THE EFFECT OF PHONEMIC SEGMENTATION ON WORD RECOGNITION THROUGH THE USE OF INTERACTIVE WHITEBOARD AMONG JORDANIAN ENGLISH AS A FOREIGN LANGUAGE (EFL) BEGINNING READERS

MOHAMMAD HUSAM. A. ALHUMSI

DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
2017

Awang Had Salleh
Graduate School
of Arts And Sciences

Universiti Utara Malaysia

PERAKUAN KERJA TESIS / DISERTASI
(Certification of thesis / dissertation)

Kami, yang bertandatangan, memperakukan bahawa
(We, the undersigned, certify that)

MOHAMMAD HUSAM A.M.A.A AZIZ ALHUMSI

calon untuk Ijazah   PhD
(candidate for the degree of)

telah mengemukakan tesis / disertasi yang bertajuk:
(has presented his/her thesis / dissertation of the following title):

"THE EFFECT OF PHONEMIC SEGMENTATION ON WORD RECOGNITION THROUGH THE USE OF INTERACTIVE WHITEBOARD AMONG JORDANIAN ENGLISH AS A FOREIGN LANGUAGE (EFL) BEGINNING READERS"

seperti yang tercatat di muka surat tajuk dan kulit tesis / disertasi.
(as it appears on the title page and front cover of the thesis / dissertation).

Bahawa tesis/disertasi tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan, sebagaimana yang ditunjukkan oleh calon dalam ujian lisan yang diadakan pada : **23 Mac 2017.**
That the said thesis/dissertation is acceptable in form and content and displays a satisfactory knowledge of the field of study as demonstrated by the candidate through an oral examination held on:
March 23, 2017.

Pengerusi Viva: *(Chairman for VIVA)*	Assoc. Prof. Dr. Noor Hashima Abd Aziz	Tandatangan *(Signature)*
Pemeriksa Luar: *(External Examiner)*	Assoc. Prof. Dr. Mohamad Jafre Zainal Abidin	Tandatangan *(Signature)*
Pemeriksa Dalam: *(Internal Examiner)*	Dr. Hariharan a/l N. Krishnasamy	Tandatangan *(Signature)*
Nama Penyelia/Penyelia-penyelia: *(Name of Supervisor/Supervisors)*	Assoc. Prof. Dr. Ahmad Affendi Shabdin	Tandatangan *(Signature)*

Tarikh:
(Date) March 23, 2017

Permission to Use

In presenting this thesis in fulfilment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the Universiti Library may make it freely available for inspection. I further agree that permission for the copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor or, in his absence, by the Dean of Awang Had Salleh Graduate School of Arts and Sciences. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part, should be addressed to:

Dean of Awang Had Salleh Graduate School of Arts and Sciences

UUM College of Arts and Sciences

Universiti Utara Malaysia

06010 UUM Sintok

Abstrak

Membina kemahiran membaca yang berkesan sangat penting dalam kalangan pelajar Bahasa Inggeris di sekolah rendah kerana ia akan mewujudkan kesedaran, khususnya, kesedaran fonemik. Di Jordan, kajian mendapati pencapaian yang lemah terhadap kemahiran membaca dalam kalangan murid sekolah rendah dan kebolehan pelajar muda mengecam perkataan. Kajian juga telah menunjukkan keupayaan untuk memenggal perkataan kepada fonem merupakan petunjuk kemahiran membaca yang paling berkesan pada mada hadapan. Walau bagaimanapun, kajian yang terhad tentang kemahiran penggalan fonemik telah member kesan terhadap pengecaman perkataan menggunakan papan putih interaktif (IWB) dalam kalangan pelajar Jordan yang merupakan pembaca peringkat awal Bahasa Inggeris sebagai bahasa asing (EFL). Kajian ini menyelidik kesan kemahiran penggalan fonemik terhadap pengecaman perkataan dalam kalangan pembaca peringkat awal warga Jordan dengan menggunakan bantuan papan putih interaktif (IWB). Ia juga mengkaji persepsi guru-guru mereka terhadap penggunaan penggalan fonemik dan penggunaan IWB. Instrumen kajian ialah ujian pengecaman perkataan dan soal selidik secara keratan rentas. Ujian-t sampel bebas berpasangan, ujian-*t* terikat, statistik deskriptif, dan ANOVA sehala telah digunakan untuk menganalisis data. Ujian pra dan pos pengecaman perkataan telah diedarkan kepada 41 pembaca peringkat awal yang dibahagikan kepada kumpulan eksperimen dan kawalan. Kumpulan eksperimen didedahkan kepada pengggunaan IWB selama empat minggu, manakala kumpulan kawalan diajar menggunakan papan hitam. Sementara itu, soal selidik telah diedarkan kepada 86 orang guru. Dapatan menunjukkan perbezaan yang signifikan dalam skor ujian pengecaman perkataan antara kumpulan eksperimen dan kumpulan kawalan. Dapatan juga menunjukkan bahawa tidak terdapat perbezaan statistik yang signifikan dalam persepsi guru pembaca peringkat awal EFL berdasarkan jantina dan pengalaman mengajar terhadap penggunaan penggalan fonemik dan IWB. Hasil kajian menjelaskan guru-guru EFL ini telah memberikan sokongan positif terhadap penggunaan penggalan fonemik dan IWB. Hasil kajian mencadangkan beberapa implikasi pedagogi untuk penggubal kurikulum dan guru-guru Bahasa Inggeris. Ini termasuk memberi latihan kepada para guru warga Jordan untuk menggabungkan penggalan fonemik dan IWB dalam pengajaran dan pembelajaran membaca.

Kata kunci: Kemahiran penggalan fonemik, Papan putih interaktif, Pembaca peringkat awal bahasa Inggeris sebagai bahasa asing, Pengecaman perkataan, Jordan

Abstract

Developing effective reading skills is essential among primary learners of English given that this will create many types of awareness, in particular, phonemic awareness. In Jordan, studies have revealed that there is a weak performance in the skill of reading among primary school students and young learner's word-reading ability. Studies have also shown that the ability to segment words into phonemes is considered as the most powerful predictor of future reading skill. However, little is known about how phonemic segmentation skill affects word recognition among Jordanian English as a foreign language (EFL) beginning readers using the interactive whiteboard (IWB). This study investigated the effect of phonemic segmentation skill on word recognition among Jordanian EFL beginning readers by using IWB. It also examined their teachers' perception towards the use of phonemic segmentation and the use of IWB. The instruments used were word recognition test and cross-sectional questionnaire. The independent sample paired t-test, dependent t-test, descriptive statistics, and one way ANOVA were employed to analyse the data. The pre-tests and post-tests of word recognition were administered to 41 beginning readers in the experimental and control groups. The experimental group received the treatment for four weeks using IWB, whereas the control group was taught using the chalkboard. Meanwhile, the questionnaires were distributed to 86 teachers. The findings showed a significant difference in word recognition test scores between the experimental and control groups. The results also indicated that there was no statistically significant difference in the perceptions of EFL teachers of beginning readers based on gender and teaching experience in relation to the use of phonemic segmentation and IWB. The findings revealed that the EFL teachers provided positive support towards using phonemic segmentation and IWB. The findings propose some pedagogical implications for curriculum designers and English teachers. This includes training Jordanian teachers to integrate phonemic segmentation and IWB in the teaching and learning of reading.

Keywords: Phonemic segmentation skill, Interactive whiteboard, EFL Beginning readers, Word recognition, Jordan

Acknowledgement

In the name of Allah, the most Beneficent, the most Merciful. All Praises are to Allah the Almighty and the Creator of the universe and all that exist. Prayers and blessings are sent on His Prophet, the seal of all prophets peace be upon them.

I could hardly find the words to express my sincere appreciation and gratitude for my supervisor Assoc. Prof. Dr. Ahmad Affendi Shabdin who was very patient and supportive, nourishing and cherishing. I am grateful to him for his tremendous assistance, invaluable comments, and permanent guidance throughout my time at UUM University. In addition, I would like to express my thanks to Dr. Hariharan Krishnasamy and Dr. Sarimah Shaik for their constructive comments and fruitful suggestions during the proposal defense session

I would also like to extend my gratitude to Jerash Directorate of Education and Jerash Basic School for Boys for permission to conduct this research.

