on Metacognitive Competencies of Children: First, teachers were asked how ICT intervention affected the Metacognitive capabilities of the children.

Communication: The first and foremost Metacognitive skill that teachers discussed was communication. Teachers agreed with the researcher's observation that the ICT intervention negatively affected the communication skills of the children. Teachers, thus, confirmed the observations of the researcher that the level of communication between children went down as a result of the use of the Tablet. One of the teachers commented,

> "Before we gave them the Tablet I was always struggling to keep them quiet. They were always chatting, laughing and telling each other things. Then with Tablet, I saw them all so busy and occupied with their Tablet. They wouldn't talk. It kind of felt boring."

Similarly, another teacher noted:

> "Before the Tablet, they wouldn't pay attention to me and not look at me unless I told them. Honestly, I liked that because you want the kids to play up a bit. But with Tablets, they were like all by themselves. No eye contact with their friends. It's kind of weird but that is what you expect. It is so absorbing for the kids."

Recalling her experience, a third teacher commented:

> "It was kind of good as most children seemed focused and busy. They understood the need to study and be instructed. I think this allowed them to have more controlled communication."

The problem with this view is that children learn a great deal through casual interaction with their friends. Communication between children is critical because they learn a lot by interacting with their peers and the environment. At the same time focusing on lessons is quite critical too. It seems that children go from one extreme (of not focusing on instructions and communicating too much) to another (too absorbed with the task and not communicating at all).

One of the teachers commented,

> "It is very much like our lives. Look at us. I talk to my friends and family members through social media, Facebook, Twitter and all. But I don't find time to call them or meet them. I think these children will begin to grow into the same if we give them Tablets and access to the world out there."

Indeed, with the use of technology the communication has transcended boundaries, become global but also digitalised to the extent that people have started to rely too much on digital communication. This was also evident in the children's behaviour as they seemed to pay more attention to the Tablets than communicating with their friends.

One of the teachers in group B noted:

> "There was little interaction among children. They were very quiet. If we would have divided children into groups and given one Tablet to every group then probably the level of interaction would have been different."

Another teacher noted:

> "I think what we need to do is design the exercise so that it requires children to communicate."

One of the suggestions given to improve interaction and communication in Tablet-integrated education systems was to design game-based exercises in which children are required to both use their devices as well as communicate with each other.

Self-development: The next Metacognitive competency discussed in the interviews was self-development. Teachers agreed that use of Tablets made the children more independent and consequently more in control of their development. For example, one of the teachers commented:

> "I gave Tablets to the children and I noticed many of them were searching for things that they were interested in. These were not what I asked them to do, but once they got the hang of it, they were doing things on their own. This is self-development, isn't it?"

Other teachers also noticed that most of the children were using Tablets to pursue their own interests and this is something that they had noticed before. For example, one of the teachers commented:

> "You remember that liger episode right? I remember when I asked them in the class before to write one paragraph on their favourite animal he wrote about the giraffe. But when he had the Tablet he found liger. I asked him, and he told me that his favourite is actually both tiger and lion, but he wrote about giraffe because he found it easy."

This episode indicates that using ICT interventions may make children moreself-dependent and it may aid their overall development because they are free to explore and learn about things that they are interested in. Another teacher commented,

> "with ICT there is no limit to what the children can learn. It's endless. They can move from one thing to another getting as much information as they want. I have seen children learning things beyond what I have taught them in class."

Language is very contextualised — different words may convey different meanings in different sentences and different contexts, and use of multimedia apps can help the children learn not only the language but also the contextualisation of how language can be used.

One teacher for Group B noted that

> "I am not sure if the use of Tablets will lead to self-development. See, if you think the ability to use gadgets such as Tablet is self-developmentthen, of course, using Tablets will improve this. But if you think as self-development in general then I do not think Tablet is a good idea. It makes people isolated, and gradually children tend to become introverts. Self-development is about confidence, ability to identify weaknesses and improve themselves."

It is indeed one of the pressing issues of modern digitalised society where individuals tend to get confused between the digital world and the real world. Often people spend more time with their online friends as compared to their real-life friends. The strong overlap between digital and real worlds is indeed detrimental to the self-development of individuals. However, the researcher wanted to know if this means that we should keep children away from gadgets and not tell them the realities of the world they are going to live in. The respondent commented,

> "I am not saying that. What I am saying use these just as one part of the curriculum. Not rely on it too much. Teach the children the need to have a balance in life. That for me is self-development when children know how to use technology to achieve things which will make their real life better."

Use of Tablets did lead to better concentration and focus, but it also led to a threat of isolation. Children need to be taught how to utilise technology to achieve their objectives. In other words, when using Tablets for teaching EFL, the focus should be on learning EFL and not on using technology.

Creativity: Creativity is a critical thing for literature competency because children will have to develop the capability of using the words learnt in different sentences. Teachers agreed that the use of the Tablet significantly improved the creative ability of children. One teacher from Group A commented:

> "I think the children have become very creative after use of Tablet. Now they are learning how to make up words. Two childrennow have learnt using verbs and his happened unconsciously. I believe that we learn language subconsciously and use of Tablet based apps was useful."

According to the respondents, Tablet apps expose the child to creative and multiple ways of constructing their knowledge of the language and, thus, the Tablet can be useful in improving creativity among children.

Most of the teachers noted that children were exploring new things using different apps on the Tablets. Some arts and crafts apps were deliberately installed on the Tablet. Many children who opened those apps worked on them. One of the teachers recollected watching a group of three to four children trying to listen to rhymes on the English language app and singing along with them. However, they did not notice any role play or imaginative play which could be because the children were quite young and did not know the full potential of the app.

According to one of the teachers,

> "The Tablet is useful because not only do the children learn English by using EFL apps but also by trying. To use most of the apps they need to know the English language. In order to use these apps, children tend to use their creativity and imagination to makeup words. Like

need is the mother of all inventions you will see that children tend to be creative in English in order to use Tablets."

Another teacher commented,

"I think the Tablet does help the children in being creative. I have noticed some children trying to join and make up words. It was interesting because they could do so of their own free will without me telling them. But this happened only two-three times, so I am not sure if other children learnt the same."

Thus, the respondents, more or less, agreed that the Tablet does help the children in being creative. They learn to construct language to meet their needs.

Problem-solving: In the interviews prior to the Tablet intervention, most respondents agreed that problem-solving is one key Metacognitive competency that needs to be enhanced to boost the overall learning of the children. In the post-Tablet intervention interviews, the respondents suggested that the problem-solving skills of the children did not show any marked improvement after use of the Tablet. As one of the respondents commented,

"there was no great improvement. I mean one or two children showed some improvement, but then it could be because we were teaching them and pushing them to learn those things".

Children did not show significant improvement in exercises involving matching spelling with images, or the pronunciation of words, etc. However, one of the teachers commented,

"Children were very interested and committed. When I gave them a task to do they were like trying to finish it first and show it to me. It was like they wanted to beat everyone. In class I have seen children, they generally tend to sit back, and I have to go to them to see if they have answered the question. But in this case, they were coming to me. The problem was that they were making a lot of mistakes."

Other respondents also noticed a similar change in the behaviour of children. Most of the respondents noticed that while children were more interested in solving problems but the rate of errors went up. One respondent commented

"the time taken to come up with answers indeed went down, but there were quite a few mistakes. I think they were trying to rush through. I'm not sure why."

Autonomy: All of the teachers agreed that use of Tablets improved the autonomy among children. According to one of the teachers,

"in the first two lessons I had to explain to the children what to do but by the third lesson they were all trying on their own."

Another teacher commented,

"the interesting thing was that when they did not understand anything I said they were asking their friends instead of asking me. I was really glad to see them working with their friends. Normally when they talk in class, it is only causing a disturbance",

and,

"it was really good to see the children being that energetic and interested in learning. They were all excited in the class. I saw them quite focused on doing what they were asked to do."

Autonomy was indeed improved as children were seen to be interested in not only doing what they were asked to do but also even more in addition to that. This was observed by the researcher and also noticed by the teachers; as one of the teachers said,

"Children did not seem to be looking for the session to end. I mean even until the end they were seen working on Tablets. Normally you will see that children tend to look very tired and uninterested by the end of the lecture. But with the Tablets, they did not seem to notice that the session is coming to an end."

5.5.2 Impact of use of Tablet on Core Competencies of Children

Respondents noticed that the task competency improved as a result of the use of Tablets. One of the respondents commented:

"Before I used to go to each and every child and used to help them in understanding what needs to be done. But with Tablets, I saw most of the children would complete what I asked them to do, and they would come to me. So they were able to complete the task given. It does not mean that what they did was right, but they were able to understand what they were asked to do."

Other respondents also suggested noticing an improvement in children's ability to complete the task given to them, albeit incorrectly.

In terms of process efficiency, the respondents believed that some of the children had indeed improved, but the improvement may not be measurable. As one of the teachers commented,

> "I noticed some children had significantly improved. They could not understand what needs to be done. But not when we give them complex tasks. But these are young children, so it is expected."

Other teachers also seemed unsure of whether they could conclusively say whether the use of the Tablet improved the process competency of children.

Finally, the teachers talked about personal competencies of children. According to the teachers, skills such as the ability to take the initiative and staying focused and disciplined within the class seemed to improve significantly as a result of the use of the Tablet. However, at the same time, personal competencies such as team working seemed to somewhat diminish as the level of communication and interaction went down.

5.5.3 Impact of use of Tablet on Language Competencies of Children

Respondents' views seemed to be influenced by the test results because most of the opinions expressed seemed in line with the findings of the test result scores. Respondents indicated that speaking skills improved significantly after Tablet use. According to one teacher for Group B,

> "I think the manner in which they pronounced improved a lot. I think the problem is that the children are likely to learn better pronunciation from some multimedia tools because often the voices in these apps are those of children. If you see most of the rhymes in apps are sung by English speaking children, so children do learn better for them."

Other teachers also noticed a marked improvement in the speaking ability of children. One teacher commented:

> "I saw more confidence in children about speaking English words. Many children who were shy earlier were more confident to speak English words."

According to the teachers, writing skills did not improve as a result of the use of Tablets. This could be because most Tablet use did not involve any form of writing except writing of words. This was noted by one of the respondents who commented that

"I did not ask them to write anything on the Tablet. It was mainly reading, listening and speaking. These are very young children, so we do not ask them to write a lot. Also in writing, we focus on aspects such as handwriting, spellings, etc. These are not related to Tablet use."

In terms of reading, the views were mixed, with most teachers suggesting that ability to read improved with the use of Tablets. One of the teachers commented,

"I think the children's ability to read definitely improved. I am not talking about tests alone. Even in the class, I have seen children trying to read out what's written on the screen. Their pronunciation has definitely improved, and they are far more comfortable in reading out the whole sentences."

Another said,

"Children are now making fewer mistakes in reading out sentences. Improvement is quite noticeable from before Tablet use to after Tablet use."

5.5.4   Issues faced in using Tablets for Teaching EFL

Respondents identified several different issues in using Tablets for teaching EFL. Firstly, a couple of teachers talked about the discrepancy in the knowledge of children regarding Tablet use. One said,

"I noticed that some children were far more comfortable using Tablets probably because they use Tablets at home. On the other hand, some other children were not at all comfortable initially. I think if we have to use Tablets for EFL then we must first teach the children how to use Tablets so that this difference in their level of knowledge will not affect their ability to learn EFL."

Other teachers, when asked, also agreed that some children were more confident in using Tablet than other and that it might affect their ability to learn EFL through Tablet.

Another issue that the respondents raised was teachers' own ability to teach using EFL. One of the teachers stated:

"I was not given any training on how to use Tablets for teaching English. If someone would train me on using the Tablet for teaching English I am sure I will be able to make the best use of it and so would my children."

Another teacher expressed a similar opinion:

> "I didn't know what to do with the Tablet. I mean I could not plan much apart from what we discussed such as using those apps for teaching English. I know we can do a lot more, but it needs to be planned."

Thus, it would be useful to have an organised way of integrating the use of Tablets into the curriculum and instructing teachers on how to maximise the impact of Tablets on children's learning of EFL.

One of the teachers also suggested that teachers need to be more involved and engaged in not only designing courses but also in deciding the content. They will then have greater flexibility and control in effectively utilising ICT tools such as Tablets for teaching EFL. As one of the teachers noted:

> "Who is using the Tablet? It is used by the teachers and the children. Every teacher has a different teaching style, and technique and every child is somehow different from each other. If you do not give teacher any flexibility in using Tablets to teach then, it will be difficult for the teacher."

This indicates that teachers need to be more involved in the whole process including deciding how to best utilise ICT tools such as Tablets for teaching children.

5.5.5 Improving Effectiveness of using Tablets for Teaching EFL

Teachers provided several suggestions regarding improving the effectiveness of Tablets in teaching EFL. The first one was regarding the involvement of teachers in deciding how to use ICT tools such as Tablets for teaching EFL. Regarding training, one of the teachers recommended,

> "there should be the thorough training of teachers in how to best use Tablets for teaching. I mean I know how to use a Tablet, but I know that my children do not know that. So how do I handle his gap? How do I ensure that my children are utilising this?"

She further explained

> "I think there should be an additional subject for children where they are taught how to use Tablet or tables. This will be useful not only for EFL but for learning other subjects as well. If we are producing next-generation children, then we must equip them with knowledge of tools like this from an early age."

Thus, the respondents indicated that there should be a broader plan for integrating ICT in early childhood education to equip the children with skills that they will need in future. In other words, the focus should not only be on instructing children but on guiding children to develop independent learning skills as proposed under the constructivist model of teaching.

One of the teachers commented that adequately designing courses is critical for effectiveness of Tablets;

> "I think we should design curriculum with Tablets. For example, we should have exercises which provide complete development of children. I mean help them learn how to communicate, how to share information with friends and how to learn from their team members."

Thus, the respondent suggested a systematic integration of ICT into the curriculum so as to eliminate the gaps left by traditional models of classroom teaching.

Another teacher suggested that course designs should be improved. She commented,

> "The Tablet is quite useful because it gives us flexibility. I think what we should do is develop apps to teach our children in a manner which is most suitable for them. Use common Arabic names and words along with English to help them understand the content. As I mentioned before, just bringing curriculum and books from Cambridge will not help. Apps are very useful because we can easily develop apps which make it easy for Saudi children to understand and learn English."

Another teacher had a similar suggestion:

> "I think we should have more multimedia content as compared to books. I think the Tablet is very useful because it gives multimedia content. Plus it makes children very interested in the lesson."

5.6 Summary of Findings

Findings of the data analysis are summarised in the table below:

Table 10 Summarising findings of the data analysis

Findings of Quantitative tests		
Tests	**Group**	**Outcome**
English tests (overall score)	A	Pre-intervention average = 32 and post-intervention average = 42. Statistical tests revealed statistically significant improvement in scores
English tests (overall score)	B	Pre-intervention average = 36 and post-intervention average = 39. Statistical tests revealed statistically significant improvement in scores
Listening	A	Improvement with ICT intervention. Statistically positive outcome
Speaking	A	Improvement with ICT intervention. Statistically positive outcome
Writing	A	Improvement with ICT intervention. Statistically positive outcome
Reading	A	Improvement with ICT intervention. Statistically positive outcome
Reading stories	A	Statistically insignificant change
Listening	B	Statistically insignificant change
Speaking	B	Improvement with ICT intervention. Statistically positive outcome
Writing	B	Statistically insignificant change
Reading	B	Improvement with ICT intervention. Statistically positive outcome
Reading stories	B	Statistically insignificant change

Key findings from teachers' interviews
- Metacognitive competencies essential for long-term development and language skills.
- Difficult to develop Metacognitive competencies as compared to developing core competencies.
- Teachers use Arabic as method of instruction to teach EFL.
- Teachers rely on Western educational material and curriculum to teach EFL to Saudi children. This content may be out of context for Saudi children as some of it refers to things and places which they know little about.
- Flexible and teacher-managed content is useful for teaching EFL to preschool children as teachers can cater for it specifically according to the needs of the children.
- Some of the teachers in the preschool education system are not qualified teachers. These teachers lack professional skills in teaching especially in skill development of young children.
- Teachers are not provided any training on using ICT tools to teach EFL to young children and, consequently, do not know how to use ICT for teaching EFL.

