Research Paper

Children and Teachers' Experiences of Engaging with ICT in Learning EFL: A Case Study from Saudi Arabia

Safana Aseri

Department of Education, Early Childhood Education, University of Roehampton, London, UK

ABSTRACT: *In this research, I aim to carry out an empirical study investigating the effectiveness of the use of Information Communication Technology (ICT) in the learning of English as a foreign language (EFL) in foundation level pupils (5-6 years old) in Saudi Arabia. I have chosen this topic because there is as yet relatively little empirical research in this area, and because EFL in Saudi Arabia has, in recent years, become seen to be a more important part of every child's general education. I believe that ICT can benefit a child's educational development in general and especially in the case of second language acquisition.*
Keywords : *Early childhood education, EFL, ESL, ICT.*

I.   INTRODUCTION

The proposed study focuses on the use of Information and Communications Technology (ICT) in the learning of English as a Foreign Language (EFL) in Saudi Arabia. The proposed study is anchored on the recent attempts of the Saudi government to introduce English as a subject in the curriculum of elementary education, attesting to the increasing importance of teaching EFL to younger students. I have chosen this topic because there is as yet relatively little empirical research in this area and because EFL in Saudi Arabia has, in recent years, been seen as a more important part of every child's general education. I believe that ICT can benefit a child's educational development, particularly in terms of second language acquisition.

The proposed research programme aims to explore children and teachers' experiences with ICT in the learning of EFL in foundation-level pupils (5-6 years old) at Saudi Arabian private schools. To achieve this aim, the proposed research programme has the following objectives: (1) to explore ways in which teachers can make use of ICT in the learning of EFL by preschool children; and (2) to investigate whether the use of ICT is effective in promoting preschool children's English language learning.

The research questions are:
1- What are the effects of ICT on preschool children's EFL learning?
2- How do teachers engage with ICT in the context of supporting EFL?

II.   LITERATURE REVIEW

The following are the dominant themes found in extant literature relevant to the proposed research programme: (1) the preschool programme in Saudi Arabia; (2) EFL in Saudi schools; and (3) the utility of ICT in early education.

2.1 The Preschool Programme in Saudi Arabia
To gain a clear understanding of the proposed study's setting, literature focusing on the preschool programme in Saudi Arabia is considered highly relevant. Saudi Arabia (SA) is considered to be the largest country in the Gulf region, with a population of 29,195,895, wherein only about 19,838,448 are Saudis [1]. The country was established as a Kingdom in 1932, and the major ethnicity is Arab. Saudi citizens comprise more than 70% of the population. However, expatriates belonging to various faiths, such as Eastern Orthodoxy, Protestantism, Roman Catholicism, Judaism, Hinduism, Buddhism and Sikhism, comprise approximately 30% of the population [2]. There is no doubt that the educational system of any group of people or society reflects their cultural norms [3]. Therefore, the educational system in SA has been established according to Islamic philosophy, which is consistent with the culture that has been built on its accompanying customs and traditions [3, 4]. In fact, the Saudi official education policy, which is clearly stipulated in an 18-page document with 236

Corresponding Author: Safana Aseri
Department of Education, Early Childhood Education, University of Roehampton, London, UK

clauses, highlights the Islamic nature of Saudi education. The preface of the aforementioned document includes the following:

The educational policy in the Kingdom of Saudi Arabia emanates from Islam, which is followed by the nation as a faith, [way of] worship, morality, law, government and an integral way of life. It is a fundamental part of the general policy of the State, according to the following detailed planning [5].

The first private preschool in SA was established in 1956 in Jeddah city, which is in western SA, and was named Dar Al-Hannan Preschool [6, 7]. The age of children attending preschool in most countries is 3-5 years, or any age before 6 years. However, in SA, the age is 3-6 years [8]. SA has three types of preschools: (1) day-care centres, (2) nurseries, and (3) preschool centres. Nurseries are for children under 3 years, while preschool centres are for those children within the 3-6 age range [7]. It is worth mentioning that there are two institutions in SA responsible for preschools: the Education Ministry and the Ministry of Social Affairs [6]. Furthermore, because it is not a compulsory grade, some private institutions established kindergartens with state economic aid [3].