I am grateful to my parents, my brothers (Hussein and Hamzah), my sister (Bashira) and my sons (Malek, Albaraa, and Ward). They were always encouraging and supporting me with their prayers and best wishes. I would also like to thank my father-in-law (Mohamed Nizar) and mother–in-law for their support and assistance.

Last, but not least, I would like to give a very special thanks to my mother and wife who spent a great deal of time and effort to support and encourage me through my intellectual journey.

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Abbreviations

IWB: Interactive Whiteboard

L1:   First Language

L2:   Target Language

ANOVA: Analysis of Variance

EFL: English as a Foreign Language

CHAPTER ONE
INTRODUCTION

1.1 Overview of the Study

Reading is a vital skill that influences children's educational aspect in life. Recent research has proved that developing strong reading skills forms a critical cornerstone in the life of children in their beginning years of schools (Kucukoglu, 2013; Suggate, Schaughency, & Reese, 2013; Kern & Friedman, 2008) and leads to good academic outcomes (Senechal & LeFevre, 2002; Kern & Friedman, 2008; Stainthorp & Hughes, 2004). Research has also found that reading in English language is a complicated system of skills and knowledge in which all parts of that system work together and enhance one another (Senechal & LeFevre, 2002; Adams, 1994). For example, studies in the USA have found that this complicated system needs to have phonemic awareness, word recognition, background knowledge, fluency, comprehension strategies, and a motivation to read (Snow, Burns & Griffin, 1998; International Reading Association, 1999).

Thus, three considerable skills that will be addressed in this study work together within the process of learning to read in order to have better readers. These skills encompass phonemic awareness, word recognition (International Reading Association, 1999) and integrating interactive whiteboard as an instructional tool of technology (Ishtaiwa & Shana, 2011).

The first skill, phonemic awareness, refers to the ability to hear and manipulate the sounds in words and the ability to understand that these oral words and their syllables are made up of a series of sounds (Yopp, 1992). Phonemic awareness falls

under the umbrella of phonological awareness. Phonological awareness is a component of metalinguistic awareness which is the process of thinking about one's own language (Yopp & Yopp, 2000). It involves segmenting spoken words into phonemes (Chapman, 2003).

The second skill is the word recognition. This skill can be defined as words that are automatically and immediately recognized as a whole by beginning readers and the analysis for their identification is not required (Ehri, 2014; Ehri, 2005b). Lastly, the third skill, which is the incorporation of the interactive whiteboard (IWB), is a pedagogical tool in a form of a large touch-sensitive board which is linked to a computer and a digital projector. The image from the screen of the computer can be shown on the large board (Smith, Higgins, Wall, & Miller, 2005). It is essential to note that the use of technology can be integrated in classrooms.

Ishtaiwa and Shana (2011) stressed that the use of technology has a pivotal role in teaching and learning a large number of subjects, including languages. In order to boost reading skills and achievement, teachers use innovative technology in a large number of elementary classrooms (Cheung & Slavin, 2011; Barone & Wright, 2008; Slavin, Lake, Chambers, Cheung, & Davis, 2009; Englert, Zhao, Collings, & Romig, 2005). Research has attested that educational technology that evaluates the performance of students enhances decoding skills and phonics (Lenhard, Baier, Endlich, Schneider, & Hoffmann, 2011). Furthermore, it is important to note that technology has made its way to enter the education forum. It includes computers, the Internet, webcams, and the IWB (Parr & Ward, 2011).

Thus, the interactive whiteboard (IWB) is considered one kind of technology that can be incorporated into the reading classroom. It is used as an instructional tool as well. Researchers consider IWBs as being eminently interactive tools presented to both teachers and students who can manipulate and control programs. These particular programs are engaged by a touch sensitive screen (Beauchamp & Kennewell, 2008; Digregorio & Sobel- Lojeski, 2010; Hall & Higgins, 2005; Reedy, 2008).

It is important to note that the IWB, phonemic awareness, specifically phonemic segmentation, and word recognition will have a considerable focus in this study in relation to the Jordanian educational context.

This chapter provides the background information regarding the issues related to English status and the educational system in Jordan. The background of the study will be followed by the statement of the problem, research questions, research objectives and significance of the study, scope of the study, and the definition of terms.

1.2 Background of the Study

In order to have a closer look at Jordanian educational context, this particular section demonstrates the history of English language, the place of English in Jordan, the educational system in Jordan, reading among primary school students and finally the incorporation of the interactive whiteboard in EFL classrooms.

1.2.1 The History of English Language in Jordan

The Hashemite Kingdom of Jordan is distinctively located in the center of the Middle East and the Arab World with an area of 89.342 km^2. Jordan attained its independence and became an independent country in 1946 with the establishment as a hereditary constitutional monarchy. The official religion is Islam, the official language is Arabic, and the Jordanian culture adopts the Arab/Islamic culture which is open to world cultures and civilizations. Jordan borders Syria from the north, Palestine from the west, Iraq and Saudi Arabia from the east, and Saudi Arabia and the Gulf of Aqaba from the south (See Figure 1.1). The desert or semi-desert covers more than 75 percent of the overall land. The dwellers of Jordan are six million 3,100,000 male and 2,900,000 female. The majority of people that represent 82.3 percent of the population in Jordan live in urban areas while about 17.7 percent live in rural areas (Ministry of Education, 2010).
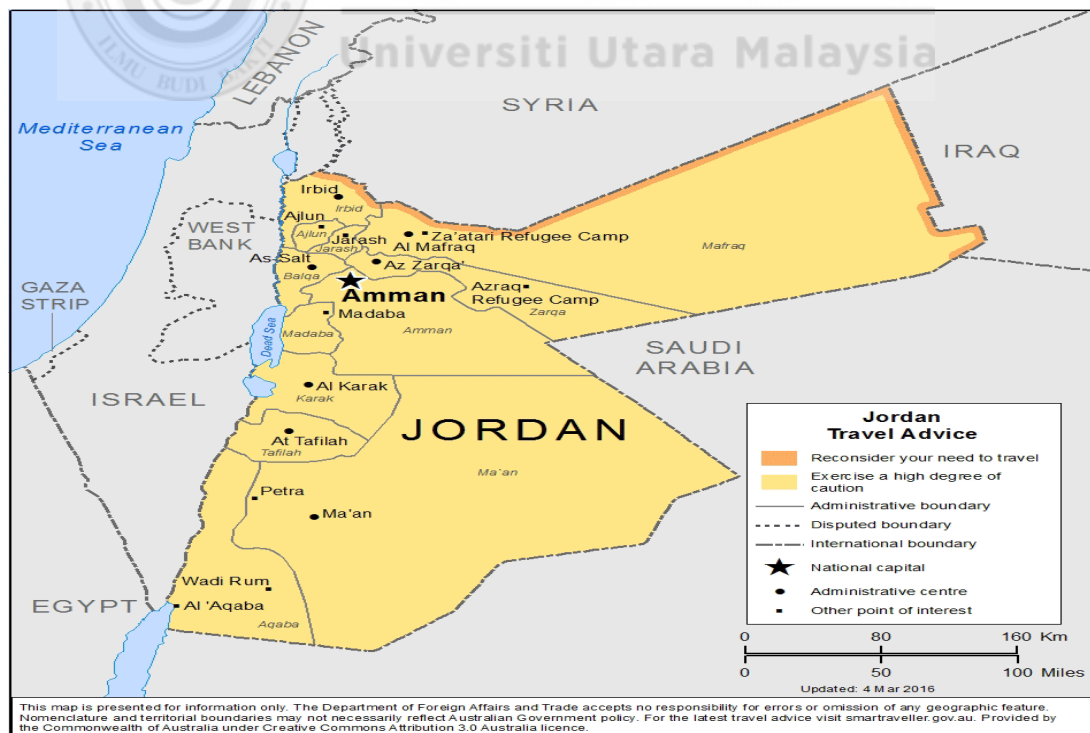
Figure 1.1. Map of the Hashemite Kingdom of Jordan (Source: smartraveller.gov.au)

4

Before and after the independence in 1946, English was the first foreign language to be taught in Jordan. Jordan was under the occupation of Great Britain from 1916 to 1946. After the independence, English is introduced to be taught in all Jordanian schools at the early age of eleven for just one hour in a week. After the 1990s, English language is however introduced alongside with Arabic language in all Jordanian schools at the early age of six (Drbseh, 2013).