- Teacher's involvement is critical in using ICT for teaching EFL among preschool children.
- Using ICT is useful for all children as they can start exploring and engaging in self-development rather than relying solely on the content taught in the class.
- Developing ICT skills also helps in developing IT skills which are essential for most professions today.
- Tablets can be a very useful tool to teach EFL to Saudi preschool children but a more contextualised content is required for these to be useful.

5.7 Final Framework
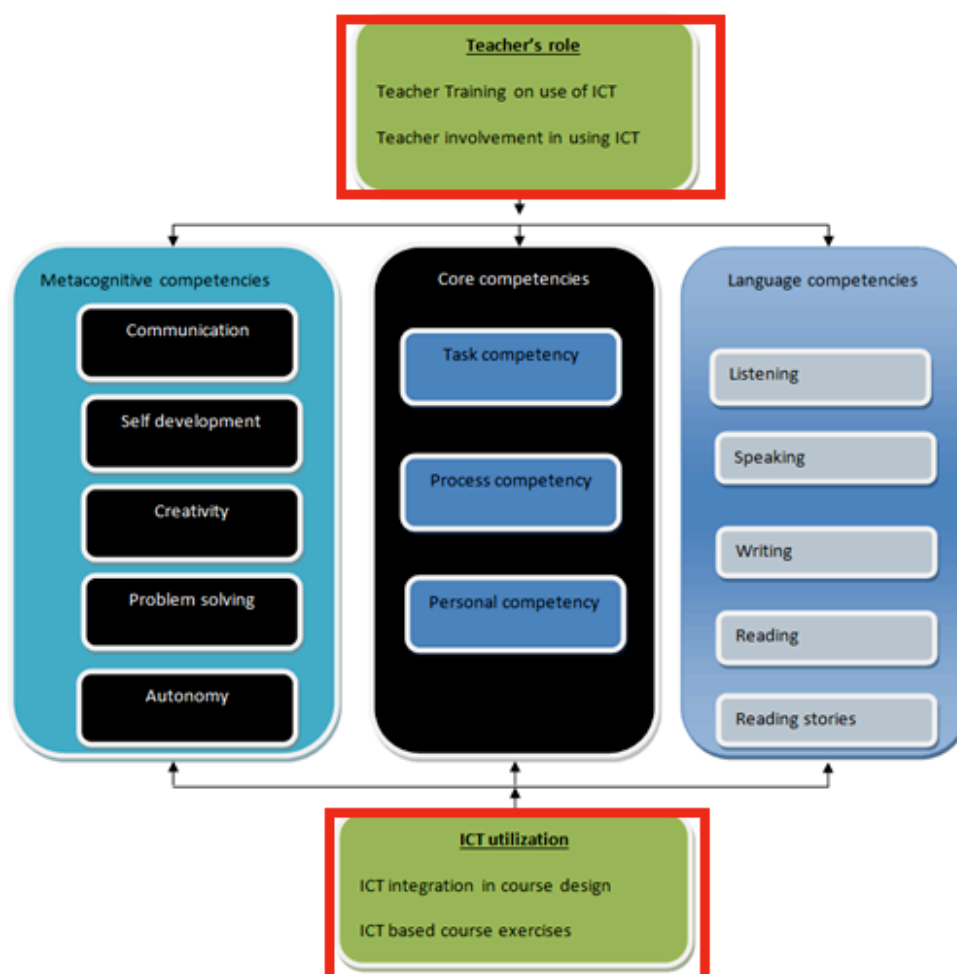
Figure 9 Revised final framework

* boxes in red show the new factors added to the framework after data analysis

Source: The author.

The research focused on addressing the Metacognitive competencies of the child. The ICT interventions helped in evaluating the Metacognitive competencies; namely, communication, self-development, creativity, problem-solving and autonomy. These are basic skills which might help the overall learning skills of the children. These are some important skills that help children to enhance their task, process and personal competencies in order to learn EFL. Therefore, the final framework is prepared to keep in mind the focus and purpose of the research. According to the data analysis, the scores were obtained for the two samples and the class observations. Therefore, for the Metacognitive competencies, the observations helped to determine the improvement in communication, self-development, creativity, problem-solving and autonomy of the children that subsequently improved the core competence. For example, enhancement of autonomy and self-development improved the personal competency of children that motivated them towards better learning. Problem-solving skills and creativity improved the task competency, and improvement in communication helped in improving the process competency that directly affected the language competencies among the children.

The final framework indicates that Metacognitive competency and core competency development are part of the overall language skills development process in preschool children in Saudi Arabia. More importantly what the findings indicate is that there are two important contributors in improving the effectiveness of using ICT to teach EFL to preschool children in Saudi Arabia: the first one is the role of the teachers. In order to teach constructively, teachers need to be thoroughly trained in using ICT. Also, teachers need to engage more with the children. It was found that when teachers did not engage well enough with the children they could not productively use the Tablets. Since preschool children are very young and Saudi children may lack any functional knowledge of the English language as well as of using Tablets, it is essential for teachers to guide them. However, guiding such young children is significantly different than teaching older children how to use IT for learning EFL.

Teaching such young children who lack even the basic skills of learning is a complex task and it can only be done by teachers who are skilled and trained to do so. The findings indicate that teachers in Saudi Arabia's preschools may not be adequately trained to use ICT for teaching preschool children, and given its potential benefits, it is recommended that teachers are ICT-trained in order to teach EFL to preschool children.

The second important contributer is the integration of ICT in the curriculum. ICT-based lessons should be designed adequately to ensure that ICT allows development of Metacognitive and core competencies rather than just language skills development. Use of multimedia and use of material contextualised on Saudi culture will make it easier for children to learn EFL. Thus, simply borrowing course material from foreign countries may not be most suitable; rather material should be developed based on utilisation of full benefits of ICT tools such as multimedia, and content should be grounded in the Saudi context.

Chapter 6   Discussion

6.1   Use of Tablets in EFL

This research provides a better understanding of the use of Tablets in the early school years and the educational possibilities of the use of these devices. The research includes the perspective of the teachers because, according to Mueller et al. (2008) and Zainal (2012), teachers play the key role in the education system, as their perspectives influence the ways teaching and learning take place in an educational environment. The findings of the thesis indicate that use of the Tablet in language learning can provide many new and different opportunities for young children for the purpose of EFL. Some of the major benefits of the use of Tablets in EFL include better and greater access to information, use of multimedia models for language learning, generating interest, and multimedia approach to motivate children to become involved in critical thinking and problem-solving. This will further help in enhancing the Metacognitive skills of the children that will further guide their language learning.

The benefits of the Tablets and effective findings of the study suggest that mobility, portability, touchscreen capability, easy access to Internet and multimedia approach of these devices are a great resource for children for learning English as a second language (Karsenti and Fievez, 2013). Tablets also provide access to a wide range of the educational apps that can be used by the young learner to enhance their Metacognitive skills. The Tablets seem to be very appealing to children and help them to foster literacy, communicative and participatory learning skills, as well as develop their understanding skills (Khoo et al., 2015). While the study provides the interview samples from the teachers and English test score from the children in EFL learning, the findings of the research are found to be consistent with evidence in the literature: the studies that have found Tablets to be very significant in

language learning and appealing for young children; and the studies that explain that Tablets are instrumental in extending and supporting the learning process (Dhir, Gahwajiand and Nyman, 2013; Khoo et al., 2015; Verenikina and Kervin, 2011). This analysis has helped in finding that what the effects of ICT are on preschool children's EFL learning. Tablets have been adopted as the ICT tool used to improve EFL learning among preschool children.

6.2   Teaching Skills and Children's Interaction

The research found that teaching practice used by the teachers should be planned and emergent in order to support the child-led interest, enhance learning opportunities for the children, and foster an effective learning environment with the use of technology. The potential of the learning capacity and teaching through Tablets was more enhanced when the teachers have a clear and effective pedagogical framework and strategies to use it effectively in the learning environment. Before the ICT intervention that teachers have identified various challenges that were hampering the process of teaching English as the second language. One of the key challenges was that lack of adequate teaching material. With the appropriate teaching material and effective activities, it was found that Tablets can be seamlessly embedded into EFL learning and can enhance the whole process of teaching and learning for the teachers as well as for the children (Dhir, Gahwaji and Nyman, 2013). The teachers are more important in the process of teaching and providing the effective learning environment. Therefore, the teachers are required to have the accurate knowledge about the use of Tablets in the EFL. The lack of core competencies among the teachers and the lack of appropriate teaching strategies can restrict the process of English teaching and learning. Therefore, the research also explains the significance of technology in education and more specifically in the process of learning English asforeign language.

The research focused on identifying the importance of the use of ICT in EFL. With the changes in the society and delivery of education, the methods of teaching and learning have also changed. Technology has become an important element in the process of teaching and learning. Use of ICT has increased in the recent years and scholars are having adebate over the efficacy and significance of using ICT in for EFL learning. ICT tools are being utilised in thepromotion and teaching English to young children (Dhir et al., 2013). According to the developmental stage, the phase of learning the communicative language of the preschool children is influenced by the various internal and external factors. The real-life situations and environment can provide a boost to the language learning process (Verenikina and Kervin, 2011).

The role and delivery of education attracts great debates among scholars because of the changing technology, access to information and transformation in the teaching and learning approaches. ICT education has now been accepted globally, because the organisations and educational institutions have acknowledged the importance of technology in education (Chowcat et al., 2008). The last decades have also witnessed the development of the new pedagogies related to use of technology in education. However, the system of technology-based education among the preschool children is still emerging. The focus and attitudes of teachers are also changing towards the use of technology and technological tools in the education system (Chowcat et al., 2008).

Increasingly, Technology is being used in preschools to develop the self-learning abilities of children as technology gives them access to a wealth of knowledge. However, to use technology the children in Saudi preschools need the ability to read and write. In fact reading and writing are essential skills for all kinds of school learning and quite useful for children to continue self-learning for the rest of their lives. The issue with second language learning is that it is quite different from first language learning in that people learn the first language

through informal communication and interaction with people. The English language in Saudi Arabia is often learnt formally but the more effective way to learn any language is to learn informally through interaction and communication. Technology gives individuals a medium to interact with and, in exchange, learn a new language. For example, Saudi preschool children can learn how words are pronounced by clicking on certain images. In this respect technology assists in discovery-based learning (Bardin, 2008; Haq, 2017). Technology is useful in this regard because it gives Saudi preschool children the ability to gain more control over what and how they learn. For example, in this research, it was found that children sometimes created new words when their teacher asked them to carry out online searching, and consequently learned new things. This not only boosts their creative problem-solving skills but also allows them to construct new knowledge in line with their preferences under the supervision of their teachers.

Interaction and learning are the processes that are significantly dependent on the role of the teacher. Through this research, it has been found that children interact with ICT in the context of learning EFL is dependent on teachers and the environment that is created by the teachers for learning. The use of technology in education is an emerging process; therefore, the young children need the support and assistance of the teachers for learning and improving their skills. Positive interaction of children with ICT in the context of learning EFL helped in improving their language learning competencies.

6.3 Theoretical Approach

Tablets are important ICT tools that are used by millions of people all over the world. Tablets are very flexible to be used everywhere or anywhere and provide great opportunities to the learners to accessinformation anywhere (Oladunjoye, 2013). This thesis has identified the process of learning among the preschool children. The research is focused on finding out the

efficiency of Tablets in EFL learning in Saudi Arabia. The research has assumed the focus on the main process or the mechanism of learning and considered that learning a language is an important competency. Therefore, the constructivist approach is employed. The constructivist approach or constructivism is also called the cognitive perspective, and is focused on understanding how learners within a certain context develop knowledge and learning (Oladunjoye, 2013).

The constructivist approach is associated with cognitive development in children (Macaruso and Rodman, 2011). Constructivism is considered the important apporach which underpins the process of learning that includes the children constructing their own knowledge through personal experiences. Knowledge is also considered as an important mental tool that helps us to understand the reality between reasoning and sensory impression. The main idea in Piaget's theory is that construction of knowledge is based on what is learned. This also explains the active control over the cognitive process and helps in the development of the meaningful learning. According to Kennedy et al. (2012: 1), "*phonological awareness is a critical aspect of early literacy development*".

The research also found that teachers have acknowledged the importance of the Metacognitive competencies for the process of language learning among early learners. Metacognition is associated with the developing of self-awareness and self-development in the process of learning. The process of skill development is important in order for learning to take place. The development of learning skills will enhance the process of lifelong learning among the young learners. The non-human material or the tools, such as the technological tools, are connected with the humans; therefore, children and teachers are required to work together in the pedagogical environment to help children develop their competencies (Oladunjoye, 2013). Research has also found that the use of ICT is associated with

developing the understanding of literacy and discourses surrounding literacy so that proper strategiesfor childhood education can be created (Jewitt and Kress, 2010).

The current perspective driving the discourse of learning, communication and literacy is based on acknowledging the importance of ICT in early childhood education. The technology-based educational approach has focused on finding and developing the multiple ways through which the process of learning can be facilitated, expressed and evaluated through use of multidimensional communication and multimedia. The use of technology has gone beyond the traditional ways of reading and writing. Therefore, technology has revolutionised the way of teaching and learning.

The research found that different skills are required for knowledge development with the use of ICT. Since the focus of the research is on the mechanism of learning and building capacity to learn a language, the focus is on understanding the aspects of guided discovery for the construction of knowledge. According to Ciampa (2012), "*the constructivist goals of learner control, autonomy support, choice, active problem-solving, and use of relevant and authentic texts in beginning reading instruction are preferred to explicit, teacher-directed instruction*" (pp. 3-4). Therefore, it can be asserted that Piaget's theory also underpins the benefits of ICT in the educational environment. According to the evidence, ICT provides better control and access and more freedom for the learners. For the purpose of language learning, children are required to develop a reflective 'Metacognitive awareness'; this is the process by which children develop the understanding of their own learning skills and their personal creativity and engagement with ICT in schools.

Therefore, the research also includes the Social Constructivism Theory proposed by Vygotsky (1978) that reflects the social aspects of learning. The 'Zone of Proximal Development' (ZPD) theory states the importance of the social interaction for learning. But,

the most important part of learning is the teaching capability of the teachers. The teacher is the most significant person to enhance social interaction and learning. According to the data obtained from the research, the teachers found that it is easy to develop the core competencies in comparison to the development of personal competencies of learning. The core competencies are associated with type of subjects taught, and the interview of the teachers before the ICT interventions explained that every teacher uses different teaching methods for problem-solving.

6.4   Research Data Analysis

The research used the mixed methods approach involving a single preschool in Saudi Arabia and the methods involved in the research included the interviews with the teachers and children's pre- and post-English test scores. The pre-intervention interviews with the teachers explained the current challenges they were facing in teaching English as a foreign language to the children in the Saudi Arabian preschool. The respondents explained that they had faced a few challenges in teaching EFL. The first problem is the language problem, as teachers have to use the Arabic language to explain some words when children are unable to understand them. Teachers find it difficult to teach English in the particular way they they have to. These challenges faced by the teachers have also been acknowledged by the literature. According to Mueller et al. (2008) the attitude and competency of the teachers is very significant for teaching EFL in preschools.