Preschool in SA has the following set aims [3]:

1- Nurturing the instincts of the children and looking after their moral, mental and physical growth in a natural environment similar to their family and complying with the injunctions of Islam.
2- Familiarising the children with the school atmosphere and preparing them for school life.
3- Teaching the children easy fundamentals that suit their age and are related to their surroundings.
4- Encouraging the children's imaginative thinking, polishing their taste and opening the doors for their energies to blossom under guidance.
5- Protecting the children against dangers, treating the early signs of bad conduct and facing childhood problems in an adequate manner.

Statistics show that in SA there is a yearly increment in the number of kindergartens and in the number of enrolled children. In 2009/10, the total number of preschools was 1,521, and the total enrolment was 106,301 [3].

2.2 EFL in Saudi Schools

This particular strand of literature is highly relevant to the proposed study because it can help facilitate the understanding of how Saudi schools employ EFL learning. During the last decade, a series of technological innovations, such as satellite TV, mobile phones, the Internet and social media applications, have dramatically reshaped the way Saudis communicate at a global level. New means of learning English accelerated the pace of life and increased the level of institutional relationships and cultural exchanges with the rest of the world. Although the teaching of English is included in the curricula of the various education levels in SA private schools, it has been just introduced at the elementary level, beginning in the fourth grade in some public schools [5]. Presently, however, the Ministry of Education is 'planning to introduce it at class four to achieve more fruitful results' [9].

In a study conducted by Professor Reima Al-Jarf in 2004, which used interviews with 300 mothers, it was found that 70% of the participants believed that English instruction should start in kindergarten, while 70% preferred to enrol their children in a kindergarten that would teach them both English and Arabic [10]. In addition, 50% of the participants preferred to speak English with their children at home, while 70% believed that teaching English to young children has no negative effect on first language acquisition and has a positive effect on their scholastic achievement in later years [10]. This particular study is useful for the proposed research because it highlights the mothers' positive perception of teaching EFL to young pupils, which is also the main thrust of the proposed study.

2.3 ICT in Early Education

Plowman and Stephen defined ICT 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 […]' [11]. Similarly, Wang and Zhou defined ICT as 'a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information. These technologies include computers, the internet, broadcasting technologies (radio and television), and telephony' [12]. In an earlier work, Toomey also highlighted the usefulness of ICT in communicating information and defined ICT as those technologies that are used for 'accessing, gathering, manipulating and presenting or communicating information' [13]. The proposed study adopts the definition of ICT put forth by Wang and Zhou since it is more concise and provides a functional construct by emphasising its utility in facilitating communication and in managing information.

Within the context of education in general, ICT has been considered capable of supporting basic education in the following ways: (1) it can support education in a typical brick-and-mortar setting (or school

setting); (2) it can afford non-formal education for out-of-school youth and adults alike; (3) it can support pre-service distance education of teachers, as well as their in-service professional development; and (4) it can enhance overall school management [14]. In terms of childhood education, there appears to be a consensus amongst various stakeholders, such as policy makers, practitioners, academics and parents, regarding the positive relationship between play and learning, highlighting the advantages of introducing children to ICT at an early age [11].

Extant literature that delves into the usefulness of ICT in early education is of critical importance to the proposed study since this particular strand of literature can help illuminate the ways in which ICT can be used to facilitate the learning of EFL by young children. For instance, extant literature has documented the utility of ICT in enhancing young children's learning and their experiences with peers [15]. In the same vein, the immense potential of using computers in benefitting young children's mental development [16, 17] as well as the positive effects of using interactive teaching programs on preschool children's literacy development [18] have also been demonstrated in prior studies. Gahwaji recommended the use of ICT that 'allows children to decide pace and direction, and contains sound, voice, and music'; as well as those that feature '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' [18].