English currently plays a significant role in the Jordanian education system. Given the fact that English language is taught alongside with Arabic language in all schools at the early age of six after the 1990s, this has provided the English language with a distinguished position in the Jordanian educational system (Drbseh, 2013). Effective communication is expected among students in institutions where English is the means of instruction. Jafar (2008) pointed out that Jordanian EFL learners learn English all through the whole period of the school years from kindergarten to the secondary school grade, and it is considered as a compulsory subject for the school curriculum. However, English language is essential to communicate with the world. Specifically, the Arab world also needs this language for developing the education, acquisition of new technology, and social mobility (Zughoul, 2003).

In Jordan, teaching English is fundamental due to instrumental and educational reasons. English is considered as a prerequisite for most careers and jobs. Thus, the Ministry of Education in Jordan provides a critical attention for English teaching especially to the English curriculum and teachers' training. Consequently, the main objective of teaching English in Jordan is to authorize learners to effectively communicate with others at formal and personal levels (Jafar, 2008).

Additionally, there are economic and educational reasons that make English language enjoy a prestigious position. For example, people have started to migrate to different English speaking countries in order to find better educational opportunities and better work. These reasons actually encourage people to learn that language. Among high school and university students, English has gradually become more prestigious and more popular (Tahaineh & Daana, 2013). The next section gives in detail the English language status in Jordan.

1.2.2 The Status of English Language in Jordan

In Jordan, education is both administered and financed by the Ministry of Education. The curriculum is set by the Committee for Curriculum and School Textbooks. Both public and private institutions are committed to use Jordanian curriculum throughout the country. The aforementioned Committee also approves and selects all reading materials used in the classroom. In regard to English language, the formal education is affected by the Educational Reform Plan (ERP), Phase III, from 2000 to 2005. It is important to note that English language has become an obligatory subject to be taught in the Jordanian public schools from the 1st elementary grade till the school leaving Exam or Tawjihi (the General Secondary Certificate Exam (GSCE). English is predominantly considered to be the first foreign language concerning current Jordanian educational context. Moreover, English is the medium of instruction in most public and private universities in Jordan (Tahaineh & Daana, 2013).

In most Arab countries, English language is introduced and taught as a foreign language. In Jordan, for example, following His Majesty King Abdullah II's National Initiative in 1999, English language is introduced and taught as a compulsory subject accompanied by the First Language (L1) from the first grade in

public and private schools. This step requires the Ministry of Education to identify skills that all Jordanian first graders (beginning readers in particular) should master in order to be proficient in English basic skills (Al-Shaboul, Assasfeh, Alshboul, & Almomani, 2013). The focus on developing EFL beginning learners' oral awareness must be given careful priority in response to the goal of the Ministry of Education as established by the 2006 English Language National Team regarding English teaching in which EFL beginning learners are anticipated to have the ability to read English from left to right as well as showing understanding of learned simple words including the names, objects, numbers, and actions when they practice the skill of reading by using various activities by the end of the year (Al-Shaboul et al., 2013).

As a result, understanding simple words requires paying more attention to beginning readers' phonological processing skills, particularly phonemic awareness, which is expected to develop their English word recognition (Altamimi & Rababaa, 2007; Gough, 1996; Yeung, Siegel, & Chan, 2013). This will have more powerful effect if phonemic awareness skills, particularly phonemic segmentation skill, are integrated into Jordanian curricula within the educational system.

1.2.3 The Educational System in Jordan

Jordan is one of the Middle-Eastern countries in this region of the world where Arabic is the main language. However, there has been a transformation in the role made by education in the development of Jordan. This change could be noted from a state of an agrarian and subsistence economy to a predominantly urban and a nation that could be described as an industrialized one. Jordan has created a noticeable system that could be described as comprehensive and high in quality to carry the human capital of its citizens since the early 1920s. Today, the number of government

schools is 2787. Further, there are 48 community colleges and 19 universities. Jordan has stressed access to elemental education in the plans developed in the whole country (Haddad & Fakhoury, 2012). Table 1.1 shows the educational system in Jordan.

Table 1.1

The Structure of the Educational System in Jordan

Age	Educational Stages	
5-4	Pre-basic education (Kindergarten)	
6-16	Compulsory Basic Education (Grades 1-10)	
17-18	Academic Secondary Education (Grades 11-12). Tracks: Literary, Scientific, Shar'I, Information Management, Health Education	Vocational Secondary Education (Grades 11-12) Tracks: Agricultural, Industrial, Hotel, Tourist, Home Economics
	General Secondary Examination (Tawjihi)	
Over 18	University (4 years)	Community and Technical Colleges (2 years)
	Advanced Degree (Masters, PhD)	

(Source: Adapted from MOE, 2004)

The educational system is described as an emulative human resource system of a quality which gives all continual learning experiences regarding their present and future needs. The vision of the educational system in Jordan is to motivate ceaseless economic development through an educated population and skilled workforce (The National Report on Adult Education in Jordan [NRAEJ], 2006). To achieve the above vision, the education in Jordan tries to activate a system based upon ―distinction‖, energized by its dedication to a number of items such as high standard, human resources, social values, and a spirit of competition that improves the quality of the country's wealth in a universal knowledge economy (NRAEJ, 2006).

Jordan gives a great care to its educational system. Therefore, it accordingly strives to bring enormous innovation in education that contains all of its components. Despite the lack of its natural resources and wealth, Jordan shows extreme enthusiasm and attempts to develop a qualitative and quantitative educational system, in a way that could enable Jordan to experience the challenges related to the current century (Ministry of Education, 2010). Within the current year, the number of enrolled students from grades 1 to 12 indicates the development in education in Jordan. In a word, there are two million of enrolled students representing 33 percent of the overall population, 51 percent of whom are males and 49 percent are females, and the rate of illiteracy which dropped to 6 percent by the year 2005 (Ministry of Education, 2010). Table 1.2 shows the enrolment statistics in primary and secondary education.

Table 1.2

Enrolment Statistics in Primary and Secondary Education

Enrolment Ratio from Grade 1 to Grade 12 by the Year 2005	
Male	51%
Female	49%
Illiteracy	6%

 (Adapted from Ministry of Education, 2010)

The NRAEJ in Jordan has stated a number of key principles of the educational system. One of the key principles is that ―the mission and vision must be cohesively and solidly merged into the development of the decision-making policies and must inform all of educational planning levels" (NRAEJ, 2006, p.4).

The Ministry of Education in Jordan has taken into consideration certain steps that would give a better understanding of the vision and mission statements. It will guarantee that the vision and mission statements are debated, understood, and validated with key stakeholders to accomplish a mutual understanding and create consensus for the aims and priorities of general education (NRAEJ, 2006, p.5).

1.2.3.1 Primary Schools in Jordan

Concerning the educational system in Jordanian schools, there are two main stages: the basic obligatory stage (ages from 6 to15 years old) and the secondary stage (from16 to 18 years old). In the basic obligatory stage, students do not have to pay school fees which include the cost of books. As for the latter, students have to pay school fees and the cost of school books.

Since the investigation of this study will be on the effect of the explicit instruction of phonemic awareness, particularly phonemic segmentation skill, and the use of interactive whiteboard on Jordanian EFL beginning readers' English word recognition, the present study will be interested in the basic obligatory stage. Thus, this study focuses on Jordanian EFL beginning readers and their teachers in this basic obligatory stage. This particular stage consists of ten grades, including the primary and preparatory cycles which are compulsory for all pupils between the ages 6 to 15 years. The major goals of this stage are to achieve the general education objectives and to prepare the citizen in terms of his/her personality, physical, spiritual, mental, and social aspects. It also aims at making more responsive educational system to social needs and ambitions, and makes it more effective and relevant in order to meet the challenges and demands of achieving the national development plans (Ministry of Education, 2010).