The research also includes the data from the semi-structured observations of the teachers from the classrooms. The observations in the classrooms were based on four different themes identified from the literature review. These helped to identify the various barriers and opportunities that can occur during the integration of ICT in EFL learning in preschool education. Observational analysis also provides different examples of the observational data

that may very significant and important for introducing a change in the teaching and learning process. The role of the teacher is vital to the teaching and learning system; teachers can be the pillar of success for children. The role of the teacher can be summed up in a few main points; for instance, the teachers are main decision-makers in the classroom so they can decide, shape or modify the curriculum according to the needs of the children. Teachers can make the learning process more meaningful and can also enhance the motivation of the learners. However, the observational analysis of the teachers helped to identify the barriers they face to successfully integrating technology in the classrooms. Firstly the attitude, beliefs and values of the teachers can shape their practices in the classrooms. The knowledge and understanding of the teachers can also have a positive or negative impact on the teaching practices of the teachers. Since the integration of technology (Tablets) in the classrooms with very young children was a new experience for the teachers, they were not effectively able to plan its integration. Although the teachers were provided with formal sessions to help them understand the use of Tablets, they displayed little or no confidence towards using Tablets in the classrooms. This explains that the process of integration of technology will be longer than expected. The teachers are under-trained and under-educated when it comes to teaching EFL to very young children. The teachers were finding difficulty in handling the technology and make active use of it to help children to learn English. Most of the teachers are degree holders, but they are not specifically certified to train and teach very young children particularly in teaching EFL. The teachers faced a lack of technical and support from the school administration; therefore, the institutional constraints can be a significant barrier, due to which teachers are not able to successfully integrate the technology in the classrooms.

The observational data analysis explains that the lack of knowledge and skills in teaching EFL through technology make teachers less confident about teaching and interacting with children in the classrooms. It was observed that most of the children in the classrooms were

able to use the Tabletsbecause of the significant exposure to technology at homes, so some teachers were not very interested in teaching children about the use of Tablets. The teachers were found to sitting idle and not taking an active part in teaching children about the use of Tablets and use of various applications and software. Although the teachers also understand at a general level how to use Tablets and other ICT tools, they are not confident enough to integrate it in EFL teaching. This also explains the lack of professional competencies and lack of support for the teachers. The teachers were not specifically trained in teaching English to the children. The teachers have no knowledge about the pedagogical approaches and curriculum that can be used in integrating technology in the classrooms. However, they were provided with basic information on using Tablets. Therefore, they helped the children, who were not able to use Tablets. The lack of teacher's involvement in the learning process and the main involvement of the children was through personal autonomy. The limited interaction of the teachers with the children can be an important drawback that can restrict the successful integration of technology in the EFL classrooms. Many observations were done to determine the reasons for lack of teacher-child interactions. The teachers were not provided with any support material or framework for the integrated lessons; therefore, they were not able to serve as mentors for the children. The basic knowledge of the teacher was also observed to be a significant factor affecting their engagement and involvement in the teaching and learning process. The teachers have the basic information of using Tablets, but they do not have any knowledge about using various learning applications on Tablets, or how to use different applications creatively in the teaching and learning process. This finding helped in understanding the teachers' interaction with ICT in relation to supporting EFL.

Another problem that was identified is that teachers were not able to apply the creative ideas to enhance learners' skills and Metacognitive competencies although teachers have reported that for language learning, it is significant that childaren should develop Metacognitive

competencies. Howver, there was a lack of practical strategies for embedding technology within the classrooms. There is no well-defined pedagogical approach or curriculum that can 'teach' about teaching practices, so the teachers were observed mostly sitting idle or taking a limited part in observing children in the class. The personal values and perceptions towards technology are also important factors that restrict the teachers from taking active participation in integrating technology into the classrooms. Integrating ICT in the classrooms for the very young children was not an easy task because it was found that young children are not very interested in taking instructions from the teachers. The teachers were providing some instructions to the children, but as the children were excited about using Tablets, they kept on searching fro things according to their interests and not according to the teachers' instructions. This displays a lack of engaging and focused teaching strategies that could be used by the teachers. The teachers were also not very keen to implement their personal efforts in the teaching and learning process because they do not have basic training and skills and have not received any focused training and collaboration. Collaboration with and receiving support from colleagues was also found to be a significant factor, as some of the teachers tried to interact with fellow teachers and to understand how they can use new strategies of teaching. Collaborative working is very importantt in the integration of a new approach intheeducation system. The EFL learning process becomes very difficult for young children because they do not have the basic knowledge of the second language. Therefore, the teachers have to start from very basic things, and it is difficult to maintain the focus of the children.

A teacher needs the competency to motivate and influence the children to develop their learning skills; however, the participant teachers found themselves unable to motivate children because most of the children do not have Basic English skills, which make it difficult for them to learn English. The method of explaining the meaning of the English words is not very different in other EFL learning in higher classes (Alharbi, 2015). According

to the current practices, literacy among the young children is characterised by the use of technology and the array of digital technologies that have become more portable, flexible and affordable in recent years. The teachers are also required to be well trained in the use of technology, because the use of digital technology by the children is required to be channeled in the proper manner so that children can develop the competency skills and learn from technologies (Lynch and Redpath, 2014). Technologies can also be considered as portable networked smart technologies, through which the teachers and educators are looking for the potential applications or influence that such technologies might by involved in the learning process of children. Therefore, the interviews with the teachers before the ICT intervention suggested that they also require some kind of specific direction with the use of technology. Teachers for preschool teaching are selected on behalf of their English knowledge, even if they do not have any kind of certification. Teachers in Saudi Arabia do not even receive specific English training for teaching children in preschools (Alghamdi, 2016). Although, according to the evidence, the English teachers are in very great demand in Saudi Arabia, the studies have identified that national certification is very impotant to equip the teachers for teaching preschool children using the developmentally appropriate practices (Alghamdi, 2016).

The theme of th edevelopment of motivation among the children was also observed. The observation of the teachers in the classrooms was done on three different levels. Motivation is a very important factor for engaging children in the learning process and for enhancing their skills in developing various competencies. According to the literature, the Tablet can be beneficial in teaching English to very young children, yet it has many challenges. Motivation is a very important factor in language learning, as it is also considered to be an inseparable part of teaching and learning the language. The role of the teacher has changed in recent years; this change is mainly in the shifting focus from instructional techniques to developing

learning techniques. The teachers in the classrooms were not able to play the role of guides or facilitators. The motivation factor is also significant for developing competence in children; this requires the structuring of the virtual learning environment in the class. The teachers observed in the research were not very comfortable with the virtual learning and teaching environment in the class; the reason for this could be the traditional teaching training and experience of the teachers. The traditional ways of teaching language are completely different from the virtual and technological environment of teaching, and teachers found it unable to empower and engage children in the classroom. The examples included in the data analysis state that teachers were not very comfortable about teaching on the Tablets, which restricted the process of empowering children.

Although teachers used personal competency to motivate the children by asking them about finding particular words through Tablets, it was observed that children started searching for other things instead of searching according to the teachers' instructions. However, the teachers do not possess effective skills for using evolving technology. This displays that teachers should be provided with training sessions through which they can learn about empowering and engaging children through motivating them. The seminars and workshops should be arranged for the teachers with regular meetings devoted to the integration of technology in school. Teachers have limited knowledge about personal and professional technical skills and also have limited access to technology in the schools. Collaborative working and learning are very important through which teachers can interact with each other and can discuss their concerns, views and ideas to implement better teaching and learning approaches. The expertise of the teacher in technological skills was found to be significantly lacking. Personal technological skills of the teachers can enhance their knowledge about using different pedagogical approaches in the classrooms but this lack of personal knowledge restricts their involvement in the process. The teachers also have limited access to the skill

development opportunities; therefore they require various opportunities to develop their skills and competencies, and such opportunities should be developmental, frequent and contextualised.

There has been a tradition of inappropriate and inadequate technology training among the school teachers in Saudi Arabia; even teachers with very basic skills are considered to be appropriate for teaching. However, it is not sufficient teachers who are teaching language. Apart from training for enhancing personal technology skills, the teachers also tend to display a lack of strategies to teach.

The teachers in the findings have identified the importance of training and have acknowledged that preschool teachers are not well-trained in teaching English to the young children. According to the evidence from the literature, the teachers are required to be trained, as this will impact the quality of developmentally appropriate teaching practices for the encouragement of creative and problem-solving skills among the children. According to Hattie (2009), teachers are the centre of teaching and learning English. Teachers have the capability of designing the appropriate teaching activities according to the developmental needs of the children. However, from the observations, teachers in the classrooms were often confused over what they should ask children to do with Tablets and what knowledge should be transferred. The teachers should receive training for developing different strategies through which they can make effective use of technology in the classrooms. It is constantly difficult for the teachers to distract children from using various different things at one time and concentrating on what is being taught. This can also result in unequal knowledge sharing, as some of the children were able to search many new things, while some who lacked basic knowledge of the language were not able to search important things associated with learning.

The experience, training and personal competency of the teachers can become the barrier in appropriate delivery of education. The attitudes and beliefs of the teachers are also influenced by their personal capabilities; if the teachers are well-trained, they will be confident about teaching English to the children. It was found in the observations that teachers who had positive perceptions of teaching language with the help of ICT were able to engage children effectively. However, those who were confused and undetermined about the use of technology in the classrooms had a very low engagement in the class. The personal attitude of the teachers was observed to be a significant problem, particularly when they were not very confident about their practices in the class. They could not control the actions of the children and could not apply the step-by-step learning techniques. Teachers do not have knowledge of using all the applications on the Tablet, which displaysa lack of ICT competency among them.

It is also important to develop the positivity and confidence in the teachers towards technology. The positive experience of the teachers can be created through training and step-by-step learning. The teachers are required to learn all the aspects of Tablet use in the class, and this can only be done when they are specifically trained in using the technology tool. When the teachers are well versed with the technology, they will be able to design the best pedagogical strategies that can correspond with the technology and also with the learning capabilities of the children (Zhao et al., 2002). Another issue that has been found by the research is that teachers should be easily able to relate to the curriculum and the technology that is going to be used in the classrooms. The use of ICT is significant for the development of Metacognitive competencies among the children; however it should be understood that these competencies could be developed with the support of the teachers. Several studies have supported the use of ICT in language learning and have acknowledged that ICT is the most authentic way of teaching English to the children (Li and Brand, 2009). The technology

curriculum used in the classrooms was very difficult for the teachers to apply; it is not well developed for classrooms, and it becomes difficult to teach children with the help of Tablets. The observation of the teachers also explained that teachers were not able to maintain the focus and concentration of children. Children were continuously searching things that were not included in their curriculum. Teachers were concerned about this issue, as they do not know how children should be taught or instructed about staying on one topic. The preschool children displayed the development of Metacognitive competencies, core competencies and language competencies, but that was mainly due to their intrinsic and autonomous actions with little or no involvement of the teachers. Maintaining the equal flow of information was also very difficult for the teachers. This explains that teachers are required to develop the learning environment that could help in maintaining the equal flow of information and that every child should be able to access an equal amount of information.

Research has also considered ICT as new and very powerful cultural and social tools that are valuable in creating and shaping the learning environment for young children. Therefore, it is said that young children in the current time can easily master the use of ICT tools. Therefore, the teachers in the preschool need more training for teaching English as a foreign language. The important aspect of teacher training that has found from the literature review is that it is extremely important for the success of the learning approach. The training will also help the teachers to closely connect with the curriculum and the use of Tablets (Yunus et al., 2010). The acceptance of technology among teachers is very positive. If the teachers have a sound understanding of the technology and are able to understand its benefits, then they will in a better position to use positive approaches in teaching. Teachers' training is also important so that they can understand that use of technology is not just to integrate the technological approach to teaching, but it is to make them understand that this technological approach is

key for helping children to develop their Metacognitive competencies and to enable them to learn English in a more effective and easy manner (Flewitt, Messer and Kucirkova, 2015).

The evidence in the literature has shown that some of the teachers do not have a very positive attitude towards the use of technology or ICT in EFL. However, the evidence has also shown that incorporation of the technology in the early childhood education is important. Training of the teachers is also very important because the teachers might have various questions regarding the appropriate use and integration of technology in the education of or teaching English to young children. The clear understanding and knowledge of the teachers will ensure proper teaching and the use of proper teaching strategies. For the development of the Metacognitive competencies of the children, the teachers must be well prepared and enthusiastic about the process. The findings of the research suggest that teachers interviewed considered that more training is required for the preschool teachers because they deal with young children who do not have any idea about English and who are just like blank books. Therefore, more efforts of the teacher and knowledge of the teachers will help children to enhance their personal skills and develop them into effective learners. The problem which the teachers are facing is that they do not know how train the young minds to be effective and competent learners. Yunus et al. (2010) also acknowledged the same concept and asserted that teachers can develop more learning abilities in children if they are well trained and equipped with appropriate knowledge. They study also found the same problem as discussed in the data analysis of this research; teachers are facing a lack of adequate training, appropriate delivery of training, and lack of resources.

The findings of the research suggest that teachers are concerned about the quality of teaching. They have recognised the importance of the quality of delivery of the curriculum. The teachers support the view that teaching content should be followed and designed according to the teachers because it is they who are best positioned to identify the skills and capabilities of

the child; they spend most of their time with the children, which make them capable of understanding the learning needs of young children. Findings from the interviews with the teachers suggest that teachers are keen to adopt their own ways of teaching. They acknowledge the importance of the books, but believe they should be free to teach the curriculum in the way they want to. There should be an objective of developing the capabilities among the children, and that should be achieved through the quality of the delivered content not the quantity.

The same findings are also reported in the literature. According to of Zhao et al. (2002), the use and acceptance of the technology must be done according to a specific objective of delivering quality education, rather than considering it as a new educational approach. Also, according to Rahimi and Yadollahi (2011), ICT use in the English classes must be done by the teachers with a specific approach and objectives. Therefore, the importance of the role of the teachers must be understood for teaching EFL to young preschool children; teachers should be at the heart of the new approach to integrate technology in the educational and learning environment and to promote the further use of technology in EFL. Another important fact that has been recognised through the findings is that giving the right to the teachers to teach young children according to the teachers' choice, can be auseful suggestion, but this suggestion could not be practically applied because every individual has their own capabilities and style of teaching. The level of understanding and knowledge of the teachers will be different, which can result in discrepancy related to the type and level of knowledge given to the children. According to Al-Mogbel (2014), for the quality of education, the capability of the institutions to design the policies for accomplishing the task is also significant.

According to the observation of the teachers in the classrooms, it was also found that teachers significantly lack important resources that could assist them in teaching and enhancing the

learning process. The teachers in the classrooms were not able to get access to necessary expert support for implementing the technology. The lack of resources could be a significant problem for teachers; they require continuous technical and expert support from the institutions to integrate technology. Therefore, the institutional constraints could also be a major factor in reducing their ability to teach EFL to preschool children. The teachers are basically adapted to the traditional teaching and learning system and develop various competencies among children (Al-Mogbel, 2014), but the technology integration transforms the whole learning and teaching environment, for which teachers are not qualified. Therefore, it becomes important to enhance qualification of the teachers by providing them with technology-oriented knowledge and information because it is important for teachers to keep pace with the emerging technology. The lack of qualification is not just the only barrier to the integration of technolog; accessibility is also a significant barrier for the teachers. Teachers have not used Tablets in their basic lives and only have the knowledge of opening and shutting the applications. They do not have sound knowledge about the effectiveness of various learning and teaching applications. Therefore, they become confusedover which application should be used on which level of teaching. They were also not able to make use of various applications according to the requirements of the curriculum (Rahimi and Yadollahi, 2011). If the teachers are not able to make effective use of the application, they will not be able to develop an effective learning environment in the classrooms.

The teachers experience difficulty in understanding the curriculum and developing the practice approaches accordingly. This is due to the lack of effective policies and procedures of the schools that are not flexible or designed according to the needs of virtual classrooms. It was also found through the observation of the teachers that they were not enthusiastic about using technology in the process of language learning. This because teachers have not received the prior information or knowledge about components associated with child motivation and

importance of the teacher-child relationship and interaction. The process has more communicative needs as the restriction of communication will not fulfill the goal of education. The institutions are required to play a more active role in enhancing the capabilities of the teachers, by providing opportunities to get better access to technology and provide formal training before integration of technology in the classrooms with very young children. The schools can also provide technical support to the teacher that is essential for the adoption of new technology and for changing the personal values and perception of the teachers.