The use of ICT in educational settings has been described as engaging, enabling and transformative [19, 20]. The use of ICT in childhood education has been found to enhance both personalisation and collaboration, providing tools and experiences that can help children improve their social and independent learning [21]. In the early years of education, technology has been found very useful in creating an 'enabling environment' founded on communication and interaction [21]. This relates to Montessori's assertion that child development occurs most effectively within environments conducive to 'exploration, communication and manipulation' [22]. While developing practical skills with technology as they develop, children will also need to cultivate a reflective, 'metacognitive awareness' (meaning an understanding of their own learning processes) of their own creative and safe engagement with ICT [23]. This concept has been defined as 'e-confidence' and is a key concern for teachers when planning learning experiences involving ICT [24]. A framework of possibilities for using ICT in early education has been developed by the National College of School Leadership [25]. This matrix involves a progressive scale of 'e-words', which describe increasing the utility of ICT in transforming learning and in developing children's thinking skills [25]. The integration of ICT into the Early Years must be supported by a comprehensive school e-safety policy [26].

Gahwaji conducted another related study that was primarily aimed at investigating the effects of using interactive teaching programs on literacy development for preschool children [18]. The research objectives of the aforementioned study are as follows: (1) 'to analyse evidence regarding the ways in which teachers can make use of interactive teaching programs in supporting literacy development for preschool children'; and (2) 'to establish whether interactive teaching programs are effective in promoting preschool children's literacy development' [18]. To achieve these objectives, Gahwaji used a case study approach in analysing 'the effects of using interactive teaching programs on literacy development for preschool children' enrolled at a private preschool centre in Jeddah, Saudi Arabia [18]. Gahwaji used a triangulation of research methods that were circumscribed under the case study approach, which consisted of observation, a questionnaire and children's tests [18]. The findings of Gahwaji's study suggest that interactive teaching programs positively contribute to the development of all literacy skills compared with the lack of interactive teaching programs for other skills [18]. This study would be very useful for the proposed research because it can inform the methodological approach of the proposed research due to their similarities with one another. These similarities are anchored on the following: (1) the evaluation of the effectiveness of the use of an ICT intervention in teaching and learning language and literacy skills; (2) the choice of foundation level pupils as study participants; and (3) the use of tests to assess the effectiveness of the intervention. Thus, Gahwaji's (2011) study can provide sound methodological insight and subsequently serve as a guide in conducting the proposed study, addressing the critical issue of choosing a well-suited methodological approach for my study.

In the proposed study, the use of ICT in the learning of EFL will be considered as a *learning strategy*. Based on the constructivist point of view, learning is construed as a process of sense-making and meaning-making of the world, and it involves pupils constructing knowledge through the experiences that they have by relating their own experiences to what they already know and through the guidance that teachers are able to offer them [27]. Pupil collaboration, experimentation, reflection and analysis are encouraged through the use of well-suited ICT tools. As a result, they become 'more independent, active and responsible learners' [28]. Hence, ICT is increasingly being acknowledged as a tool that supports student learning [29].

III. THE CONTRIBUTION TO KNOWLEDGE

Such academic debate about the real contribution of ICT tools in language learning by children leads to the question of their absolute value in language education — that is, do ICT tools facilitate the teaching and learning of

EFL by young pupils? If so, in what particular ways can they facilitate the teaching and learning of EFL? This study is envisaged to fill such gaps in the literature. Furthermore, results of this researcher's readings on the use of ICT in the learning of EFL within the context of the Saudi Arabian educational system suggest that there is a paucity of related literature. Thus, it is envisaged that the proposed study will contribute to the body of knowledge that is germane to the use of ICT in language acquisition in general and in the learning of EFL within the Middle Eastern setting in particular. In essence, the proposed study can be considered a novel undertaking in this field.

IV. METHODOLOGY

This research adopts a mixed-methods approach involving a single Saudi Arabian preschool setting in Riyadh. The methods are English language testing, interviews and classroom observations; these methods could determine the actual level of ICT use, how it is organized and employed by teachers and children in the classroom setting and the effect of ICT in preschool education on the children's English language development.