The *Action Pack S*eries have been used in Jordanian textbooks: *Action Pack 1* (see Appendix Q) by Lambert in 2006 and *Action Pack 4* by Lambert in 2008 have been used in first grade and fourth grade respectively. *Action Pack 8* and *Action Pack* 9 by Keddle and Hobbs in 2006 have been used in the eighth grade and ninth grade. *Action Pack* 10 by Haines in 2008 has been used in the tenth grade. The aim of textbook series is to use concepts that are related to the environment in the whole corpus of passages, activities, exercises and other reading supplements in the students' book, activity Book, and teacher's book (Al-Omari, Bataineh, & Smadi, 2015).

The *Action Pack Textbook Series* are presently taught and provided in the first four stage classes in Jordanian state schools. The content of the textbooks has been viewed as relevant to the learners' age, needs, and interests. The weekly number of classes, however, was not considered adequate. Some teaching aids such as computer programs were not correctly utilized (Jaradat, Akrabawi, & Al-Kharoof, 2002). Since the focus of this study is to gain the foundational skills required to get better readers, the following section tackles reading among students in their primary schools

1.2.4 Reading among Primary School Students

Reading skill development is regarded as a noticeable milestone in the early stage classes in schools (Kern & Friedman, 2008). Although reading is formally introduced and cultivated in the primary grades, some children begin to read before starting school, while others confront remarkable difficulties in the process of learning to read throughout elementary school. This, in turn, will have negative effects on their desirable outcomes (Kern & Friedman, 2008; Senechal & LeFevre, 2002; Wagner et al., 1997).

Becoming proficient readers in classrooms is a significant issue in education. Reading programs which include particular skills that highly predict early reading success are seen to be efficient in generating readers' competence (Ehri et al., 2001). Phonological awareness is one of these reading programs and it is considered as a critical prerequisite for proficiency in reading skill since it helps originate the development of word-recognition. This, in turns, supports reading comprehension (Al Otaiba, Kosanovich & Torgesen, 2012). The critical role of phonological awareness in the early stages of learning to read provides a considerable prognosis in which it widely and powerfully predicts and identifies children who are at risk of reading problems in the early years of schools (Ehri et al., 2001; Goswami, 2001; Ziegler & Goswami, 2005). The term *phonological awareness* is used to demonstrate different levels of metalinguistic skill regarding letter (grapheme)-sound (phoneme) association (Lane, Pullen, Eisele, & Jordan, 2002). It is important to indicate that in Jordan few studies dealt with the issue of phonological awareness and the phonemic segmentation in particular.

In Jordan, Al-Ghazo and Smadi (2013) pointed out that one of the one of the objectives of the Ministry of Education is that students should read in order to respond and understand the printed English words in various literary and authentic context. The point that is worth mentioning is that the reading requires additional foundational skills acquired by young learners in order to reach that level of understanding of the English texts. It should be more effective if learning is accompanied by the integration of educational technology, specifically the interactive whiteboard (See Appendix O).

1.2.5 The Incorporation of the Interactive Whiteboard in EFL Classrooms

The Jordan Education Initiative (JEI) (2010) has been endeavoring to integrate and test latest technologies in the classroom for a long time. Donated by SMART Technologies (a Canadian company that is responsible for creating the popularly known SMART Board used as a tool in education and business) in 2007, the JEI began a pilot project to install 18 smart IWBs. This was to test the potential of these large boards in teaching and learning environments in Jordan. In 2009, the JEI conducted a preliminary study with the aim of exploring the implementation of interactive whiteboards in five Discovery Schools (These schools represent Discovery Schools Pilot Project launched by JEI). The purpose of the study was to examine whether the interactive whiteboards would change the learning environment in the year of 2008/2009; this took place one year after the boards had been installed in the classrooms. It has been generally found that there was a wide acceptance of the use of this technology as well as recognition of its benefits in the classroom. That acceptance was shared by both teachers and students (Jordan Education Initiative (JEI), 2010).

There were studies conducted within the Jordanian context related to the use of this educational tool of technology. For example, Jwaifell and Gasaymeh (2013) investigated the use of interactive whiteboards in a school called Modern Systems School in Jordan. Their study explored female English teachers' use of interactive whiteboard and its characteristics which affect their decisions towards this kind of technology. The findings of their study showed that the extent of teachers' use of interactive whiteboard is influenced by their perceptions with respect to four main aspects. These aspects include relative advantages, simplicity, observability and compatibility. As a result, the teachers' methodologies have been shifted by the

13

regular use of IWB from teaching in traditional ways to using dialogues and group work. The researchers proposed that more attention to training workshops should be paid regarding the best practices to incorporate the interactive whiteboard into the educational process.

In another study, Abuhmaid (2014) explored the perspectives of teachers in four Jordanian private schools concerning two major aspects of the integration of interactive whiteboard. The first aspect involved the teachers' perceptions of interactive whiteboard as teaching technology. The second involved the existence of several backup factors to ensure better implementation of interactive whiteboard. The researcher concluded that the participating schools had a great deal of efforts and resources in incorporating the interactive whiteboards into their contexts. However, there were still some supporting factors for the effective employment that were ignored. Interactive whiteboards were surprisingly found to make the profession of the teachers not easier than it was before. In the next section, the researcher addresses the statement of the problem

1.3 Statement of the Problem

Phonemic awareness has been described as one of the significant skills in learning to read and write (Walsh, 2009). Early childhood literacy programs embrace the use of phonemic awareness skills, particularly the full phoneme segmentation knowledge, in the development of reading as well as highlighting the significance of these skills to have students become fluent readers in early primary grades (Brown, 2014; Perrey, 2003; Powers & Price-Jonson, 2006; Morris, Bloodgood, Lomax, & Perney, 2003; Flanigan, 2007). Thus, phonemic awareness, particularly phonemic segmentation skill, strengthens the performance of reading skill (Morris et al., 2003).

14

In Jordan, researchers found that there is a weak performance in the skill of reading among primary school students (Al-Shaboul et al., 2013). Another research concluded that there is a clear weakness in young learner's word-reading ability (Al-Tamimi & Rabab'ah, 2007). In fact, these findings beget the researcher's announcement that there is a research problem and it has to be addressed.

It is significant to note that the issue of phonemic awareness skills, particularly segmenting and blending, in pre-literacy and early literacy development is critical in the early literacy literature (Anthony & Lonigan, 2004; Nation & Hulme, 1997; Yeh, 2003). Moreover, research clearly reiterates the fundamental role phonemic awareness plays in reading development (Ehri et al., 2001) and proves a noticeable correlation between phonemic awareness in young children's abilities and positive reading outcomes when they are in the elementary grades. It also shows a strong correlation between phonological awareness in preschool and later reading fluency (Anthony & Lonigan, 2004).

Despite the above statements, research has found that ―25% of the Jordanian children are more likely to become poor readers" (Al-Shaboul et al., 2013, P. 48). A poor reader will struggle through every school day. This probably let him/her drop out; potential education opportunities will be left behind and this only begets poverty among generation (Gove & Cvelich, 2010). Thus, Jordanian children deliberately need to have the ability to be proficient in the basic skills of English language; these basic skills include reading (Al-Tamimi & Rabab'ah, 2007).

In the same thread, Torgesen (2004) found that children may be determined to become poor readers in fourth grade if they experience difficulties with critical

phonological skills in kindergarten and first grade classes. Research also found that students still lack literacy skills. These skills include phonological and phonemic awareness (Alshaboul et al., 2014; Al-Shaboul et al., 2013; Manyak, 2008; Runge & Watkins, 2006; Yopp & Yopp, 2000). These results provide a sharp indication that Jordanian children in the first grade apparently confront difficulties when learning English, and particularly in reading English texts. They lack early phonemic awareness instruction in their educational programs and they have not consequently reached an appropriate level of phonemic awareness in order to help them become quite good in reading (Al-Shaboul et al., 2013). These results also mean to a certain extent that the skill of phonemic segmentation has not been developed yet by Jordanian beginning readers. Consequently, students may experience hardship in the development of reading. The following empirical studies show the critical role phonemic segmentation skill plays in reading skill.