The accurate and flexible policies and procedures must be designed for the development of the innovative and creative learners. Such learners will be able to keep pace with the advancement and changes in the current educational system. As stated by Hussein (2005), this is very important for the quality assurance in the education system. It is also important that teachers and preschools accept the concept of quality education and achieve it through informed interaction among the teachers and positive experience of the teachers. For the success of the educational approach, it is important that delivery of the knowledge should be similar for all the children. The teachers can have the flexibility of using the content, but content delivery should be similar in all the classes, so as to avoid any kind of knowledge-based discrepancy (Hussein, 2005). Therefore, this demands the development of a formalised system of education delivery, which will allow the teachers to use equal approaches, so that an equal quality of knowledge will be received by the learners.

Involvement of the children with the learning process is also a significant demand for the teachers. The formalised system can focus on the demand while designing the books and activities for the preschool children. The involvement of the children is important for the development of the Metacognitive competency and for language learning. Training of the teachers will help them to understand the perceptions of the children (Dörnyei et al., 2015).

The literature lacks in providing the evidence that can explain the perceptions of the children towards the language learning process. Therefore, the teachers have to develop the capabilities through which they can understand the perception of the children and can motivate them for engaging and being involved in the language learning process (Divaharan and Wong, 2003). This perception can be developed with more positive and trust building communication between the teachers and children.

Although technology has the potential to enhance the process of learning and teaching, the engagement of the children and motivation of the teachers is equally important (Roschelle et al., 2000). Findings from the interviews with the teachers suggest that more engagement of the children is important; however, this cannot only be achieved through well-designed content or activities. According to the literature this can be achieved through encouraging real-life learning activities (Roschelle et al., 2000). For the active engagement of the children, teachers have to understand the significance of the pedagogies through which children will be motivated and increase their participation in the language learning process. According to the findings of this research, there is a lack of appropriate curriculum design and method of instruction, due to which teachers are unable to actively engage children. However, the solution to this problem can be obtained from the empirical and evidence-based studies that can provide rationales for designing engaging content and methods of instruction for young children (Soussi, 2016).

The education system in many developed and developing nations is changing and struggling to adapt to changes due to rapid advancements in science and technology. The changes brought about by technology are influencing the modifications and are giving rise to new challenges and concerns in the preschool education. This is the reason for the requirement of evidence-based research to understand the international experiences in the field of preschool education systems (Al-Mogbel, 2014). Technology has brought about social-cultural and

technical changes in the attitudes and expectations of humans. Therefore, the changes in the methods of operations, administration and content of the curriculum and teaching methodologies have become essential. These changes need to be applied in the preschool education system so that institutions and schools can operative effectively and efficiently incorporating the use of ICT (Al-Mogbel, 2014). The early education aspects using ICT need to be explored in other countries' contexts as well so that comprehensive and appropriate teaching methodologies and strategies can be made. The last decade has increased the use of ICT in the early years of children, as it has been found that it has many implications in terms of academic ability, mental well-being, psychological growth and social well-being and also the appropriate development of the child. Therefore, it can be said that increased awareness tof the use and value of technology in education and language learning has also given rise to the research in this field and the need to examine how technology can impact the developmental stages of children. To some degree, it has also been helpful to develop the sense of identity among the children and prepare them for the future (Griffith and Lim, 2014).

There are many Arabic educational research studies that have focused on exploring the Western Educational models for the preschool education system using technology. The most significant Western Countries are Great Britain, France, Germany and the United States, which may explain that these educational models are perceived as eminent and, therefore, the educational models from these countries are worth imitating (Al-Mogbel, 2014). Some of the other educational models that have achieved considerable success are from Malaysia and South Korea. These countries also have experienced success and progress in the field of childhood education. Most of the comparative studies related to the education in Saudi Arabia are mainly conducted for the preschool or early-education children. This is because early childhood is the stage when children develop many skills and competencies that can help them over their lifetime (Kucirkova, 2013). The studies related preschool education in Saudi

Arabia are mainly concerned with exploring the importance and application of technology in early childhood education, and the references are taken from the models of Europe or America.

According to the evidence, the main goal of the early childhood education or the kindergarten programmes is mainly to understand the necessity of the change required in the direction of educational research (Griffith and Lim, 2014). It also requires exploring the educational experiences of countries which have made social, cultural and educational progress in the recent decades. To understand the concept of early childhood education, it is also important to understand the various factors that have contributed to the technological development. The teachers in the interview have revealed many problems that they are facing while teaching EFL to young children. The findings of the research also suggest that this problem that teachers are facing is also affecting the quality of education given to the children. Therefore, according to Al-Mogbel (2014), teachers and institutions can take the example of the countries that have successfully integrated technology into early childhood education. The main intent of this approach is to identify the elementof excellence from the examples of other countries and adopt in the Saudi Arabian system. Developing countries may have struggled through many social, economic and cultural changes due to the advancement of technology but it has brought them many benefits nonetheless. Development of the training system for teachers has been acknowledged by various studies; such a system can be developed on the basis of the experience and success of the Western countries' model (Al-Mogbel, 2014).

Another benefit of taking the examples from successful countries is that the skills and capabilities of the teachers will also be enhanced (Parmar, 2014). Since the teachers delivering EFL in Saudi Arabian preschools face a lack of training and resources, the successful strategies from the Western Countries can make them more competent. The

integration of ICT is capable of supporting the basic educational needs of the young children, and it is also capable of development of the language learning skills in children (Parmar, 2014). It is also important to understand how the preschools are employing ICT for EFL learning. The educational procedure in Wstern country will explain the skills of the teachers and learning abilities of the children. The Saudi Arabian people have transformed how they communicate by the explosion of technological innovations, the Internet, and social media applications. The training of the teachers can also be enhanced through engaging the teachers in the social media learning system.

Utilisation of information in the correct manner is vital for the development of core competencies among children. Systematic and structured teaching approaches that can explain how children learn and develop the critical thinking skills have to be identified. The development of the core competencies is often facilitated by the involvement of the teachers, as teachers can help children to identify problems and solve them through applying proper problem-solving skills (Nikolopoulou and Gialamas, 2015). This kind of teaching process will encourage discovery-based learning among young children. The discovery-based learning opportunities include the socio-cultural and contextual factors that also influence the children's engagement in the learning process (Kucirkova, 2013). Such systematic approaches will enhance the involvement and engagement of the teachers as well as of the children. The findings of the interviews with the teachers suggest that learning of the language by the child means that they should be able to construct sentences and use proper grammar.

ICT can help children in constructing sentences and making proper use of grammar. ICT provides the tools and applications that have an instructional approach, and research has also shown that ICT can enhance and influence the four key stages — social development, emotional development, and physical development as well as thinking and cognitive

development (Sehnalová, 2014). ICT also brings positive results in the mathematical, cognitive, memory and language skills of young children (Gulay, 2011). The language skills are developed with social interaction and ICT provides various opportunities through which children can engage in more social interaction and can develop long-term language learning skills. The instructional ICT applications in the classrooms develop the effectiveness and skills of young children to do things in a better way (Sehnalová, 2014). It has also been found that such applications can promote better involvement of children in learning. Assistive technology provided by the ICT can be considered as the tools that can help the children with different skills and capacities to perform in a better manner. Therefore, it can be postulated that technologies are critical for supporting children's participation and development in planned classroom activities. The only challenge that arises is how to develop the required skills and knowledge according to the curriculum needs (as analysed in the findings of the research).

This problem can be solved with the use of professional pedagogies that can support the use of instructional and assistive technology for young children. Firstly, the teachers are required to develop a basic understanding of the technology and its specific contribution to the language-learning education for young children (Parette et al., 2013). Second is that teachers must be able to demonstrate proficiency in the use of technology, so that they may be able to offer instructional support in the classrooms. The third important approach that teachers can use is creating and implementing many new and effective instructional activities for children that can promote their Metacognitive development (Parette et al., 2013). The intentional use of interactive media is also very beneficial for the teachers as well as for the children; such an ntentional approach to and use of interactive media can support the process of language learning and developing Metacognitive competencies among the children. However, it is also important that teachers have the appropriate information about these resources and their

nature before implementing them in the classrooms (Sehnalová, 2014). The limitation on the use of technological tools is also important for language learning because findings from the literature have shown that use of technology without limitations can draw more attention to the technology instead of to the to the learning process (Yamauchi, 2009). Attention towards the learning process and equitable access is key for children's learning.

Professional development of and ongoing research on the use of ICT in EFL learning are required from educators in order to make effective use of the technology that can enhance the teaching skills of the teachers and learning engagement of the children. The use of ICT in preschool education has come at a time when the use of technology in education is widely supported worldwide (Plowman and Stephen, 2003). Various educational settings are working towards creating a knowledge economy and understanding the importance of technology. European countries are working very hard towards preparing the technically sound generation of the future by preparing children of all age groups to survive in the technological world. Since English is the most widely used language all over the globe, developing English proficiency in children is also significant for their future success (Plowman and Stephen, 2003). Since the children today use a wide range of the technological tools, they are becoming competent at a very young age. The technological resources used at home also enhance the technical knowledge of the children, and it becomes easy for the teachers to teach the use of technology to the young children.

Teachers can easily help children to develop English-learning skills. Appropriate instructions can engage the children in the learning process and can help them to learn new words. The children are exposed to new technologies every day, which can influence their competency and learning skills (Nikolopoulou and Gialamas, 2015). The technology tools allow children to explore, play, solve problems and manipulate the objects on the screen. There are series of qualitatively different and effective applications and software that can increase the

engagement of the children in the learning process. These applications can help children to learn, play and engage in exercise control (McKenney and Voogt, 2010). The problem arises when there is an inappropriate or inadequate integration of technology in the early childhood education and EFL learning. The evidence has shown that it mainly occurs due to the lack of skills and competency of the teachers. If the attitude, experience and skills of the teachers are not appropriate, then the learning and teaching process can be hampered. Therefore, the skills of the teachers need to be enhanced in order to initiate a very effective learning environment for young children. The recommendation made by the teachers in the research findings suggests more involvement of the children is required by the teachers. For this, teachers have to understand that involvement and engagement of the children in the language-learning process is dependent on their skills and effectiveness of the application used. The teachers are also required to understand the importance of the instructional activities that can enhance the engagement of the children; those interviewed stated that the current design of the curriculum does not promote the involvement of children, but the teachers must understand that fthey – as teachers –have to design the instructional activities and lessons that can improve interaction, communication and language learning in children (McKenney and Voogt, 2010).

Teachers in the interviews discussed that curriculum-set books for the young children are not suitable. The exercises and material given in the books are different from what the teachers are required to teach in the EFL classes. According to these findings, it can be asserted that this is the first study to cover the concerns of the respondents related to the teaching material for the young children. Earlier studies have not discussed the teaching material that is used for teaching EFL to young children; they have only discussed the theoretical approaches for teaching English in Saudi Arabian classrooms. The first approach considered to be very effective is Communicative Language Teaching (CLT) (Sofi, 2015). Since its introduction in the late 1970s and early 1980s, this approach has been used for language teaching, and

helping children to communicate and to learn how to use language in various situations and contexts. Kucirkova (2013) discussed that e-books could be a novel literacy tool for teaching English to young children. Such books are considered to be very interactive and instructional, and provide customisable features for early learners. Therefore, it can be said that language learning activities, e-books and educational programmes can increase communicative competence among children.

Alharbi (2015) found that a lack of English proficiency among the public school children in Saudi Arabia. According to the author, this non-proficiency among the children is mainly due to the inappropriate method applied for teaching in the class. This method is called the Grammar-Translation method; according to the study of Alharbi (2015), 69% of teachers in Saudi Arabia use Arabic as the main language of instruction, while 60% of teachers believe that the use of Arabic for the purpose of instructions is more efficient as it helps in decreasing the consumption of the time in classrooms. However, the author found that this technique is not appropriate and it restricts the children from learning and gaining proficiency in English. However, according to Dörnyei and Schmidt, (2001), the use of the first language (L1) encourages the children to think about something in their first language, through which children translate their thoughts in the second language (L2). This technique is termed the Grammar-Translation method; however, it does result in lack of motivation and less communicative competence development among the children. It is also found that use of the first language in the EFL classrooms decreases the efficiency of the real-life situation, because in real-life situations children also think in their first language (Alharbi, 2015).

This kind of approach decreases the chance of the children to participate effectively in the English learning and communication. The same problem is also found in the research, where in the interviews the teachers have acknowledged that they use Arabic words for explaining the meaning of the English words. Children do not communicate or interact in English

outside the classrooms as well because their communities use Arabic (Sofi, 2015). Therefore, the role of creating English interactions among the children is crucial. The use of the first language can impede the children's motivation to use English as the second language. The continuous use of the first language does not promote motivation among the children to use the second language as they stay comfortable with their own language (Sofi, 2015). Children will also not be able to make the connection with the English language and will not be able to achieve the proficiency level with the current teaching practices (Alharbi, 2015).

The findings of the research suggest that use of Tablets can be very effective for teaching English. The teachers of the Saudi Arabian preschool have also reported that Tablets could be effective ICT tools for young children. Most of the teachers also agreed over the efficacy of integration of Tablets in EFL learning for young children; they believed that Tablets have the capability of increasing the language proficiency among the young children and can also enhance their engagement with the learning complete process. Teachers also believed that Tablets could resolve many of the issues that are discussed above, as the multimedia approach of the Tablets is very beneficial for teaching instead of just traditionaltextbooks. The research also identified some of the important themes from the literature; these were considered to be important elements of the observations. The findings of the research indicate a difference in the mean scores of Group A and Group B in the pre- and post-intervention data. The post-intervention score displayed that ICT intervention was beneficial in improving the English skills of the children. The most interesting outcome identified through this study was that the test scores of Group A were higher than those of the children in Group B. This means that improvement was higher in the children in Group A in comparison to children in Group B. The five important learning dimensions that were addressed in the study are Listening, Speaking, Writing, Reading and Reading Stories. It was found that the children in the group A had the higher scores in four out of five dimensions. The difference in the

findings of Group A and Group B are based on the type of intervention. Group A used the Tablets under the constant involvement (guidance and instructions) of the teacher, while Group B received little involvement from the teacher. This means that the level of teacher's involvement could affect outcomes of ICT interventions.

It was found that proficiency in writing was similar in both groups. The research also found that the score for 'Reading Stories' was not considered statistically significant, but the English test score after the ICT intervention displayed improvements in the dimensions of 'Listening', 'Speaking', and 'Reading'. Now, these test results are very important to understand the efficacy of the ICT intervention or the use of ICT for teaching English as a foreign language to the young children. The improvement in the listening skills of the children is obvious. The use of Tablets in learning helps children to watch videos, rhymes, and many more things that enhance their attention and listening skills. The multimedia approach of the ICT tools has been considered to be efficient by the evidence from the literature. The evidence has shown that ICT tools have various applications and software that can enhance the engagement of the children and can improve their listening and writing skills (Alghamdi, 2016).

According to the data collected, it was found that for the children in Group B the score of 'listening' remained the same, which the score for 'reading stories' had declined after the intervention. However, the scores for 'reading' and 'speaking' were found to be important in Group B. According to the research objective, the main aim was to find improvement in the Metacognitive competencies for the children, and these competencies are the development of autonomy, problem-solving, self-development, communication and creativity. Development of these competencies is very important for English language learning and also for the overall academic development of the children. Studies have found that one of the negative aspects of the use of ICT is that children are highly competent in using the technological devices

269

because they learn it by observing their parents and family members. The use of the devices restricts their communication development. Children using Tablets are more attentive in using the applications instead of communicating with their peers. The audio, videos and graphics of the application increase the engagement of the children with the device and decrease their communication with other children in the class. This is considered the major problem with the use of ICT in EFL learning (Sofi, 2015). The findings of the research also identified that, when the children were first asked to use the Tablets, they were very involved and absorbed in the process, but in the other group exercises it was found that children were playing and communicating with each other. Although the findings of the literature suggest that ICT is informative, interactive and engaging, that is on the personal level, as it lacks the opportunities for social communication with others (Karsenti and Fievez, 2013).