Creswell and Clark state that mixed methods are a very central approach in social science research since they are based upon a combination of both qualitative and quantitative approaches applied over a period of time so that they provide a better picture of what is being analysed [30]. There are those researchers and theorists who would argue that mixed methods involve incompatible approaches to data collection and analysis. However, Hardy and Bryman [31] have convincingly argued that the two approaches can complement each other and involve a more pragmatic approach to a research question; both forms of data aim to answer a set of research questions despite the question types being intrinsically different, where quantitative research questions are more open ended compared to qualitative research questions; both qualitative and quantitative data utilise frequency as a basis for data analysis, such as thematic frequencies and relative frequencies, respectively.

Creswell and Clark praise the utilisation of mixed methods for providing a more comprehensive understanding of research problems as opposed to using either approach by itself [30]. By using mixed methods, I will be able to not only perform the relevant statistical analyses comparing the results of the children's language tests but will also be able to describe in detail the method of ICT utilization in the two groups, describing what I observe in a way that is not restricted by any prior framework. There may, for example, be differences in the way students engage with the ICT that would not be visible from a purely quantitative view, differences which might explain certain patterns in the observed results. It seems that these are significant advantages in using a mixed-methods approach that combines the two types of data by embedding them together. Consequently, mixed methods are ideal for this study, as they will ensure all research questions are thoroughly investigated and analysed within the context of both quantitative and qualitative analysis.

The present study adopted a case-study approach. Yin defined a case study as an empirical enquiry 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' [32]. It typically combines data collection methods that include interview, archival searches, observation and questionnaires [33]. Lee defines a case study as 'an in-depth, multifaceted investigation of a particular object or theme where the object or theme gives it its unity' [34].

Children's tests (pre-test and post-test) are effective ways of ascertaining the effects of the intervention being investigated (in this case, the effects of ICT tool use on the learning of English by children). However, observation is an effective way of 'finding out what people do in particular contexts, the routines and interactional patterns of their everyday lives [35]. In depth interviews, however, are anchored on the assumption that 'people are experts on their own experience and so are best able to report how they experienced a particular event or phenomenon' [35]. Furthermore, in-depth interviews are particularly useful when the phenomena under investigation cannot be directly observed [35].

V. DATA COLLECTION METHODS

The setting of the study is Here to Grow, which is a private school located in the central urban part of Al Riyadh. The school uses a combination of an American curriculum and an Arabic National curriculum.

The data collection methods in this study are (1) children's tests, (2) non-participant observation, and (3) interviews. Gahwaji's study, entitled The Effects of Using Interactive Teaching Programs on Preschool Children's Literacy Development: Case Study, was primarily aimed at investigating the effects of using interactive teaching programs on literacy development of preschool children, and it greatly influenced this study's choice of data collection methods.

5.1 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 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' [36]. 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 ICT provides 'better access, more control, and greater freedom for e-learners' [37]; as well as in Sharples et al.'s 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 [23].

Similarly, Vygotsky's Social Constructivism Theory posits that social aspects or factors such as friendships and a sense of togetherness are important to learning [38]. Social interaction plays a key role in the development of cognitive skills [39]. Chung explained that Vygotsky 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 [39].

ICT tools are viewed as devices that enhance social interaction and child play when applied in educational settings [18]. Plowman and Stephen also found that there is a positive relationship between play and learning, highlighting the advantages of introducing children to ICT at an early age [11]. These findings strongly support the assumptions behind Piaget's Constructivist Theory as well as Vygotsky's Social Constructivism Theory. Overall, the children's tests will be used to explore the usage of these ICT tools on their learning of English and subsequently provide support for, or evidence against, the aforementioned learning theories.

The children's tests will include the following: (1) an English Language Test administered at the beginning of the second term of the school year, for children belonging to both Group 1 (G1) and Group 2 (G2); and (2) an English Assessment Test administered halfway through the term and at the end of the term. The English Assessment Test is a standard, in-house test that is actually a grading/rating sheet used by the teacher. The school uses it to evaluate pupils' English language skills from the start of the school year up to the end of the school year. It has five columns: the first four columns correspond to the four grading periods of the entire school year, while the fifth column corresponds to the pupil's qualities that are being rated by the teacher. The English Language Test measures pupils' skills in the following core areas: listening and speaking, reading and writing, and reading stories. The English Assessment Test will be administered after the ICT intervention.

The children will be tested three times during the study in order to know the effect of the ICT intervention.