Few previous empirical studies tackled the issue of phonemic segmentation and its effect on word recognition. For instance, in Sweden, extensive research conducted by Lundberg, Olofsson, and Wall (1980) has indicated that the ability to segment words into phonemes is considered as the most powerful predictor of future reading and spelling skills. Their sample was a group of children tested at the end of their kindergarten year. However, the skill of phonemic segmentation is considered one of the most difficult skills of phonemic awareness (Liberman, Shankweiler, Fischer, & Carter, 1974; Adams, 1994; Griffith & Olson, 1992; Castiglioni-Spalten & Ehri 2003) and it may be considered a challenging task for beginning readers (Chard & Dickson, 1999; Read, Yun-Fei, Hong-Yin, & Bao-Qing, 1986).

With respect to the Jordanian context, although 25% of EFL Jordanian children clearly require a need for explicit instruction, the problem is that what type of instruction is suitable for most children's reading skills. The lack of early phonemic awareness instruction may be an unidentified problem for scholars, researchers, and decision makers in educational programs and curricula (Al-Shaboul et al., 2013; Alshaboul et al., 2014).

In USA, a research conducted by Adams (1994) noted that the lack of phonemic awareness hampers word recognition. In the same vein, Vellutino and Scanlon's (1998) findings concluded that inadequate ability in word recognition is the most and immediate cause of beginning readers' reading difficulties in learning to read which in turn lead to critical difficulties concerning the mastery of alphabetic code. It has been noted that reading difficulties often interfere with the ability of the individual to find a job (Snow et al., 1998) and a lack of reading limits the individual's quality of life (Bradford, Shippen, Alberto, Houschins, & Flores, 2006).

Other research found that the other main factor that impedes reading accuracy is the result of inaccurate and slow word recognition strategies (Torgesen et al., 2001; Shankweiler et al., 1999). Besides, word recognition problems in children are widely recognized to stem from impaired or inefficient phonological processing (Moats, 2001; Hulme, Nash, Gooch, Lervag, & Snowling, 2015; Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001).

Researchers argued that English word recognition can be developed by explicit phonological awareness instruction (Al-Tamimi & Rabab'ah, 2007; Snow et al., 1998; Ball & Blachman, 1991). However, the overall Jordanian first graders often

face difficulty when they attend to English basic skills including reading; this suffering can be attributed to their weakness in English phonological awareness which in turn leads to difficulty in word recognition development (Al-Tamimi & Rabab'ah, 2007).

Furthermore, studies by Vellutino and Scanlon (1987) provided evidence that phonemic segmentation is causally related to reading achievement for poor as well as for normal readers. However, their studies suggested that deficits in phonemic decoding may lead to deficiencies in phonemic segmentation which could impair word recognition based on the English alphabetic principle. Besides, other research found that most kindergarten children who are not able to segment words into phonemes typically fail in segmentation tests (Ball & Blachman, 1991; Stanovich, 1986; Liberman et al., 1974).

Alongside EFL beginning readers, EFL teachers are not provided with the considerable role learners' awareness in the sounds of the language play in formulating their ability to read (Al-Shaboul et al., 2013). They are not provided with additional help required especially when their students lack the phonemic knowledge (Mathes & Torgesen, 1998). For teachers, understanding the elements of phonological awareness is an important construct that has implications for educational assessment and may assist with the direction of reading intervention (Runge & Watkins, 2006). Despite the above statement, Jordanian English language teaching curricula ignore the training in phonological awareness as well as its importance to the reading ability development (Al-Tamimi & Rabab'ah, 2007).

In addition, teachers lack the knowledge of their students' needs to cope up with technology in education since instructional methods have been changing. Solvie (2004) pointed out that young learners' teachers must continue to be aware of the need to vary activities, involve movement and change of location, use authentic reading and writing materials, and experiences when they use the IWB. However, it is not obvious that how teachers perceive the use of the IWBs (Hall & Higgins, 2005). Moreover, it has been found that according to a recent research report, the average rate for Asia regarding IWB penetration in classrooms is however still lower than 2% comparing to other European countries such as England, Denmark, and USA (McIntyre-Brown, 2011).

A number of studies have shown the importance of using the interactive whiteboard as an instructional tool which is basically a form of interactive technology (Smith et al., 2005; Digregorio & Sobel- Lojeski, 2010). An increase is noticeably evident in the energy as well as the activity levels of the students and teachers when the classrooms are active with the use of the interactive whiteboard (Northcote, Mildenhall, Marshall, & Swan, 2010; Hall & Higgins, 2005). Despite the growing research that shows a general positive relationship between instructional technology and reading achievement since the last two decades, less is known about integrating interactive whiteboard as an instructional tool into the EFL classrooms to help students develop their phonemic awareness (Johnson, 2012) and particularly phonemic segmentation skill in Jordan (Alhumsi & Shabdin, 2014).

Due to lack of research regarding integrating interactive whiteboard into the EFL classrooms to help students improve their phonemic segmentation skill, the aim of this study is to investigate the effect of the phonemic segmentation skill of Jordanian

beginning readers on word recognition through the use of interactive white board. Thus, this study will help to shed light and provide a better understanding of the effect of phonemic segmentation skill on EFL beginning readers' word recognition. The study will also consider how teachers perceive the use of the interactive whiteboard in improving EFL beginning readers' word recognition.

1.4 Research Objectives

The objectives for conducting this research are as follows:

1. To determine the effectiveness of using the interactive whiteboard in teaching the phonemic segmentation skill on first grade students' word recognition.

2. To investigate the differences in the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard in terms of gender and teaching experience.

3. To find out EFL teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers.

4. To identify EFL teachers' perceptions towards the use of interactive whiteboard in improving word recognition among Jordanian EFL beginning readers.

1.5 Research Questions

The research questions that guide this study are as follows:

1. What are the differences in the word recognition test scores between first grade students who are taught with the phonemic segmentation skill using the interactive whiteboard and those who are taught with a traditional teaching method?

2. What are the differences in the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard in terms of gender and teaching experience?

3. What are EFL teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers?

4. What are EFL teachers' perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers?

1.6 Research Hypotheses

The null hypotheses given in this study are based on the first and second research questions respectively. This study consists of the following hypotheses:

H_01: There is no significant difference in the word recognition test scores between first grade students who are taught with the phonemic segmentation skill using the interactive whiteboard and those who are taught with a traditional teaching method.

H$_0$2: There is no significant difference in the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard in terms of gender and teaching experience.

1.7 Significance of the Study

The significance of this study resides in the fact that there is currently a widespread interest and a seemingly legitimate need in Jordanian educational system to focus on students who are at-risk for academic failure, particularly in the area of reading. Early intervention is a pivotal program for all students, particularly for those classified as having difficulties with reading. There is an increasing demand of achieving fluency in the basic skills of learning English language.

To achieve that fluency, students should gain strong foundation in literacy skills. Hence, it is vital to reach an adequate level in the skills of the phonemic awareness in which EFL beginning readers are able to become better readers. For instance, Torgesen et al. (2001) affirmed that students who have difficulties in reading skills often confront difficulties in the area of phonemic analysis skills. The same researchers added that students are required to expose to an intensive and systematic program in order to remedy the reading difficulties. Consequently, a limited number of studies have been addressed to identify the phonemic awareness skill of Jordanian EFL beginning readers as well as investigating the perceptions of teachers towards the use of phonemic segmentation skill and the interactive whiteboard.

Curriculum designers, principals, and English teachers should rely on the results of the research to guide instructional and firm decisions in which the process of reading growth will be accelerated for the sake of our young generation through the use of

technology as an instructional tool. Hence, considerable data about the use of phonemic segmentation skill as well the interactive whiteboard employed by Jordanian EFL beginning readers will also be available to curriculum designers and English teachers. The findings would give a better understanding to curriculum designers and English teachers about the effect of phonemic segmentation skill and the interactive whiteboard on word recognition of Jordanian EFL beginning readers. Given the appropriate instruction in these previous skills, they will become aware of the expectations of their learners who are in the first grade. This will in turn result in having our children become better readers as well as the number of students who struggle with reading can be decreased.