ICT use decreasd the level of communication among the children and increased the engagement of the children in ICT activities. However, the teachers had suggested that they want more engagement of the children in the activities and have also stated that development of the core competencies is easier than the development of the Metacognitive competencies among children. Therefore, the enhancement of the core competency of engagement was achieved, but the Metacognitive competency of communication was clearly not achieved, although some past studies have considered that Tablets can enhance the communication skills of children (Khoo et al., 2015; Plowman and Stephen, 2003). These studies have also found that Tablets can increase the participatory and communicative learning skills in the children, but this was not found in observatory intervention in this research. There were 17 children in Group A, and only niine instances were found in which the children were communicating. This explains that communication between the children decreased with the use of Tablets. However, the findings suggest that instances of communication were slightly higher in Group B (11 instances).

However, the quality of communication observed showed that communication was poor and children were involved in communication for only brief periods. According to the evidence for enhancing the communication among the children, the appropriate approaches should be combined with the multimedia applications. The literature evidence has shown that linguistic competence is significantly associated with communicative competence. If the communication is good, it will definitely enhance the linguistic skills of the children. Therefore, Communicative Language Teaching (CLT) can be used to enhance and promote this competence (Sofi, 2015).

Another important competency was self-development. The findings of the research displayed that some increase in the self-development was found among the children after the use of Tablets. However, although children displayed some degree of self-development, their cooperation and team working skills had declined. The development of the cognitive capability and creativity increases the ability of self-development among the children (Kinashet al., 2012), and this was also identified with the increase in confidence in using the technology. The children felt more confident in using the touchscreen devices. According to the findings from the literature, touchscreen devices can also enhance the motor skills among the children and enhance their confidence. The findings showed that children were able to concentrate on the task and the persistence and self-development skills of the children allowed them to improve their learning after the introduction of the Tablets. The level of concentration achieved among the children was based on the interest that children had in the subject. The concentration of the children dropped with the use of Tablets, which is significantly different from the findings of the literature. The literature has shown that Tablets can increase the concentration of the children.

Creativity and problem-solving are also key aspects of ICT (Kucirkova, 2013). The findings suggest that creativity and problem-solving skills of the children definitely increased after the

use of Tablets. The children were found to be more creative, as they put the effort to find information and increase their knowledge. The problem-solving skills were also enhanced as the children looked or searched for the answers to their questions. The development of the Metacognitive competency is displayed through the originality of the concept. The originality emerged from the curious minds searching for various things that children imagine in their minds. The use of Tablets improved creativity and problem-solving among the children. The 'novice' children were found to be keen to use the technology and to find the answers to their questions; therefore, it can be said the Tablets provided the opportunity to the children to enhance their knowledge and competency (Flewitt, Messer and Kucirkova, 2015).

Autonomy was another competency that was significantly developed among the children. On the first step, children required instructions from the teachers on how to use the Tablets, but later they did not require any kind of instruction and were able to use the Tablets by themselves. The competency of self-control was also observed among the children. However, the most significant aim of the research was to find how Tablets can motivate children to learn. The children were keen to use the Tablets, but that was because they wanted to learn about the new technology and not because they wanted to learn English (Flewitt et al., 2015). The main aspect of it is that children learned various new things through Tablets that increased their confidence, which in turn motivated them to learn new things (Pamuk et al., 2013). According to the evidence from the data analysis, the constructivist and behaviourist approaches to learning can be understood. Children constructed the knowledge that was displayed through their changed behaviour. The constructivist belief of the teachers was also displayed through the instructional methods of the teachers, where the child-centred and inquiry-based methods were determined and used to encourage children towards learning (Montrieux et al., 2015).

The three important core competencies that were observed through the research were personal competency, task competency and process competency. The development of the personal competencies is associated with the development of autonomy, self-development, and self-conceptualisation. The overall learning capabilities of the children are dependent on their personal competencies. The use of Tablets enhanced the personal competency among the children and motivated them towards the more comprehensive process of learning. Personal willingness is important for the development of personal competencies; it was observed that children were willing to participate in the intervention and use of Tablets. Autonomy was observed in the use of Tablets and, on the second and third levels of the intervention, children were able to complete the task more effectively, which displayed self-development. To some extent, collaborative working was also observed; according to Nikolopoulou and Gialamas (2015) collaboration could be achieved among the children with the use of Tablets, as children can actively interact regarding the use of technology.

The findings revealed that children achieved self-development through developing their creativity and autonomy, and personal competencies were also seen at various stages of the intervention. It was found that task competency has significantly improved after every subsequent task involving the use of the Tablets. By the third session of the use of Tablets in the class, the children from Group A displayed improvement and were able to do the task as asked by the teacher. Similar task competency was also observed in the children from Group B, who were also able to display improvement in task competency, as they were adapting to the task and developeingthe core competency.

According to the findings of the literature, core competencies are very important for the holistic development of the children and to enhance their learning skills. Studies have considered that development of technological skills among the children is very important for the development of the core competency (Pang, 2016).

The use of Tablets is seen to be less challenging for the children in comparison to adults because children observe their environment and explore everything. The exploration and explosion of the technology everywhere makes them more competent (Khoo et al., 2015).

Differences in task competency were found between both groups. The children from Group A were able to complete some of the tasks correctly in the first session with the instructions and guidance of the teachers. However, the children in the second group were not able to complete any task correctly. This explains that level of task competency is also dependent on the level of instructions and assistive approaches used by the teachers (Lynch and Redpath, 2014). However, the overall result of the task competency showed that children were not able to complete the task effectively with assistance as well. It can be said that mixed results were achieved as, to some level, improvements were seen in Group A related to the number of the incomplete tasks. The use of Tablets was challenging for the children due to which they could not complete their task initially.

Process competency was the third core competency that was tested among the young children. One single test was divided into three levels to determine the level of complexity that children can deal with. The level of complexity could explain that children using the Tablets were able to display some level of improvement; however, the results are negligible, and it could not be said that further use of the Tablets can improve the process competency among the children. However, studies have shown that continuous use of the Tablets can improve the competency level among young children and can also encourage them to get involved in the continuous process of learning (Bueno-Alastuey and López Pérez, 2014). The repeat of any process can help the individual to develop their skills through which they can complete the task more effectively with fewer repetitions and are able to solve more complex problems.

Another aspect of the research is to identify the differences and changes in the language competencies of the children. The language competency included the dimensions of listening, speaking, writing, reading and reading stories. The improvement in the listening skills of the children from Group A was found, while the listening competency of the children in Group B was already high and remained consistent. Speaking skills improved in children from both groups. The speaking skills improved in context of the pronunciation of the words and speaking difficult words. The children using Tablets also displayed enhanced mental skills as they looked on the Tablet before speaking the word, so as to ensure that what they speak was correct. This can also be considered as cognitive development. However, the individual capability of speaking was not improved, because the children used the visual images to identify and speak the word. The exercise undertaken for the writing skills of the children did not display significant improvement because the writing exercises were different from listening and speaking. That is why the results associated with the writing capability of the children did not suggest that Tablets can improve the writing skills among the children. Instead of learning to write, children were found to be more dependent on the autocorrect option. Therefore the evidence from the literature has suggested that the screen-based medium and the activities using technological tools could not be considered as effective for developing learning and understanding of making words and sentences (Plowman and Stephen, 2003).

Improvement in the reading skills of the children was achieved in both groups. The reason could be that children working on Tablets had the opportunity of reading various things through various learning applications. Therefore, their reading skills subsequently improved. The Tablets are appealing and provide meaningful support in enhancing reading skills (Khoo et al., 2015). However, the competency level in reading stories could not be established by the research; this is because the type of stories that were familiar for the children were

interesting for them, but the stories that were new for the children were uninteresting for them. Children were more interested in listening to the stories instead of reading them. Some of the other observations also revealed that children using Tablets for the process were able to remember the words more effectively. However, there are no clear results about the application of the identified words in the small sentences. The children also applied their learned knowledge to search the new words on the Tablet, which also explained their spelling learning skills.

Post-ICT interventions, the interviews with the teachers were conducted to understand their experience and perceptions, and how they feel they can contribute to making changes in the Tablet learning process. Teachers agreed that ICT intervention negatively affected the communication skills of the children, which confirms that the observation of the research about the communication competency of the children is correct. Before the intervention, teachers struggled to keep them quiet, because the use of technology distracts the minds of children from their current environment and absorbs their attention (Churchill, Fox and King, 2012). The teachers suggest that instead of the eindividual use of the Tablets, group use is more effective in increasing the communication and interaction among children. The self-development as noticed by the teachers was mainly individualised, as the children use Tablets according to their interest. This is because children use their knowledge according to the elevel of complexity and adapt what is easier for them. The evidence from the literature has shown that technology can isolate the children and can impact them negatively (Macaruso and Rodman, 2011). The same was found in the interviews, where the teachers observed that use of Tablets could isolate the child and restrict the process of self-development. Although the use of ICT can enhance concentration and focus, it also increases the threat of isolation.

The creativity among the children was acknowledged by the teachers, as they found that children were more creative in their approaches to discovery, exploring new thing and finding

creative ways of problem-solving. Children were involved in exploring new things. This is the benefit of the multi-media approach to technology that provides many ways of exploration and learning that enhance creativity and innovation (Dörnyei et al., 2015). Music applications and videos and images were very helpful in enhancing creativity among children. Use of Tablets is also considered to be effective in enhancing creativity, as it helps children to develop new ways of experimenting and learning. The problem-solving skills were not clearly identified among the children. The findings of the post-intervention interviews with the teachers explained that teachers did not find any marked improvement in the problem-solving skills of children. Children are more involved in finishing the task instead of finishing it correctly. When the children tried to apply the problem-solving skills, the rate of mistakes increased. However, improvement in the autonomy of the children was suggested by the findings of the data analysis and the literature evidence; and the teachers also reported improvement in the autonomy of the children. It can be because, through continuous use, children learn to handle the technology in their own manner, and increased mental capacity makes the children more competent (Fernández-López et al., 2013).

The improvements in the core competency and language competency of the children were identified by the teachers. A marked improvement was observed by the teachers that was difficult to achieve before the ICT intervention. The rate of mistakes was also decreased after the ICT intervention. Still, the interview respondents and findings of the research suggest many problems and discrepancies in the seamless use of the ICT tools. These issues are the same as issues that were present before the ICT interventions; they include lack of training among the teachers, lack of knowledge to use the resources, different teaching styles and lack of knowledge regarding the proper use of technology. The findings of the literature are to some extent similar to the findings of the research in relation to problems being faced by the

teachers in the appropriate use of Tablets for EFL. More research on the skill development, training of the teachers, and efficacy of the course design is required.

Chapter 7   Conclusion

7.1   Findings

This research is focused on finding the efficacy and evaluating the effectiveness of using Tablets for teaching EFL in the preschools of Saudi Arabia. This research used the case of one preschool in Saudi Arabia and employed the mixed method approach to find the qualitative and quantitative data. Saudi Arabia as the country is significantly advancing in the field of technology and education. Use of ICT in early education is a highly debatable topic. A great array of research has evaluated the significance of ICT in preschool education and language learning among young children. Since technology has affected all areas of human life, the field of education is not untouched by its benefits. There are various ICT and technological tools that are being used to open new ways of enhancing learning and process of teaching (Noor-Ul-Amin, 2013). Early childhood education and quality of early childhood education is a very important component of the education system in Saudi Arabia. With the rapid development of the country, the standard of education is also developing.

The explosion of technology in recent years has revealed that technology no longer remains simply a source of information, as was earlier considered. Technology is much more than that. Many creative and innovative uses of technology are done to enhance the education system for the young children. One of the major aspects of early education in Saudi Arabia is learning English as a foreign language (Noor-Ul-Amin, 2013). English is the most widely used language all over the world. Currently, the integration of technology in ECE is absent; however, the government of the country is working towards the integration of technology through various policies and programmes. Yet, it is believed that integration of ICT can be very beneficial for language learning. Saudi Arabia is continuously working towards

enhancing the skills and capability of its children and youth by improving their English skills. Therefore, the focus of the research is EFL because learning English as second language can be beneficial for the new generation to make them job-ready and employable in the future. English is also very important for the non-English speaking countries. Also, having control and fluency in English is important for the people in the Arab world, so that they may feel connected to the rest of the world.

The Tablet is a very important ICT tool that can help in effective learning and teaching processes. Learning EFL through Tablets can be beneficial in two main ways. Firstly, children will gain more knowledge about technology and, secondly, this tool can provide an array of effective English learning applications for young children. Various studies have been conducted on assessing the efficiency of Tablets in EFL learning; however, this thesis has focused on finding the efficiency of Tablets in EFL learning for preschool children. The evidence has shown that there has been debate on deciding the current optimum age for language learning. Learning can be a complicated and challenging process for young children, due to various developmental milestones. However, since children in this stage are mainly involved in developing the learning, thinking, and language development skills, early childhood is considered to be the appropriate age for introduction of English as a foreign language.

In countries all over the world, technology and language learning begin in the early ages of life. Although technology may have some negative effects on the growth and development of children, its efficiency cannot be denied. The evidence from different countries has been included in the research to explain the importance of the early introduction of technology and language learning in early childhood education. This is the reason that this research has been taken up to discuss the efficiency of technology as the process of language learning in early childhood education for the development of the Metacognitive competencies in the young

children. This chapter summarises the important aspects of the research. It also discusses the findings and contributions of the research, followed by the limitations and suggestions for expansion of the research.

The findings of the research can be divided into two main sections. The first section discusses the general findings of the research; these include the interview findings of the teachers and their perceptions towards the use of Tablets in EFL learning in early childhood education. The second section discusses the specific findings concluded by the quantitative analysis of the research related to the improvement in the Metacognitive skills of the children and development in language learning through the use of Tablets.

The findings from the literature suggest that ICT can be very significant for the development of the children. ICT tools are very comprehensive and can be used for various educational exercises and activities for learning. Language learning is a very challenging process for the teachers and for the children. Teachers in Saudi Arabia are facing many challenges in the integration of technology in early childhood education. Development of language and learning English as a foreign language is associated with the development of Metacognitive competencies and core competencies; however, teachers find it difficult due to a number of problems they face. The first most significant problem in the integration of technology in EFL is the lack of training that teachers receive that limits their skills and knowledge to teach a new language to the children. The research found that this is a very significant issue because teachers are at the core of the teaching and learning processes and their lack of skills can affect the EFL learning process.

The qualitative analysis of the interviews with the teachers also suggests that Metacognitive competency is significant for language learning and is also critical for EFL learning in preschool children. Metacognitive competencies include communication, autonomy,

creativity, problem-solving and self-development. Without these skills, children will not be able to develop language learning skills. Findings suggest that teachers consider core competencies to be very important for the children, as these include task competency, process competency, and personal competency. The findings from the interview of the preschool teachers suggest that development of core competencies is easier than the development of Metacognitive competencies because core competencies can be taught, while Metacognitive competency is based on personal characteristics of the individual and develops over a long period of time. Such competencies require a change in nature and personality that could not be achieved in a short time span. Core competencies are the skills that can be taught. Therefore, they are easy to achieve in a short span of time.

It was also found, however, that the role of teachers is very significant in the integration of technology in the classrooms. Teachers are required to play the roles of mentors and guides to effectively direct children towards the proper learning process (Desai, 2010). Teachers must develop the knowledge and skills to understand the importance of technology and to develop an effective and guided learning environment. The teachers have to face many barriers to successful integration of technology or to make successful use of Tablets in the classrooms with very young children. There are various personal barriers that restrict the teachers from effectively using the Tablets and developing a learning environment.