5.2 Non-Participant Structured Open Observation

The present study will use a non-participant, structured open observation to record the observations of this researcher with regard to the child's level of initiative, learning experiences, involvement and interaction during the undertaking of activities featured in the ICT intervention. I will record my perception regarding the concentration, persistence, motivation, energy, satisfaction, complexity and creativity, reaction time and language in an attempt to establish how the child truly feels and experiences the overall learning process.

In addition, the present study will also adopt non-participant, structured open observation to observe if teachers possess, or are able to demonstrate, the qualities of effective teaching. The observation schedule seeks to identify three key elements in a teacher's teaching style that shapes the quality of teacher-learner interactions [40]. According to Laevers and Heyden, these core elements include the following: (1) sensitivity, which pertains to the 'sensitivity of the adults to the feelings and emotional wellbeing of the child and includes elements of sincerity, empathy, responsiveness and affection'; (2) stimulation, which pertains to the manner by which the adult 'intervenes in the learning process and the content of such interventions'; and (3) autonomy, which pertains to the extent of 'freedom that the adult gives the child to experiment, make judgements, choose activities and express ideas. It also includes how the adult handles conflict, rules and behavioural issues' [40].

5.3 Interviews

 will interview teacher participants to ascertain the effects of the pupils using ICT in the learning of EFL. The interview questions will explore three measures of teachers' practices. The first measure deals with each teacher's personal computer use; while the second measure examines the frequency of the children's computer use; and the third measure tests the direct teaching of computer skills. The sampling frame in the present study is all Kindergarten teachers and pupils with EFL classes, and the sampling technique is purposive sampling.

6. Ethics

Ethical considerations relevant to the present study 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, I will ensure the protection of participants from any form of physical or psychological danger during their study participation. This will be done by explaining to the teachers and parents of the children-participants what their participation would entail. I will explain in detail to the teachers

and parents of the children-participants that the ICT intervention would consist of the tablet and the app that will be used. I will also explain 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, whilst no G2 members will be provided with tablets. Hence, G2 will serve as the control group. Then, I will explain that there will be another switching-over point, wherein G1 members will 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 will be given access to the tablets, with the guidance and instruction of the teachers, and hence will become the experimental group. I will make certain that this information is clearly understood by the teachers and parents of the children-participants.

I will also explain that the research activities were adopted from a previous study by Gahwaji, wherein no physical or psychological harm was incurred by the participants [18]. Furthermore, participants (teachers) and parents of the children-participants will be debriefed after conducting the study. All participants (and their parents in the case of the children-participants) will be given the opportunity to decide whether or not to continue with their participation in this study. They will be given the prerogative to withdraw at any stage of the investigation, and they will be informed of their right to do so.

To address the issue of information confidentiality, no further contact with the participants will be made after the administration of the research instruments, which include the following: (1) the Preschool Evaluation Test and the English Assessment Test, (2) Non-Participant Structured Open Observation for Children Participants Schedule, (3) interview schedule and (4) Non-Participant Structured Open Observation for Teachers Schedule. In addition, the confidentiality and anonymity of all participants will be upheld throughout the research study. Furthermore, use of any images of children-participants, taken during the study, will first receive permission from the children and their parents.

To address the issue of data protection, I will make certain that the collection, storage, disclosure and use of research data obtained from the participants will strictly and fully comply with the Data Protection Act of 1998, which places obligations relevant 'to fair and lawful data collection and processing [41]. This will be done through the inclusion of the following clauses in the Parents of the Children-Participant Debriefing Form: (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 2016, so that it is available for scrutiny by the University of Roehampton as part of the assessment process'. All collected data will be stored and password protected in my personal computer. I will have the sole access to these data.

A potential hazard considered was the emotional distress that participants may experience during the study. Since this study also involves the participation of young children, the risk of emotional distress is considered likely, due to the inverse relationship between perceived self-efficacy and depression [42]. 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' [42]. The same principle applies to 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 will be debriefed after the study.

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

The aforementioned researchers' responsibilities to the study participants, which include the provision of a voluntary informed consent, the right to withdraw from the research and the protection of children-participants, were dispensed in accordance with the BERA (2011) ethical guidelines for educational research [43].