The school community should include stakeholders, teachers, and parents to have the responsibility for students' achievements when the interactive technology is effectively used during phonemic segmentation instruction. This study has the potential to impact the social change by offering insight into whether integrating IWBs during instruction has an impact on student learning and reading development, particularly word recognition development. In short, this study will help to shed light and provide a better understanding of the effect of phonemic segmentation skill on EFL beginning readers' word recognition through incorporating the interactive whiteboard.

The current study is also significant since it offers insight for teachers towards the importance of interactive whiteboard as an instructional tool and how this tool can help learners learn and read better. One of the potential advantages of the interactive whiteboard as an instructional tool is that teachers can teach various activities such as introducing concepts, combining text, audio and video, graphics and stream

videos through manipulation as well as making presentations to the whole class (Beauchamp & Kennewell, 2008; Wood & Ashfield, 2008). If the use of the interactive whiteboard can boost reading skill, the interactive whiteboard can be then implemented in a way that serves the school curriculum as well as students' interaction and engagement. The results of this study are also critical to schools in the directorate of education, principals and teachers who are involved in school change implementation.

Finally, this study probably provides more valuable knowledge to other researchers in other developing countries. Additionally, based on the results of this study, this research study can pave the way to other research conducted in various parts of the world to compare and contrast with Jordanian contexts.

1.8 Scope of the Study

The study focuses on the first grade students (beginning readers) enrolled at one primary state school in Jarash, Jordan in the second semester of the academic year 2014/2015. The participants of this study were beginning readers and their teachers. The first grade participants were selected because the interactive whiteboard is available in this school. The interactive whiteboard is only found in this school, and only in the first grade classroom. Furthermore, the other participants were 86 teachers of first graders distributed in the schools affiliated to the Directorate of Education in Jerash. The scope of this study was focused on students of the first grade as well as their teachers.

This study focused on the skill of phonemic segmentation and did not involve any other phonemic awareness skills. Such skills encompass blending, manipulation,

isolation, deletion, and addition (Lane et al., 2002; Chard & Dickson, 1999; National Reading Panel, 2000).

This study also focused on the students studying at Jerash Basic School. Students from other schools were not included in this study. The findings obtained from this study could be generalizable to Jordanian EFL beginning readers as well their teachers at other schools. On the other hand, the findings could not be generalizable to students and teachers of English in secondary schools. It should be noted that this research used quantitative method represented by the quasi-experiment and the cross-sectional questionnaire to collect the required data of this study in order to achieve the objectives mentioned earlier.

1.9 Definition of Terms

Phonemic segmentation: It is a skill in which beginning readers can break words into individual phonemes by counting the sounds or by pronouncing and positioning a marker for each sound. For example, ―How many phonemes in ship? (/sh/ /i/ /p/)" (Ehri et al., 2001, p. 253)

EFL beginning readers: This term refers to a group of first grade students, aged 7 years on average. These beginning readers who are ready to begin reading words have cultivated the early foundation of reading skills (Juel, 1991). EFL beginning readers are officially exposed to English as a foreign language when they first enter school.

Word recognition: This term refers to words that are automatically recognized as sight words. It can be defined as a word that is immediately recognized as a whole and the analysis for its identification is not required (Ehri, 2014; Ehri, 2005b).

Word recognition test: It is a kind of test that is used to assess EFL beginning readers' word reading ability measured by Clay's (1979) Ready-to-Read Word Test (List C). This tool of the assessment consists of 15 common English words to evaluate how many words the children could already read in English.

Interactive Whiteboard: It is an instructional tool in a form of large touch-sensitive board which is linked to a computer and a digital projector. The image from the screen of the computer can be shown on the large board. The board will then take the place of the computer either by using a special pen or by touching the board with a finger (Hall & Higgins, 2005).

1.10 Organization of the Thesis

This study is organized into five chapters. The first chapter offers a description of the background of the study, problem statement, research objectives, research questions, scope and significance of the study, definition of terms, and a summary of the chapter. It provides background information concerning the significance of phonemic awareness, specifically phonemic segmentation skill and it sheds light on the issues related to English language status and the educational system in Jordan.

The second chapter describes the literature review. The third chapter offers the research design and methodology. As for the fourth Chapter, quantitative data are analyzed and discussed. The fifth chapter summarizes the results of the investigation as well as presenting some recommendations based on the findings.

1.11 Summary

This chapter discussed certain issues including the overview of the study, background of the study, problem statement, research objectives, research questions,

research hypotheses, significance and scope of the study, definition of terms, and the organization of the study. It ends with a summary. It is interesting to note that the background of the study addressed particular topics such as the history of English language, the status of English language in Jordan, the educational system in Jordan, reading among primary school students and finally the incorporation of the interactive whiteboard in EFL classrooms.

Based on the introduction and background provided in the first chapter, the following chapter presents a review of various studies conducted on the information pertaining to the issue of reading and learning to read. The second chapter is arranged in ten sections. It sheds lights on the relationship between reading and phonemic awareness and particularly phonemic segmentation skill and word recognition. It also describes the relationship between reading and the use of technology. Further, related studies will be presented. Finally, theoretical and conceptual frameworks will be described as well.

CHAPTER TWO
REVIEW OF THE LITERATURE

2.1 Introduction

To become a better reader, certain areas must be mastered by young learners. These areas encompass phonemic awareness, phonics, word recognition, reading comprehension, and reading fluency (Ehri et al., 2001). This chapter focused on two considerable skills that work together within the process of learning to read in addition to the incorporation of instructional technology. These skills involved phonemic segmentation, word recognition and the use of interactive whiteboard as a pedagogical tool. In order to have a clear image of the relationship among these three skills, the researcher decided to use the diagram below to show this relation. Figure 2.1 shows this relation among these three skills.
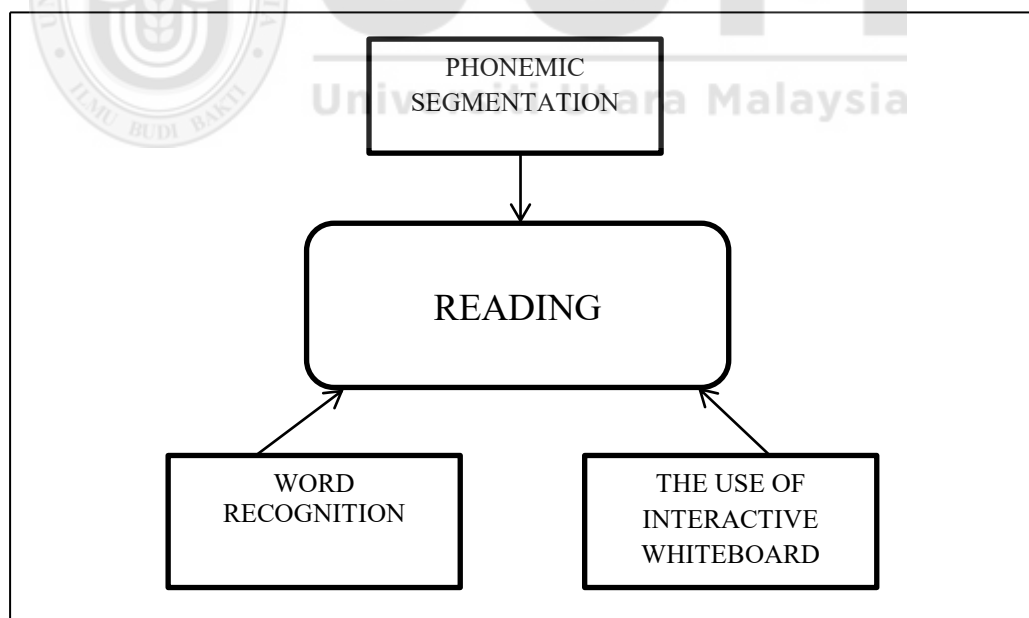
Figure 2.1. The Combination of Three Critical Skills within the Process of Learning to Read

The present chapter reviewed the current literature with respect to theoretical framework relevant to this study as well as the significant role of phonological and phonemic awareness, specifically phonemic segmentation skill, in the process of learning to read and how it contributes to word recognition. Integrating the technology of interactive whiteboard in classroom will be presented as well. Thus, this chapter is divided into ten sections: what is reading, the relationship between reading and word recognition, the relationship between learning to read and phonemic awareness, the relationship between reading and technology, teachers' perceptions regarding the use of phonemic segmentation as well as the use of IWB, the related study and finally the theoretical and conceptual framework. A summary will be presented as well at the end of this chapter.