The language barrier issue is another finding of the research. The skills and knowledge of the teachers different among each other; therefore, achieving an equal improvement is difficult. The young children do not have or have very little exposure to English. Therefore, teachers have to use Arabic words to explain the meaning of English words, which means that learning occurs in a very difficult process because children think in Arabic and try to process their thinking in English. This can make the language learning process difficult and hamper the process of achieving fluency in the language. Lack of formal training for the teachers in

the use of ICT and lack of appropriate teaching material also hampers the process of language learning. Teachers in preschools are selected due to the fact that they have a basic working knowledge of English, and do not require any certification for teaching English. This can be a major problem because without proper skills and knowledge the teacher will not be able to transfer their knowledge to children effectively. Also, this restricts the teachers from using effective teaching strategies because, with lack of training and knowledge, they are unable to understand what the most effective way of teaching English to children is.

The empirical analysis of the data suggests the development and improvement of the Metacognitive competencies, core competencies and language competencies of the children. The qualitative analysis was undertaken on g the English test scores; and pre- and post-English tests were taken. Children were divided into two groups; those in Group A were provided with Tablets under the instruction and guidance of the teacher, while the children in Group B were provided with the Tablets without any formal instructions and guidance from the teachers. The mean test score for both the groups displayed a considerable difference between the pre-intervention tests and post-intervention tests. The mean score was found to be higher in the post-intervention scores.

Group A displayed the higher rate of improvement in English skills in comparison to Group B. The findings of the research suggest that Group A displayed improvement in the four dimensions of the language learning competencies. Children displayed improvement in listening, speaking, reading and reading stories. The scores for Group B improved in three dimensions — speaking, writing and reading. The listening score for Group B was already high; therefore, it remained unchanged. The findings of the research suggest that ICT intervention can help in improving the speaking and reading skills of children. The data were collected through observations, and the highest numbers of observations were made for analysing creativity among children. The creative skills of the children were improved, with

improved autonomy, problem-solving and self-development. However, the major finding in the context ofMetacognitive competencies was that communication skills of the children decreased.

Integration of Tablets in the EFL classrooms reduced communication among children but increased their concentration. However, the focus and concentration of the children were also dependent on the level of interest that children have in the topic. It was also found that level of concentration and focus reduced with the use of Tablets because the stripped-down version of the Tablets was used, which may be less interesting for the children. The use of Tablets also improved autonomy and problem-solving skills among children, because Tablets provide various opportunities to the children to solve a range of problems and puzzles, and autonomy was gained as children needed fewer instructions to use Tablets. The findings of the research also suggest that very limited improvement was found in the core competencies of the children.

The observation of the teachers was highly significant in this context, as the teachers have a very important role in engaging and empowering children to usei Tablets. The teachers could not effectively motivate children to use technology for learning English; they were unable to develop practical strategies through which they could enhance the focus and concentration of the children and to enhance communication between them. Therefore, teachers were not very enthusiastic about using technology in classrooms and were less motivated about the development of the new learning environment in the class. One reason behind such an attitude is the lack of training and support through which the teachers can plan the integration of technology.

Due to the lack of planning and practice strategies, teachers were not able to effectively use the Tablets for teaching purposes. The teachers were not formally trained in using the various

applications on the Tablets and had attained only basic knowledge about them. This resulted in less involvement of the teachers with children, and most of them were found sitting idle, while children were busy on the Tablets. The lack of implementation efforts from the teachers could be a significant barrier to the successful integration of technology in classrooms with young children.

7.2   Research Answers

This section answers the research questions in a detailed manner.

The first research question is — How does ICT affect the Saudi preschool children's EFL learning? The findings suggest that clear and verifiable impact on the ELF learning ability of the children is achieved through this research. The preschool children displayed improvement in their language learning abilities and displayed improvement in speaking, writing and reading the English language, which means that young children can be involved in the process of learning EFL. Children were also able to display improvements in the Metacognitive, core, and language learning competencies. In some aspects, the improvement is not statistically significant, but the mean score of the pre-intervention English test and post-intervention English test displayed improvements. The main scores of the post-intervention English test were higher, which informs us that verifiable impact of the use of Tablets was found among the Saudi Arabian preschool children.

The second question of the research focused on finding out — How do Saudi preschool children interact with ICT in relation to language learning? The process of learning EFL is very challenging according to the findings of the research. EFL learning is the process that requires the involvement of the teachers and the children; and such involvement and engagement are based on the skills of teachers, availability of the resources, interest of the

children in the topic, and types of exercises and activities used in the class. The use of Tablets improved the speaking and reading skills among the children. This means that children were able to read new English words from the Tablets and to speak including the pronunciation of words. The learning process was enhanced when the children were able to apply their creativity in finding new words. Therefore, it can be said that Tablets affected the children's ability to learn EFL, by them displaying the concepts of originality and creativity. Children were interested in searching for information according to their original thoughts and interests. The improved ability to learn EFL is associated with speaking, reading and writing. The use of multimedia tools allowed children to listen to rhymes that improved their language competencies. However, no improvement in the writing skills of the children was analysed, because most of the activities on Tablets do not involve writing. Also, the children were very young to write words. According to the observation of the teachers, the children mainly engage with technology by themselves with little or no involvement from the teachers, although some of the teachers made efforts to observe what the children were doing and to provide them with instructions on how to find new information. Yet, this involvement and interaction were very limited. The personal skills and competency of the teachers resulted in their limited involvement.

The third question of the research focused on finding out — How do Saudi preschool teachers iteract with ICT in relation to language learning? Several issues have been found in using Tablets for EFL learning. The first challenge was the knowledge of the children related to the use of Tablets. Not every child was comfortable in using Tablets; while some children were comfortable in using it. Another challenge in using Tablets is associated with the skills and competency of the teachers. The teachers were not provided with any kind of the formal training before using Tablets. Teachers did not have the planned approach for the integration of Tablets in the class except some knowledge about a few educational applications. The lack

of training for teachers is a very significant challenge for the success of the project. Lack of a planned approach and course material also challenged the use of Tablets in language learning. The different teaching styles and techniques used by the teachers for teaching EFL was also another factor which made the process more challenging (Inan and Lowther, 2010). Lack of flexibility in using Tablets restricts the proper integration of the ICT tool. The lack of training and lack of planned approach was determined in the teachers' practice through their observations. The lack of course material and support from the experts restricted the teachers from teaching new things to children.

For the integration of Tablets for teaching EFL in Saudi Arabian preschools, it is very important to acknowledge the importance of the role of teachers in the process. Teachers are the most important source for enhancing the teaching and learning process, so it is vital that they have the correct training. Therefore, before integration of Tablets in the classrooms, teachers must be provided with in-depth training (Laevers and Heylen, 2003). Teachers must know how to use Tablets and how to handle various educational and learning applications. For the use of Tablets, there should be the integration of a different subject that mainly focuses on providing information to children about the use of Tablets.

The teachers also expressed concerns about the unrestricted use of the Tablets as, with little involvement of the teachers, the children were free to use Tablets according to their interest. There was no appropriate planning about the lessons and exercises that could be used to engage echildren in the learning process, and autonomous learning of the children was unrestricted. The lack of effective curriculum and knowledge about the new emerging pedagogical approaches restricted the teachers from motivating and empowering children. Teachers were not well equipped to use Tablets in a learning process that in turn restricted them from developing effective exercises and lessons for the children.

Equipping teachers and children with the necessary skills to use Tablets is very important for successful development of independent learning. Self-development of the children is also not clear with the use of Tablets. Therefore, it is important that there should be limitations and supervision to avoid problems of isolation and to enhance positive self-development. Another aspect that should be considered concerning the integration of Tablets in Saudi Arabian preschools for teaching EFL is to make improvements in the course material. Most of the interview respondents have considered that course material is not very interesting and it is different from what is taught in the class. Therefore, curriculum design for the use of Tablets should be enhanced.

7.3   Key Contributions

The first important contribution of this research is that it includes a detailed analysis of the findings regarding the concerns and perspectives of the teachers in a very comprehensive manner in the context of involvement of ICT in EFL learning. With the significant developments in the field of technology and EFL in Saudi Arabia, it became important to identify the role of ICT in improving the language learning skills of children. Therefore, this research is of importance as it focuses on young preschool children, who have not developed many competencies and are at the developmental stage, where they could acquire new skills and competencies. This research will contribute to providing new knowledge about the development and language learning capabilities of young children. The earlier researchers do not provide the pre- and post-intervention responses of the teachers. Another important contribution of this work is that it has discussed the Metacognitive competencies, core competencies and language competencies of the children in detail. Earlier studies have provided very limited information related to these competencies in preschool children; this research therefore provides more comprehensive information and more detailed qualitative

and quantitative data. It also contributes by improving various observational examples to explain the development and improvement of children in three different competencies. This research provides significant evidence for understanding the importance of construction and instruction in teaching and learning, and also proves the value of the instructional and assistive approach that is significant for language learning. Finally, the research also identifies that learning a language is both an intrinsic process and an extrinsic process so a balance between both is necessary.

7.4   Recommendations

One of the important recommendations of the research is to identify and address the problems faced by the teachers in preschools. The preschool children are very young to understand the learning process; therefore, more responsibility lies with the teachers to make the process of teaching and learning EFL effective. The problems faced by the teachers are found to be difficult for the integration of ICT in EFL learning as they lack the appropriate training and resources. Therefore, the process of integration of Tablets must first focus on empowering teachers with proper Tablet-using skills, training courses in English, training in using technology, and training for designing language-enhancing exercises and activities using Tablets. An interesting suggestion made by the teachers is their involvement in designing the course material. Another recommendation made by the respondents is to include a course related to learning the use of Tablets for the children so that every child is able to effectively use the Tablet before starting EFL learning.

7.5　Limitations of the Research

The research has a few limitations. While a key argument that is regularly brought against case studies like this is the small sample size (Yin, 2009), this design was carefully chosen to enable the researcher to better understand the specific and complex reality of the preschool settings accessed for the study. From the outset, the study was not meant to be 'representative' and the researcher would like to stress that 'representation' in research is a highly problematic concept (Yin, 2009).

Another limitation of the research is the use of the self-reported observation method. Although, the research included interviews with the teachers before and after the intervention to explain the relevance of the research, it is possible that some respondents might not have understood the process and importance of data then there is a chance of data getting affected. The semi-structured interview approach that was used by the researcher can increase the chances of concealment of the data and biased response from the teachers; however, the researcher made efforts to include the relevant information and data from the interviews. Another limitation of the research is the exclusion of the parental perspective on the improvement of children. The perspective of the parents is very important, as parenting can affect the developmental and cognitive skills of children. Therefore, parents can be involved in future research to find out the efficacy of Tablets in EFL learning.

7.6　Suggestions for Further Research

The researcher suggests that there is scope for further investigation related to the type of learning and teaching material that can be used on Tablets. The research also provides the scope for the integration of more preschools in future work, and finding a larger data pool for

analysis. The experimental study design can be applied for future works. Another suggestion for future research is to focus on enhancement of the writing skills of the children. This research does not provide significant information about the writing skill improvement in children with the use of Tablets; therefore future research can focus on assessing whether there are improvements in the writing skills of children and types of writing activities on Tablets for EFL learning. It is important that the theoretical framework prepared for future work must combine the teachers, parents, children and system characteristics in a multilevel framework. The involvement of the parents and system characteristics can enhance the quality of the results and provide better practical implications.

7.7   Practical Implications of the Research

The research set out to assess the efficiency of using Tablets for EFL learning in a single Saudi Arabian preschool using the mixed method approach. This research focused on finding the possible chances and outcomes of integrating technology in EFL learning; the aim was to understand the main process of learning among the young children. Early childhood is the stage where the cognitive, social and language development of the children takes place. Therefore, the research can provide some significant results for future practical implications. For the practical implications, it is also important the teachers are well-trained before the intervention so that efficiency of the intervention can be improved.

The systematic application of the Tablets in the EFL classes for young children is important. Since the young children have limited knowledge about English, the practical implications of the research findings can explain how the learning of English occurs in young children. The practical implications of the findings also suggest the mechanism of EFL learning in a

comprehensive manner and explain how children in Saudi Arabia can learn English through Tablets. The language influence is very high in Saudi Arabia, as children and teachers use Arabic very frequently. Reducing the use of Arabic in the classrooms and restricting the use of Arabic among children can help in improving the teaching and learning process. The challenges identified also provide a clearer perspective for the practical implications of this research.

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Appendices

A. School Consent Form

SCHOOL CONSENT FORM

Title of Research Project:
Technology, English, and Early Years: A Case Study from Saudi Arabia

Brief Description of Research Project:

I am working as a lecturer at the King Saud University, KSA. Currently, I am a PhD child of Early Childhood Studies at Roehampton University, London, UK.

I would like to ascertain the effectiveness of the use of information and communications technology (ICT) in the learning of English as a Foreign Language (EFL) by young children in Saudi Arabia. I would also like to look into the views of teachers about the ways by which ICT can be used to effectively facilitate the learning of EFL in general, as well as the impact of ICT use on early language learning. I intend to do this through the use of a case study approach wherein I will be conducting interviews with 4 class teachers, administering English language tests to 30 children and observing the experimental class. There will be a total of two interviews, with each interview taking around 15-20 minutes to complete and will not be audio taped. There will be a total of two children's tests for each group. All children's tests will take around 15 minutes to administer. All interviews and children's tests will be conducted at *Here to Grow School*. All data that will be collected will remain confidential and will not be used for any purpose other than in the writing of my PhD thesis. Findings that will be generated from this study will be made available upon request.There is no compulsion or pressure to take part in this project. I will identify and follow any health and safety procedure in the venue where the research is to be carried out.

Thank you very much for your willingness to allow me to conduct this study at your school.

Investigator Contact Details:

Name	Safana Aseri
Department	Early childhood Studies
University address	University of Roehampton, Froebel College, Roehampton Lane, London, UK
Postcode	SW15 5PJ
Email	aseris@roehampton.as.uk
Telephone	+44 7712607435

Consent Statement:

On behalf of Here to Grow School: I agree to take part in this research, and am aware that I am free to withdraw at any point without giving a reason, although if I do so I understand that my data might still be used in a collated form. I understand that the information I provide will be treated in confidence by the investigator and that my identity will be protected in the publication of any findings, and that data will be collected and processed in accordance with the Data Protection Act 1998 and with the University's Data Protection Policy.

Name …………………………………

Signature ………………………………

Date …………………………………

Please note: If you have a concern about any aspect of your participation or any other queries please raise this with the investigator (or if the researcher is a child you can also contact the Director of Studies). However, if you would like to contact an independent party please contact the Head of Research.

Director of Studies Contact Details:

Name	Prof. Mathias Urban
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Head of Research Contact Details:

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Telephone	+44 (0)208 392 3865

University of Roehampton
London

PARTICIPANT CONSENT FORM

Title of Research Project: Technology, English, and Early Years: A Case Study from Saudi Arabia

Brief Description of Research Project, and What Participation Involves:

I am working as a lecturer at the King Saud University, KSA. Currently, I am a PhD child of Early Childhood Studies at Roehampton University, London, UK.

I would like to ascertain the effectiveness of the use of information and communications technology (ICT) in the learning of English as a Foreign Language (EFL) by young children in Saudi Arabia. I would also like to look into the views of teachers about the ways by which ICT can be used to effectively facilitate the learning of EFL in general, as well as the impact of ICT use on early language learning. I intend to do this through the use of a case study approach wherein I will be conducting interviews with 4 class teachers, administering English language tests to 30 children and observing the experimental class. There will be a total of two interviews, with each interview taking around 15-20 minutes to complete and will not be audio taped. There will be a total of two children's tests for each group. All children's tests will take around 15 minutes to administer. All interviews and children's tests will be conducted at *Here to Grow School*. All data that will be collected will remain confidential and will not be used for any purpose other than in the writing of my PhD thesis. Findings that will be generated from this study will be made available upon request.There is no compulsion or pressure to take part in this project. I will identify and follow any health and safety procedure in the venue where the research is to be carried out.

Thank you very much for your willingness to allow me to conduct this study at your school.