7. Data Analysis

Data collected for the children's tests, which will consist of test scores for the English Language Test and the English Assessment Test, will be analysed using a series of multivariate analyses of variance using the general linear model program in SPSS. This is the same statistical technique adopted by Gahwaji in evaluating the effectiveness of the ICT intervention [18]. Data collected from the observation field notes of both teacher and children participants will be coded and analysed qualitatively using ATLAS, which is a content analysis software. According to Brophy, Snooks and Griffifths, for less structured observation such as open observation, data 'can be coded and analysed in the same way as the texts of interview transcripts — carefully relating the codes to the evaluation aims and objectives' [44]. Similarly, data from the structured interviews will be analysed

both quantitatively and qualitatively. For the closed-ended questions, frequency counts will be obtained for each item. For the open-ended questions, data obtained will be coded and analysed using ATLAS.

VI.   CONCLUSION

It is expected that differences will be found between the two groups and for individual children within and between groups. These differences will be analysed statistically to show whether the ICT training has in fact improved the English language learning of the children.

REFERENCES

[1].   Central Department of Statistics of Kingdom of Saudi Arabia. 2012. Available at: http://www.data.gov.sa/central-department-statistics-and-information.
[2].   The World Factbook: Central Intelligence Agency. 2012. Available at: https://www.cia.gov/library/publications/resources/the-world-factbook/geos/sa.html
[3].   Al-Abdalkareem, Education development in Saudi Arabia - Historical project, King Saud University. Available at:
[4].   http://faculty.ksu.edu.sa/25384/default.aspx [Accessed: 15 October 2013].
[5].   UNESCO, World data on education, 2011.
[6].   The Saudi Arabian Educational System, 2003. Available at: http://www.impact-se.org/docs/reports/SA/SA2003_ch1.pdf [Accessed: 12 May 2014].
[7].   H. Al-Ameel, The Statue of preschool programme in the KSA, unpublished study, 2009.
[8].   N. Gahwaji, Designing a tool for evaluating the quality of pre-school education in Saudi Arabia, unpublished doctoral diss., University of Exeter, 2006.
[9].   B. Faour and S. Suwaigh, Early childhood care and education regional report Arab States. UNESCO Regional Bureau for Education in the Arab States, 2010.
[10].   M. Rahman and E. Alhaisoni, Teaching English in Saudi Arabia: Prospects and challenges, Academic Research International, 4(1), 2013, 1-7.
[11].   R. Al-Jarf, Should we teach English to children under the age of six?, 2004. Available at: http://knol.google.com/k/-/-/103m68l0zh79u/10 [Accessed: 19 October 2013].
[12].   L. Plowman and C. Stephen, Children, play, and computers in pre-school education, British Journal of Educational Technology, 36(2), 2005, 145-157.
[13].   F. Wang and C. Zhou, A theoretical study on development of information and communication technology (ICT) - supported education systems, Institute of Electrical and Electronics Engineers, 2013, 1080-1084.
[14].   R. Toomey, Schooling Issues Digest No 2: Information and communication technology for teaching and learning, 2001. Available at: http://www.dest.gov.au/schools/publications/2001/digest/technology.htm [Accessed: 25 August 2014].
[15].   B. C. Sanyal, New functions in higher education and ICT to achieve education for all, Proceedings from the Expert Roundtable on University and Technology –for –Literacy/ Basic Education Partnership in Developing Countries, International Institute for Educational Planning, 2001.
[16].   NAEYC (National Association for the Education of Young Children). 1996. position statement on technology and young children: Ages three through eight.Young Children. 51(6), 11-16.
[17].   S.W. Haugland, J.L. Wright, Young children and technology, Allyn and Bacon, New York, 1997.
[18].   S.W. Haugland, Early childhood classrooms in the 21st century: Using computers to maximize learning young Children, 55 (1) (2000), pp. 12–18