2.2 What is Reading?

It is evident that reading is crucial for academic success since students gain new knowledge through the skill of reading as well as providing the foundational links needed for lifelong reading success. Concerning the definition of reading, many perspectives have to be taken into account. A number of scholars viewed reading as a linguistic skill which relies on the combination of sufficient language abilities in phonological, semantic, syntactic and pragmatic areas (Fender, 2003; Lonigan, Schatschneider, & Westberg, 2008; Baddeley, 2007; Archibald & Gathercole, 2007; Adams, 1994). Other researchers considered reading as a skill based on high level of complicated cognitive processing (Baddeley, 2007; Dehaene & Naccache, 2001). According to Perfetti and Marron (1998), reading skill can be defined as the identification of printed words.

Another definition was presented by the International Reading Association of America (1999, 2014) and Adams (1994). They defined reading as a complex system made up of deriving meaning from print and requires the integration of the following items: the developing process and perpetuation of a motivation to read, the developing process of relevant efficient strategies to build meaning from print, building sufficient background information and vocabulary to encourage reading comprehension, learners' ability to read fluently, learners' ability to decode unknown words, and finally learners' skills and knowledge in order to comprehend the way phonemes or speech sounds or phonemes are associated to print (International Reading Association, 1999, 2014). On the other hand, the US National Reading Panel's report highlights five elements of reading instruction regarding reading skill. These elements include phonics, phonemic awareness, vocabulary, and comprehension, fluency (National Reading Panel, 2000; Nag, Chiat, Torgerson, & Snowling, 2014). It is important to note that direct, explicit and useful instruction for improving learning of these five elements has been emphasized by research.

Moreover, Adams (1994) explained the reading process by stating that ―the reading process is driven by the visual recognition of individual letters in familiar ordered sequence and is critically supported by the translation of those strings of letters into their phonological correspondences" (p. 237). It has been noted that research strongly indicated that reading is a form of language performance which involves print in its process (Moats, 2000). Moats (2000) stressed that studies which involved various levels of language processing have noted that older poor readers are not able to manipulate sounds in the word structures. This provides a remarkable indication that those older readers are not aware of the single speech sounds in their early stages at school.

Given the fact that students need direct building instruction skill, this will help them grow their needs in the academic fields (Vaughn & Linan-Thompson, 2004; Juel, 1988). Once again, there is often a need to go back to the essential beginning of the reading skill. Research has shown that phonemic awareness and phonics instruction for older struggling readers are the same treatment given to younger students since basics are basics for all ages (National Reading Panel, 2000; Nag, Chiat, Torgerson, & Snowling, 2014).

Consequently, reading is a critical skill that influences all aspects of life, including primary and high schools, universities and into the business world. There is no doubt that reading is crucial for life and it is a ‖foundation skill for school learning and life learning" (Lane et al., 2002, p. 101).

Thus, this section reviewed the components identified as pillars of reading success, skills in reading, strategies in reading, factors affecting reading and finally some related issues in reading.

2.2.1 Pillars of Reading Success

In USA, the National Reading Panel conducted a meta-analysis research. In this research, Ehri et al. (2001) noted that reading success has five key pillars. These pillars include phonics, phonemic awareness, word recognition, reading comprehension, and reading fluency. These five pillars have been widely accepted by educational jurisdictions since they provide improved guidelines concerning early reading instruction (Konza, 2014). Furthermore, to become a reader a young learner must master the areas of phonemic awareness, alphabetic principle, fluency,

vocabulary, and comprehension (Dilorenzo, Rody, Bucholz, & Brady, 2011; Montgomery, 2008; Cihon, Gardner, Morrison, & Paul, 2008).

As children need to be educated about the way that diet and health are interrelated, they similarly need to learn about the way that these five pillars are interrelated. It has been noted that strong phonemic awareness and letter-knowledge encourage reading fluency development, which in turn, assists using word recognition and reading comprehension in order to know what the written text means (Ehri et al., 2001). Griffith and Olson (1992) and Juel (1988) found that phonemic awareness is significant in the beginning stages of the development of reading and it has a remarkable effect on the acquisition of word-recognition skills. Such skills help children read fluently and achieve the intended aim of reading which is known as the comprehension of written text (Stanovich, Nathan, & Zolman, 1988; Perfetti, 2007).

To have a close look at the five key pillars, the following section presents the first pillar of reading success.

2.2.1.1 Phonics

The National Reading Panel (200) defines phonics as the understanding that a predictable relationship exists between the sounds of spoken language (phonemes) and the letters which describe those sounds of the printed language (graphemes). Moats (2000) affirmed that phonics is an instruction with which children are required to learn the relationship between graphemes (letters) and phonemes (sounds). By using the instruction of phonics, they can then remember the patterns of the exact letter as well as the sequences which describe different speech sounds in order to learn to read and spell.

Other terms for phonics encompass letter-sound relationships, letter-sound correspondences, and sound-symbol associations. Phonics instruction has various forms. Such forms include analytic, synthetic, embedded, analogy-based, and spelling-based phonics (Vaughn & Linan-Thompson, 2004).

In Malaysia, the Ministry of Education has recognized phonics as an influential instrument to improve teaching and learning of English language. The existing trends in education showed that phonemic and phonic awareness are crucial skills for the development of key skills of English language literacy (Tajuddin & Shah, 2015).

Further, it has been reported that several forms of phonics instruction differ in several essential ways, based on the pace of instruction, the exact elements of the learning activities, and the size of the unit (National Reading Panel, 2000; Konza, 2014). It has been also noted that phonics is one aspect of instructions that teach individual sound-letter associations and apply these letter-sound correspondences to whole word recognition at developing stages (Konza, 2014). This is also known as the alphabetic principle (Vaughn & Linan-Thompson, 2004; National Reading Panel, 2000).

Alphabetic principle is the understanding of the association of graphemes to phonemes and vice versa (Miller, Lederberg, & Easterbrooks, 2013; Adams, 1994). Students who well obtain alphabetic principle have shifted from the stage of beginning reading where they first must identify single phonemes before mixing these phonemes into a word such as *man* (/m/ + /a/ + /n/) to a more effective stage where they spontaneously identify words and read as whole unit (man) (Villaume & Brabham, 2003). However, a number of challenges that pave the way to becoming

better readers must be outperformed by young children. The discovery of the alphabetic principle of any alphabetic language, like English, is regarded as one of the critical challenges beginning readers confronted by (Torgesen & Hudson, 2006; Perfetti & Marron, 1998; Snow et al., 1998; Adams, 1994).

In her study, Boyer (2010) stated that the alphabetic principle is crucial for reading development since it affords the essential foundation required for the acquisition of the ability of decoding skill. Young children should be able to understand and use alphabetic principle appropriately. Otherwise, those who do not succeed to absorb the alphabetic principle will struggle with word recognition and comprehension of the reading text. Another challenge is that mastery of the alphabetic principle relies on the learners' acquisition in phonological awareness skill, particularly phonemic awareness (Hulme, Bowyer-Crane, Carroll, Duff, & Snowling, 2012; Walsh, 2009; Adams, 1994; Snow et al., 1998; Chard & Dickson, 1999).

In the same vein, research asserted that children need the skill of phonemic awareness if they are to benefit from phonics instruction (Vaughn & Linan-Thompson, 2004; National Reading Panel, 2000). For instance, it has been noted in correlational studies that children's level in phonemic awareness skill and letter name knowledge, at the beginning of kindergarten, can strongly predict reading achievement during the second grade (Wilson & Colmar, 2008; Hogan, Catts, & Little, 2005; Juel, Griffith, & Gough, 1986). Given their predictive role in future reading success for students, phonemic and phonic awareness therefore construct foundational skills required in reading performance (Wright, Conlon, Wright, & Dyck, 2011; Wilson & Colmar, 2008).