Investigator Contact Details:

Name	Safana Aseri
Department	Early childhood Studies
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Telephone	+44 7712607435

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I agree to take part in this research, and am aware that I am free to withdraw at any point without giving a reason, although if I do so I understand that my data might still be used in a collated form. I understand that the information I provide will be treated in confidence by the investigator and that my

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Name …………………………………

Signature ………………………………

Date …………………………………………

Please note: If you have a concern about any aspect of your participation or any other queries please raise this with the investigator (or if the researcher is a child you can also contact the Director of Studies). However, if you would like to contact an independent party please contact the Head of Research.

Director of Studies Contact Details: Head of Research Contact Details:

Name   Prof. Mathias Urban   Name   Prof. Andrew Stables
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Froebel College, Roehampton Lane   Froebel College, Roehampton Lane
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Telephone   +44 (0) 20 8392 3276 Telephone   +44 (0) 208 392 3865

C. Staff Consent Form

![University of Roehampton London logo]

STAFF CONSENT FORM

Title of Research Project:

Technology, English, and Early Years: A Case Study from Saudi Arabia

Brief Description of Research Project:

I am working as a lecturer at the King Saud University, KSA. Currently, I am a PhD child of Early Childhood Studies at Roehampton University, London, UK.

I would like to ascertain the effectiveness of the use of information and communications technology (ICT) in the learning of English as a Foreign Language (EFL) by young children in Saudi Arabia. I would also like to look into the views of teachers about the ways by which ICT can be used to effectively facilitate the learning of EFL in general, as well as the impact of ICT use on early language learning. I intend to do this through the use of a case study approach wherein I will be conducting interviews with 4 class teachers, administering English language tests to 30 children and observing the experimental class. There will be a total of two interviews, with each interview taking around 15-20 minutes to complete and will not be audio taped. There will be a total of two children's tests for each group. All children's tests will take around 15 minutes to administer. All interviews and children's tests will be conducted at *Here to Grow School*. All data that will be collected will remain confidential and will not be used for any purpose other than in the writing of my PhD thesis. Findings that will be generated from this study will be made available upon request.There is no compulsion or pressure to take part in this project. I will identify and follow any health and safety procedure in the venue where the research is to be carried out.

Thank you very much for your willingness to allow me to conduct this study at your school

Investigator Contact Details:

Name   Safana Aseri

Department	Early childhood Studies
University address	University of Roehampton, Froebel College, Roehampton Lane, London, UK
Postcode	SW15 5PJ
Email	aseris@roehampton.as.uk
Telephone	+44 7712607435

Consent Statement:

I agree to take part in this research, and am aware that I am free to withdraw at any point without giving a reason, although if I do so I understand that my data might still be used in a collated form. I understand that the information I provide will be treated in confidence by the investigator and that my identity will be protected in the publication of any findings, and that data will be collected and processed in accordance with the Data Protection Act 1998 and with the University's Data Protection Policy.

Name ………………………………….

Signature ………………………………

Date …………………………………

Please note: If you have a concern about any aspect of your participation or any other queries please raise this with the investigator (or if the researcher is a child you can also contact the Director of Studies). However, if you would like to contact an independent party please contact the Head of Research.

Director of Studies Contact Details:		**Head of Research Contact Details:**	
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	Froebel College, Roehampton Lane Roehampton Lane		Froebel College, Roehampton Lane
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Children's Consent Form

Title of Research Project: Technology, English, and Early Years: A Case Study from Saudi Arabia
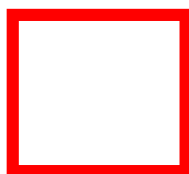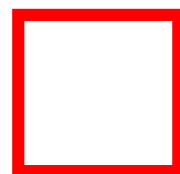
YES   NO
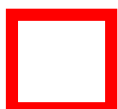
If I want to leave, I am free to do so.

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Post Code   SW15 5PJ

Email   andrew.stables@roehampton.ac.uk

Telephone   +44 (0)208 392 3865

E. Headteacher Consent Form

University of Roehampton
London

## HEADTEACHER CONSENT FORM

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Title of Research Project:
Technology, English, and Early Years: A Case Study from Saudi Arabia

Brief Description of Research Project:

I am working as a lecturer at the King Saud University, KSA. Currently, I am a PhD child of Early Childhood Studies at Roehampton University, London, UK.

I would like to ascertain the effectiveness of the use of information and communications technology (ICT) in the learning of English as a Foreign Language (EFL) by young children in Saudi Arabia. I would also like to look into the views of teachers about the ways by which ICT can be used to effectively facilitate the learning of EFL in general, as well as the impact of ICT use on early language learning. I intend to do this through the use a case study approach wherein I will be conducting interviews with 4 class teachers, administering English language tests to 30 children and observing the experimental class. There will be a total of two interviews, with each interview taking around 15-20 minutes to complete and will not be audio taped. There will be a total of two children's tests for each group. All children's tests will take around 15 minutes to administer. All interviews and children's tests will be conducted at *Here to Grow School*. All data that will be collected will remain confidential and will not be used for any purpose other than in the writing of my PhD thesis. Findings that will be generated from this study will be made available upon request.There is no compulsion or pressure to take part in this project. I will identify and follow any health and safety procedure in the venue where the research is to be carried out.

Thank you very much for your willingness to allow me to conduct this study at your school.

Investigator Contact Details:
Name   Safana Aseri
Department   Early childhood Studies
University address   University of Roehampton, Froebel College, Roehampton Lane, London, UK
Postcode   SW15 5PJ
Email   aseris@roehampton.as.uk
Telephone   +44 7712607435

Consent Statement:
I agree to take part in this research, and / or allow staff and children to take part in this research based upon their consent, and I am aware that all participants in this study, including myself, are free to withdraw at any point. I understand that the information I provide will be treated in confidence by the

investigator and that my identity will be protected in the publication of any findings, and that data will be collected and processed in accordance with the Data Protection Act 1998 and with the University's Data Protection Policy.

Name …………………………………

Signature ………………………………

Date ……………………………………

Please note: If you have a concern about any aspect of your participation or any other queries please raise this with the investigator (or if the researcher is a child you can also contact the Director of Studies). However, if you would like to contact an independent party please contact the Head of Research.

Please note:

Director of Studies Contact Details:

Name	Prof. Mathias Urban
University Address	University of Roehampton,
	Froebel College, Roehampton Lane
	Roehampton Lane
	London SW15 5PJ, UK
Post Code	SW15 5PJ
Email	Mathias.Urban@roehampton.ac.uk
Telephone	+44 (0) 20 8392 3276

Head of Research Contact Details:

Name	Prof. Andrew Stables
University Address	University of Roehampton,
	Froebel College,
	London SW15 5PJ, UK
Post Code	SW15 5PJ
Email	andrew.stables@roehampton.ac.uk
Telephone	+44 (0) 208 392 3865

F. Participant Debriefing Form

University of Roehampton
London

PARTICIPANT DEBRIEFING FORM

Title of Research Project:
Technology, English, and Early Years: A Case Study from Saudi Arabia

Brief Description of Research Project:

I am working as a lecturer at the King Saud University, KSA. Currently, I am a PhD child of Early Childhood Studies at Roehampton University, London, UK.

I would like to ascertain the effectiveness of the use of information and communications technology (ICT) in the learning of English as a Foreign Language (EFL) by young children in Saudi Arabia. I would also like to look into the views of teachers about the ways by which ICT can be used to effectively facilitate the learning of EFL in general, as well as the impact of ICT use on early language learning. I intend to do this through the use a case study approach wherein I will be conducting interviews with 4 class teachers, administering English language tests to 30 children and observing the experimental class. There will be a total of two interviews, with each interview taking around 15-20 minutes to complete and will not be audio taped. There will be a total of two children's tests for each group. All children's tests will take around 15 minutes to administer. All interviews and children's tests will be conducted at *Here to Grow School* in Riyadh, KSA. All data that will be collected will remain confidential and will not be used for any purpose other than in the writing of my PhD thesis. Findings that will be generated from this study will be made available upon request. There is no compulsion or pressure to take part in this project. I will identify and follow any health and safety procedure in the venue where the research is to be carried out.

Thank you for agreeing to participate in my research, your help is greatly appreciated and I can confirm the following:

- **The information I collected from you will be used in my dissertation as part of my PhD degree at the University of Roehampton.**

- **The information you provided will only be used for the dissertation, and will not be disclosed to any third party, except as part of the dissertation findings, or as part of the supervisory or assessment processes of the University of Roehampton.**

- **The data you provided will be kept for 10 years so that it is available for scrutiny by the University of Roehampton as part of the assessment process.**

- **If you later decide to withdraw from the study, please write to me at (*aseris@roehampton.as.ukname*) so that I will be able to remove your responses from my analysis and findings.**

Please do not hesitate to contact me if you have any queries relating to this study.

Investigator Contact Details:

Name	Safana Aseri
Department	Early childhood Studies
University address	University of Roehampton, Froebel College, Roehampton Lane, London, UK
Postcode	SW15 5PJ
Email	aseris@roehampton.as.uk
Telephone	+44 7712607435

Consent Statement:

On behalf of Here to Grow School: I agree to take part in this research, and am aware that I am free to withdraw at any point without giving a reason, although if I do so I understand that my data might still be used in a collated form. I understand that the information I provide will be treated in confidence by the investigator and that my identity will be protected in the publication of any findings, and that data will be collected and processed in accordance with the Data Protection Act 1998 and with the University's Data Protection Policy.

Name ………………………………….

Signature …………………………….

Date …………………………………

Please note: If you have a concern about any aspect of your participation or any other queries please raise this with the investigator (or if the researcher is a child you can also contact the Director of Studies). However, if you would like to contact an independent party please contact the Head of Research.

Director of Studies Contact Details:

Name	Prof. Mathias Urban
University Address	University of Roehampton, Froebel College, Roehampton Lane Roehampton Lane London SW15 5PJ, UK
Post Code	SW15 5PJ
Email	Mathias.Urban@roehampton.ac.uk
Telephone	+44 (0) 20 8392 3276

Head of Research Contact Details:

Name	Prof. Andrew Stables
University Address	University of Roehampton, Froebel College, London SW15 5PJ, UK
Post Code	SW15 5PJ
Email	andrew.stables@roehampton.ac.uk
Telephone	+44 (0)208 392 3865

G. Preschool English Evaluation Test

المهارات الشخصية :

Personal Skills :

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	يذكر Mentions information about himself
				يذكر اسمه كاملا (اسم العائلة) Mentions full name (and his/her last name
				يذكر اسم روضته Mentions the name of his/her kindergarten
				يعبر عن ذاته ومشاعره(الفرح/الحزن/الغضب/الخوف) Expresses his/her feelings (happiness / sadness / anger / fear)
الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	مهارات الإعتماد على الذات Self-dependence skills
				يعتمد على نفسه في تناول الطعام Depends on himself /herself while eating
				ينظف مكانه بعد الإنتهاء من تناول الطعام Cleans his/her place after eating
				يغسل ويجفف اليدين قبل الأكل وبعده Washes and dries his/her hands before and after eating
				يطلب الذهاب إلى دورة المياه دون تذكير أو مساعدة Asks to go to the toilet without assistance or reminders
				يرتدي بعض ملابسه بنفسه Wears some of his/her clothes by himself/herself
				يحمل الحقيبة بنفسه Carries the bag by himself/ herself
				يعيد الأدوات إلى مكانها بعد الإنتهاء من العمل Puts back the tools into their place after playing or working.
				يتقمص أدوار مختلفة (كونه قائدا أو تابعا) Adopt various roles during pretend play (being a leader or a follower)
				يقدم المساعدة إلى الآخر Offers help to other
				يهتم بالنظافة الشخصية Practices appropriate personal hygiene
				يمارس السلوك الصحيح أثناء الإخلاءفي حالة الطوارى Practices the correct behavior during evacuation drill
الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	التطور العاطفي والإجتماعي Emotional and social development
				يشعر بالراحة في الروضة Feels comfortable at his/her kindergarten

351

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	
				يشارك أقرانه في الأدوات واللعب **Practices sharing with his/her friends**
				يلتزم بقوانين الروضة المتفق عليها **Follows rules and Instructions**
				يعتذر عندما يخطئ **Apologizes when he/she makes mistakes**
				ينتظر دوره عند المحادثه **Waits for his turn to talk during the Conversation**
				يشارك بنشاطات الوحدة **Participates in the unit activities**
				يستخدم عبارات التحيه والوداع عند الدخول والخروج **Uses politeness expressions (Good Morning, Good bye)**

Physical Development :التطور الجسمي

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	المهارات الحركية الكبيرة Gross motor Skills
				يمشي باتجاهات وطرق مختلفة (على رؤوس الأصابع / كعب القدم / إلى الأمام / إلى الخلف سريع بطيئ حسب إرشادات المعلمة) **Walks in different technique (on tip toe / on heels / forwards-backward / fast-slow) according to teacher's instructions.**
				يمشي مع رفع الركبتين عالياً **Walks raising knees (marching)**
				يجري ويتوقف حسب إرشادات المعلمة **Runs/stops according to teacher's instructions**
				إلى الأمام **Jumps with both feet**
				يقفز على رجل واحدة **Hops on one foot**
				يقفز إلى الأمام كالضفدع **Hops forward like a frog**
				يدحرج الكرة بكلتا اليدين **Rolls a ball forward with both hands**
				يرمي ويلتقط من مسافة (2م) (3م) **Throws and catches a ball from a distance (2m) (3m)**
				يرمي الكرة لإصابة هدف **Hits a target from a distance (throwing or bowling)**
				يرمي الكرة من أعلى الكتفين **Throws a ball from over shoulders**
				يضرب الكرة باليدين من أعلى **Dribbles a ball**
				يمشي على خط مستقيم مستخدماً إحدى الساقين بالتناوب **Walks balanced in a straight line**
				يتوازن على قدم واحدة **Balances on one foot**

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	يتدحرج بطريقة اللف Rolls sideways with arms and legs extended
				يزحف إلى الأمام كالعسكري / التمساح Crawls forward like a soldier/crocodile

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	المهارات الحركية الصغيرة Fine Motor skills
				يتبع نقاط خط مستقيم /عامودي/افقي / منحني Traces lines (straight / vertical / horizontal/ curved)
				يلصق بطريقة صحيحة Pastes correctly
				يكون لوحة بإستخدام مواد مختلفة Creates art work using different materials
				يلضم خرز بأشكال مختلفة Strings beads to make different forms
				يتتبع متاهة Finds the right route in a maze
				يشكل من الصلصال أشكال مختلفة Forms different models using clay
				يبني المكعبات حسب نمط معين Builds cubes according to a certain pattern
				يركب أحجية من(١٠)(١٥)(٢٠)قطعة Gathers a puzzle of (10) (15) (20) pieces
				يمسك المقص بطريقة صحيحة Holds the scissors in a proper way
				يقص خطوط (مستقيمة/منحنية/أشكال مختلفة) Uses scissors to cut lines (straight / curved / different shapes
				يبري الأقلام بطريقة صحيحة Uses the sharpener properly

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	الوحدات التعليمية Science andSocial Themes
				يسمي العادات السليمه Knows good habits and behaviors
				يسمي أجزاء الجسم Names the parts of the body
				يسمي الحواس الخمس Names the five senses
				يطابق بين كل حاسة ووظيفته Matches each sense with its function
				يميز أصوات مختلفة Distinguishes between different voices