[19].   N. M. Gahwaji, The effects of using interactive teaching programs on preschool children's literacy development: Case study, Journal of Research in International Education, 7(1), 2011, 99-108.
[20].   W. Clark, K. Logan, R. Luckin, A. Mee and M. Oliver, Beyond Web 2.0: Mapping the technology landscapes of young learners, Journal of Computer Assisted Learning, 25 (1), 2009, 56-69.
[21].   M. Prensky, Teaching digital natives: Partnering for real learning (London: SAGE, 2010).
[22].   M. O'Hara, Young children, learning and ICT: A case study in the UK maintained sector, Technology, Pedagogy and Education, 17(1), 2008, 29-40.
[23].   M. Montessori, The absorbent mind (Thousand Oaks, CA: BN Publishing, 2009).
[24].   M. Sharples, R. Graber, C. Harrison and K. Logan, E-safety and web 2.0 for children aged 11-16, Journal of Computer-Assisted Learning, 25(1), 2009, 70-84.
[25].   QCA (the Qualifications and Curriculum Authority) and NAACE (the National Assessment and Accreditation Council). 2007. Available at: http://archive.naace.co.uk/naace/attachment.asp@attachmentId=31235&menuItemId=6 [Assessed: 18 January 2015].
[26].   M. Blows, E-words for ICT and classroom creativity, National College of School Leadership, 2009. Available at: http://future.ncsl.org.uk/ShowResource.aspx?ID=812 [Accessed: 16 October 2013].
[27].   T. Byron, Safer children in a digital world: The report of the Byron Review (Nottingham: DCSF Publications, 2008).
[28].   Department for Education and Skills, Pedagogy and practice: Teaching and learning in secondary schools, 2004. Available at: http://dera.ioe.ac.uk/5679/1/sec_pptl043804u15using_ict.pdf [Accessed: 26 August 2014].
[29].   S. Hennessy, R. Deaney and K. Ruthven, Emerging teacher strategies for supporting subject teaching and learning with ICT, 2005. Available at: http://www.educ.cam.ac.uk/research/projects/istl/TiPS0521.pdf [Accessed: 23 August 2014].
[30].   A. Pera, The emergence of ICTS as learning technologies, Geopolitics, History and International Relations, 5(2), 2013, 38-43.
[31].   J. W. Creswell and V. L. Plano Clark, Designing and conducting mixed methods research (Thousand Oaks, CA: Sage, 2011).
[32].   M. Hardy and A. Bryman (Eds.), Handbook of data analysis (Thousand Oaks, CA: Sage, 2004).
[33].   E. Patton, and H. S. Appelbaum, The case for case studies in management research, Management Research News, 26(5), 2003, 60-71.
[34].   K. M. Eisenhardt, Building theories from case study research, The Academy of Management Review, 14(4), 1989, 532-550.
[35].   A. Lee and R. Baskerville, Generalizing generalizability in information systems research, Information Systems Research, 14(3), 2003.
[36].   Darlington and D. Scott, 2002. Qualitative research in practice: Stories from the field (Crows Nest, N.S.W.: Allen & Unwin, 2002).
[37].   K. Ciampa, Reading in the digital age: Using electronic books as a teaching tool for beginning readers, Canadian Journal of Learning and Technology, 38(2), 2012, 1-26.
[38].   A.S. Weber, Cloud computing in education in the meddle east and north Africa region: can barriers be overcome?. 2011.

[39]. L. Vygotsky, Mind in society (London: Harvard University Press, 1978).

[40]. Y. Chung, Schools at home: Parental support for learning Mandarin as a second language, doctoral diss., University of London, London, 2012.

[41]. F. Laevers and L. Heylen, Involvement of children and teacher style. Insights from an international study on experiential education (Leuven: Leuven University Press, 2003).

[42]. A. M. Matwyshyn, Harboring data: Information security, law, and the corporation (Stanford, CA: Stanford University Press, 2009).

[43]. Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28, 117-148.

[44]. BERA, Ethical guidelines for educational research, 2011. Available at: https://www.bera.ac.uk/researchers-resources/publications/bera-ethical-guidelines-for-educational-research-2011 [Accessed: 15 May 2016].

[45]. S. Brophy, H. Snooks, and L. Griffifths, Small-scale evaluation in health: A practical guide (London: SAGE, 2008).