4th الرابع	3rd الثالث	2nd الثاني	1st الأول	
				يسمي اسم بلده Recognizes the name of his\her country
				يذكر معنى الوطن Knows the concept of home(his/her own country)
				يذكر موقع مدينته على الخارطة Knows the location of his/her country on the map
				يردد تلبية الحج Says the " Hajj Talbeyah''
				يسمي أركان الحج Recognizes andSays the "Hajj pillars"
				يسمي الجبل الذي يقف عليه الحجاج(جبل الرحمة) Knows "The mountain of mercy)in Makkah
				يذكرمعالم الحرم المكي(الكعبة المشرفة)(الحجر الأسود) Knows the Holly Mosque , " Kaaba " and the "Black Stone ''
				يذكر الأمن و السلامة في الروضة Knows the safety and security instructions of his/her kindergarten
				يذكر الأمن و السلامة في المنزل Knows the safety and security instructions at home
				يذكر الأمن و السلامة في الجسم Protects his\ her body from danger
				يذكر الأمن و السلامة في الملبس Knows the safety and security instructions in clothes
				يذكر الأمن و السلامة المرتبطة بالمهن Knows the safety and security instructions in Jobs
				يذكر الأمن و السلامة في الغذاء Knows the safety and security instructions in Food
				يذكر مفهوم العائلة Knows the concept of Family
				يذكر مفهوم الطفل الأول والأوسط والآخر Knows the concept of the first/second/and the third child
				يذكر مراحل نمو الإنسان Knows the growth of human processes
				يسمي الأدوات المستخدمة في العلوم Mentions the science tools
				يسمي الأشياء التي تعطي الضوء والحرارة Mentions the things that gives off light and heat
الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	الوحدات التعليمية Science andSocial Themes
				يصنف الحيوانات الأليفة والمفترسة Differentiates between wild animals and pets
				يصنف الحيوانات حسب بيئتها Classifies animals according to their habitats
				يذكر الحيوانات الفقريه واللافقرية knows vertebrates and Invertebrates animals
				يميز الحيوانات في حركتها Recognizes the movements of the animals
				يميز الحيوانات في غذاؤها وتكاثرها Recognizes the food and the reproducing process of the animals

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	
				يميز الحيوانات في كسائها **Recognizes the covering of the animals 'bodies**
				يميز الحيوانات بأصواتها **Recognizes animals' voices**
				يذكر احتياجات الحيوانات **Mentions the animals' needs**
				يذكر صفة الذبح في الاسلام(التسمية) **Recognizes the processes of sacrificing the animal in Islam**
				يميز ملامس الإقمشة الملبس **Recognizes the materials of thecloth**
				يذكر مكونات الملابس **Recognizes the clothes pieces**
				يميز ملابس المهن **Recognizes jobs clothes**
				يذكر مصادر القطن **Recognizes the cotton sources**
				يذكر بعض أنواع المساكن **Knows some types of houses**
				يذكر بعض أنواع مساكن الحيوانات **Knows some types of the animals' habitats**
				يذكر بعض مكونات المسكن **Mentions the room sin the house**
				يذكر المعاونون في المسكن **Mentions some helpers in the houses'**
				يذكر بعض أنواع النباتات **Knows some types of plants**
				يذكر الأشجار المثمره والغير مثمره **Knows fruitful and fruitless trees**
				يذكر أجزاء النبتة **Knows the parts of the plant**
				يذكر احتياجات النباتات **Knows the plants' needs**
				يتعرف على فصول السنة ويويصف احوال الجو في كل فصل **Names theseasons of the year and describes theweather in each season**
				يفرق بين (الليل والنهار) **Differentiates between (dayand night)**
				يتعرف على الإتجاهات الأربعة الرئسية **Recognizes the main four direction**
				يتعرف على الأشياء التي يجذبها المغناطيس **Recognizes the things which a magnet can attract**
الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	الوحدات التعليمية **Science andSocial Themes**
				يصنف الأطعمة الصحية والغير صحية **Differentiates between healthy and unhealthy food**
				يذكر مصادر الحليب ومشتقاته **Recognizesthe milk resources and its products**
				يذكر بعض أنواع الخضروات و الفواكه و بعض أنواع الحبوب **Knows some kings of vegetables,fruits, and grains**
				يذكر شكل الكرة الأرضية **Knows the shape of the globe**

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	
				يذكر نتائج دوران الأرض حول نفسها و حول الشمس Recognizes the results of the earth's rotation around itself and its revolution around the sun
				يذكر مكونات الكرة الأرضية(يابسة، محيطات ، بحار ، جبال ، أنهار) Recognizes the earth's components (land,oceans,seas,mountains,andrivers)
				يذكر بعض إستعمالات الماء Mentions the uses of the water
				يذكر الحيوانات المائية Mentions some of the water animals
				يذكرالمهن المتعلقة بالماء (الصياد)(المزارع) Knows some of the jobs related to water" Farmer" "fisherman"
				يذكر وسائل المواصلات القديمة و الحديثه Knows old and new transportations
				يذكربعض أنواع وسائل المواصلات Knows some types of transportations
				يذكر معنى الفضاء Identifies the meaning of space
				يذكر معنى المركبة الفضائية (الصاروخ) Recognizes the space rocket
				يذكر آداب التعامل بالرمل Mentions the good manners of dealing with sand
				يذكر كيف يتحرك الرمل بفعل الهواء Knows how sand moves in the air
				يذكر فوائد الرمل ويتعرف على آثار أقدام الإنسان و الحيوان على الرمل Knows the benefits of sand and recognizes the humans' and animals' footprints on the sand
				يذكر فوائد الرمل في الزراعة Knows the benefits of sand in farming
الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	تجارب علمية Scientific Experiments
				تجربة زراعة الحبوب Seeds planting experiment
				تجربة التمثيل الضوئي photosynthesis experiment
				تجربة تحضيرالفواكه Fruits preparation experiment

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	التربية الإسلامية
				يذكر أن الله ربنا وخالقنا ورازقنا
				يذكر أن محمداً"صلى الله عليه وسلم " نبينا
				يذكر أن القرآن الكريم كتاب الله
				يذكر أن جميع النباتات والحيوانات من مخلوقات الله

				يلقي تحية الإسلام عند الدخول و عند الخروج
				يرد على تحية الإسلام
				يشكر الله على نعمه
				يمارس القيم الإسلامية الخاصة بتناول الطعام والشراب
				يمارس الآداب الخاصة بالنظافة
				معرفة السور القرآنية المطلوبة
				يذكر مجمل تفسير السور المطلوبة
				إستيعاب مفاهيم الإسلام الأساسية
				إستيعاب الأحاديث و الأدعية
				يذكر أسماء الأنبياء
				يذكر بعض أحداث قصص الأنبياء

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	**اللغة العربية**
				معرفة الحروف الأبجدية المعطاة
				يقرأ الحروف بالحركات والمدود
				يميز الكلمات الخاصة بالحرف
				إمكانية التعرف على الحروف و أصواتها
				الخط و الكتابة على السطر
				يستطيع أن يكتب بدون مساعدة
				ينطق الكلمات بوضوح
				يقرأ بعض الكلمات المتنوعة
				يتقن تطبيق الإملاء
				يكتب اسم الوحدة بدون مساعدة
				يقرأ الجملة بوضوح
				يقرأ قصة قصيرة (قصص منهجية)
				يذكر إسم الوحدة ويستوعب المفاهيم الخاصة بها
				التواصل الشفهي مع المعلمة
				متفاعل في الحلقه والأركان
				ينشد أناشيد الروضة
				منتظم في عمل الواجبات المطلوبة
				إستيعاب و فهم التعليمات
				يسمي أيام الأسبوع
				يسمي أشهر السنه
				يسمي السنة الهجرية
				ينصت لحديث الآخرين
				يذكر أحداث القصة
				يسمي الشخصيات الرئيسية في القصة

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	**الرياضيات**
				يميز الألوان المعطاة
				يميز الأشكال المعطاة
				معرفة الأرقام المعطاة
				يسمي الأشكال الهندسية المعطاة
				يعد بتسلسل
				يرتب الأعداد على بطاقات بتسلسل (1 5)
				يرتب الأعداد على بطاقات بتسلسل (1 10)
				يكتب الأعداد المعطاة
				يطابق العدد بالمدلول
				يميز الأعداد من (1 10)

				يميز الأعداد من (10 20)
				يتقن عملية الجمع
				يتقن عملية الطرح
				يتقن العد التصاعدي
				يتقن العد التنازلي

English Language:

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	**Listening and Speaking**
				Listens attentively to the teacher
				Recites rhymes and songs
				Identifies and gives rhyming words
				Participates in group discussions
				Uses a range of vocabulary
				Responds to "wh" questions e.g :what ,when ,where ,why
				Retells familiar stories

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	**Reading and Writing**
				Recognizes letters and their sounds (m/d/f/g/a,) (b/t/s/w/o,k/j/p/n/i), (c/h/l/r/u), (v/y/z/q/x/e)
				Matches uppercase and lowercase letters
				Writes uppercase and lowercase letters (m/d/f/g/a,) (b/t/s/w/o,k/j/p/n/i), (c/h/l/r/u), (v/y/z/q/x/e)
				Order letters from a-z
				Writes his/her name
				Recognizes initial sounds of words
				Names words that begin with an initial sound
				Identifies where a consonant sound occur in a word : beginning OR end
				Recognizes short vowels (a, i, o), (e ,u) (a,e,i,o,u)
				Reads stories with words containing short vowels
				Writes spelling words containing short vowels
				Distinguishes between a letter, a word and a sentence.
				Recognizes long vowels (a,e,i,o,u)
				Reads words containing long vowels
				Capitalizes the first letter of a sentence
				Uses end punctuation marks (. ? !) at the end of each sentence.
				Reads high frequency words (the, have, said, come ….)
				Writes short sentences as dictation

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	**Reading Stories**
				Listens attentively to a story
				Identifies that a story has a title, an author and an illustrator
				Distinguishes between fiction and nonfiction stories
				Names the characters and setting of a story
				Expresses his/her opinion about the story characters

الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	
				Answers comprehension questions related to a story
				Re-enacts stories using puppets
				Re-enacts stories using role-play

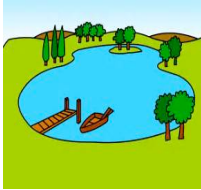| الرابع 4th	الثالث 3rd	الثاني 2nd	الأول 1st	Math
				Recognizes Colors (red-yellow-orange) , (green-blue) , (black,white,grey) (pink,purple,brown)
				Identifies 3d shapes (sphere,cube,cone),(cuboids,pyramid,cylinder)
				Counts forward up to (25)(50) (75) (100)
				Recognizes numerals (0-5) (6-10) (11-15) (16-20)
				Writes numerals (0-10) (10-20) (20-30) (30-50)
				Recognizes some prepositions (top,middle,bottom), (in,out), (above,below,over,under),(left,right)
				Recognizes patterns
				(parts of patterns) , (symmetry,equalparts)
				Recognizes how to (count by tens), (count by fives), (count by two), (even,odd)
				Recognizes how to(make picture graphs) (make concrete graphs)
				Recognizes how to add (using pictures), (problem solving)
				Recognizes how to subtract(using pictures), (problem solving)

Phonics

KG 3

Total mark	Homeroom teacher:	Revised by:
/30	Ms.	Mrs.

1. Circle the word that rhymes with the name of the picture. (/4)

 flute	cane cut cute
 lake	tie make nine
 gate	rat mat late
 team	tame time beam

2. Fill up the missing diagraphs with **wh**, **ch** and **sh**. (/6)

_____in   _____elf   _____eat

3. Circle **"th"** or **"t"** for each beginning sound. Choose and
write the word. (/4)

thorn	tape	thumb	tube

_____

_____

_____

_____

_____

_____

_____

_____
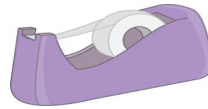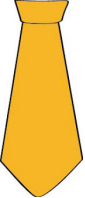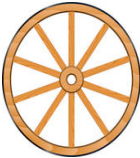
4. Read and write the name of the picture. (/9)

wave cave safe -------------------- _____	jam pay jay -------------------- _____	brain ride bride -------------------- _____
tip tape tie -------------------- _____	cone con tone -------------------- _____	late light load -------------------- _____
gum glue glum -------------------- _____	wheel whale wharf -------------------- _____	sip hip ship -------------------- _____

5.   Color a 🙂 for each long vowel sound. (/3)

🙂 said   🙂 five   🙂 rule

🙂 rock   🙂 sleep   🙂 again

🙂 tent   🙂 dune   🙂 frog

6. Say the name of the picture and circle the correct sound. (/2)
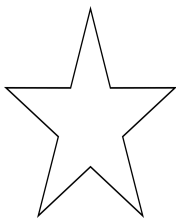
7. Writing test . (/2)

_____

_____

_____

_____

I.   Non-Participant Open Observation for Children- Participants

Themes	Before ICT Intervention	After ICT Intervention

J. Non-Participant Open Observation for Teachers

Themes	Before ICT Intervention	After ICT Intervention

K. Summary of the Feedback and Recommendations Raised During Pilot-Testing

Research Method	Feedback		Recommendations		Actions taken by the Researcher
Provision of ICT tools	*School director*	*Head teacher*	*School director*	*Head teacher*	I used tablets and let the EFL teachers to choose the apps that are highly relevant to the EFL lesson where ICT intervention
	Not all teachers are adept at using all types of ICT tools and relevant apps. They prefer to use laptops and tablets.	Teachers prefer to use some ICT tools over others. Teachers find tablets more interesting for children	Ask teachers what ICT tools they prefer to use for the study before conducting the study.	Use tablets and EFL apps. No need to provide any other ICT tools.	
Use of EFL lesson for the ICT intervention	There is a need to specify the particular EFL lesson where ICT intervention will be applied.	What EFL lesson will be used for the ICT intervention?	Either give the specific details of the EFL lesson if there is any or ask for recommendations from the teachers concerned.	Use an EFL lesson that we are already using so that it will be easy for the teachers to teach the lesson and evaluate the children.	I used an EFL lesson that the teachers are already using. I asked for the recommendation of the teachers regarding the specific EFL lesson to use.
English test	There is a need to identify the specific English test to use, as it should be one that is	What type of English test will be used?	Either give the specific details of the EFL test if there is any or ask for recommendations from the teachers concerned.	Use an English test that we already use.	I used anEFL test that is already used by the teacher participants.

covered by our curriculum standards					
Three phases of the methodology (Phase 1, Phase 2 and Phase 3) In Phase 1, I will meet with the teachers and will organize the classroom environment at the start of the school term. In Phase 2, which will be undertaken 6 weeks after phase 1, I will interview the experimental class teacher to ascertain her reflections on her experience about the use of ICT in teaching EFL and her observations about its effects on the children's learning of EFL. This phase will also involve the 'switching over period.' In Phase 3, which will be undertaken 6 weeks after phase 2, I will interview the teacher of the control class to ascertain her reflections on her experience about the use of ICT in teaching EFL and her observations	All three phases were clearly detailed.	The methods for the three phases were clearly explained.	No need to modify the research procedures that comprise the three phases.	'Good to go!' The research procedures were clearly explained. There is no ambiguity at all as to the details of the research procedures.	I followed the proposed research procedures.

Research Instrument or Tool	Feedback	Recommendations	Actions made by the Researcher
about its effects on the children's learning of EFL. During this period, the English test will be administered to the children.			

Source: Created by the Researcher

L. Summary of the Results of the Pilot-Test of the Research Instruments

Research Instrument or Tool	Feedback	Recommendations	Actions made by the Researcher
The English Assessment Test (phonics test)	The English Assessment Test are very suitable for this research study. We have been using these English tests. They can be used as good evaluation tools for assessing the effectiveness of the ICT intervention.	Use the Preschool English Test Test.	The Preschool English Test was used.
Non-Participant Open Observation for Children	The Non-Participant Open Observation for Children Participants helps monitor the activities of the children participants and is suitable for use in this research study. It is easy to use.	Use the Non-Participant Open Observation for Children Participants	The Child Observation was used.
Non-Participant Open Observation for Teachers	The Non-Participant Open Observation for Teachers is good.	Use the Non-Participant Open Observation for Teachers	The Non-Participant Open Observation for Teachers was used
Interview schedule	All semi-structured items were easy to understand and were clear and unambiguous.	The interview schedule can be used by the researcher.	The interview schedule was used by the researcher

Source: Created by the Researcher