34

Consequently, the focus of this study will only be on EFL young learners' phonemic awareness, particularly phonemic segmentation skill. The next section highlights rigorous issues essential to better reading performance. It includes Phonological Awareness, Phonemic Awareness and Phonemic Segmentation.

2.2.1.2 Phonological Awareness, Phonemic Awareness and Phonemic Segmentation

Researchers use an umbrella term to express the concept of phonological awareness. This term is used to demonstrate different levels of metalinguistic skill. Thus, phonological awareness is a component of metalinguistic awareness which is the process of thinking about one's own language (Yopp & Yopp, 2000). Phonemic awareness falls under the umbrella of phonological awareness. Other researchers inaccurately regard the phonological awareness term as the phonemic awareness term which is related to the most complicated level of phonological awareness (Lane et al., 2002). Similarly, Walsh (2009) stated that phonemic awareness is considered as one area of literacy that falls under the phonological umbrella and refers to the smaller units of speech.

According to Chard and Dickson (1999), manipulating phonological awareness means that phonological awareness activities can be classified in terms of complexity into three levels: The first level, which is the least complex one, deals with activities like initial rhymes, rhyming songs and sentence segmentation. This particular level shows awareness in which individual words can separate speech. The second medium level deals with activities that involve dividing words into syllables and words that can be combined into syllables. As for the last level of phonological awareness, it is considered the most complicated level that deals with activities such as blending and segmenting individual phonemes. This particular level is known as

35

phonemic awareness which is considered as the deeper level of phonological awareness that has been causally connected to the skill of early word decoding (Anthony & Lonigan, 2004; Ball & Blachman, 1991; Wagner et al., 1997; Wagner & Torgesen, 1987) (See Figure 2.2).
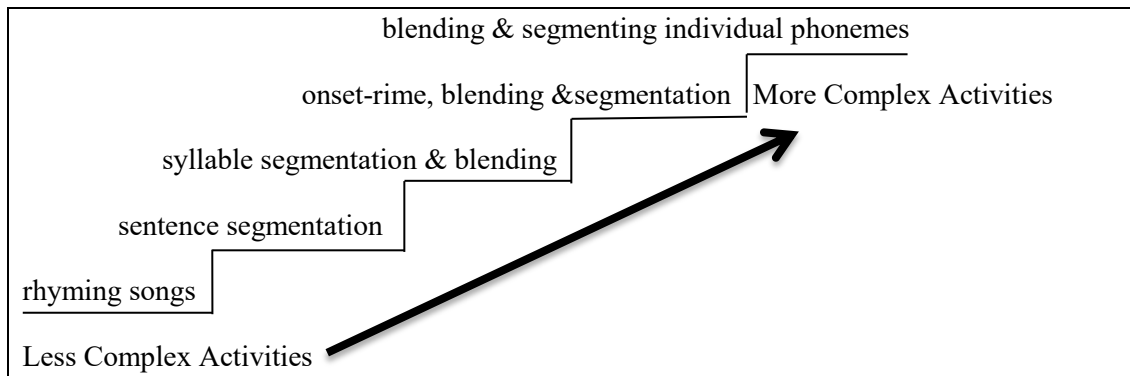
Figure 2.2. Continuum of Phonological Awareness Complexity
(Adopted from Chard & Dickson, 1999)

Thus, the definition of phonemic awareness has been referred to the concept that learners are able to hear and manipulate the sounds in speech. According to Yopp (1992), phonemic awareness has been referred to the understanding that sequences of speech sounds creates spoken words and syllables. For instance, phonemic awareness is to understand that the sounds /h/ /o/ /b/ /ee/ form the word ‗hobby‘ and the word ‗take‘ is made up of the sounds /t/ /ay/ /k/. Furthermore, Hoover (2002) stated that phonemic awareness involves three parts; the linguistic piece which is called the phoneme, the awareness of that piece, and finally the ability to manipulate those pieces attentively. When children possess phonemic awareness, they are then able to deal with phonemes and manipulate them in spoken words (Griffith & Olson, 1992; Liberman et al., 1974).

In this particular section, it should be noted that the most difficult tasks of phonemic awareness are those which include fully segmenting phonemes in spoken words as

well as manipulating phonemes in order to form different words (Adams, 1994).
Further, Manyak (2008) pointed out that activities which include blending and
segmenting of sounds facilitate early and beginning readers' decoding and encoding
skills. Therefore, one can notice the importance of phonemic awareness skills,
phonemic segmentation in particular, in helping young learners recognize words
while they are reading English words. Researchers considered the skill of
segmenting words into individual phonemes as being foundational and critical to
early literacy success (Schuele & Boudreau, 2008). Therefore, this current study
focused on the effect of the skill of phonemic segmentation through the use of
interactive whiteboard on Jordanian EFL beginning readers' word recognition.

2.2.1.3 Word Recognition

Westwood (2001) noted that the process of word recognition occurs when the
learners are able to get back a word from memory, decode the letters and combine
the phonemes to make the intended word. Further, word recognition skill involves
recognizing what a word mean and sounding it out. According to Vaughn and Linan-
Thompson (2004), sounding out words includes the idea that learners can convert the
printed words into speech sounds.

It is important to note that a specific component of the reading processes is word
recognition. Literature confirmed that ―Recognition of the fact that words are
composed of sounds is important for the following step within the period of early
literacy, namely learning to identify words" (Aarnoutse, Van Leeuwe, & Verhoeven,
2005, p. 254). The same scholars argued that word recognition or word identification
forms the foundation of the reading process. They added that word recognition

implies that young learners understand the alphabetic principle or understand the sound-letter association.

Thus, Alhumsi and Shabdin (2016) noted that focusing on the phoneme, which is the smallest unit of sound, enables students to have an opportunity to link a sound with its letter representation. In this way, students can identify the association between sounds and letters by having understood the alphabetic code of the English language in order to start developing such association. Shankweiler and Fowler (2004, p. 487) assured that ―the phoneme is the most critical segment for grasping the alphabetic principle and learning to use it‖. Thus, each letter is distinguished by a particular sound that helps learners recognize the words introduced. These words should be decoded as well. It is important to note that a number of researchers affirmed that the process of learning to read involves representing letters to their individual phonemes (Alhumsi & Shabdin, 2016; Gray & McCutchen, 2006; Foy & Mann, 2006).

In the same vein, Ehri & Rosenthal (2007) observed that vocabulary learning occupies central place in language development. The process begins with recognizing certain words children preserved in their memory. Since words are learned, they stuck in a systematically process of semantic associations with other words (Landauer & Dumais, 1997). Recent brain research indicated that these written forms of words start to get into the brain of children and then move into their language speech sound system (Frost et al., 2009).

Ehri (2005a) proposed developmental phases of word recognition. These phases form the theoretical framework to this study and it will be discussed further in the final part of this particular chapter. In a word, Ehri (2005a) has identified and studied

four phases of development towards full automatic sight word reading: pre-alphabetic, partial alphabetic, full alphabetic and consolidated alphabetic. Ehri (2005a) strongly argued that these are not considered stages that need to be learned sequentially. On the contrary, she called them phases in which these phases simply represent the considerable types of alphabetic knowledge.

Once young learners acquire the skill of word recognition, they have the ability to develop their reading comprehension.

2.2.1.4 Reading Comprehension

Warrington (2006) asserted that the comprehension of word recognition includes learners' ability in recognizing and applying meaning to the written words. Likewise, Snow et al. (1998) emphasized that the skill of reading is used for the purpose of text comprehension that involves representing visual characters and symbols as well as drawing meaning from them. The researchers added that some of the basic skills of reading comprehension involve letter–sound association, interest in literacy, phonological awareness, and vocabulary (Snow et al., 1998). Thus, comprehension means a combination of different skills. It consists of a family of skills rather than occurring by itself (Rapp & van den Broek, 2005). As a result, a number of skills should be taken into consideration in order to develop children's comprehension skill. These skills include developing alphabetic principle, decoding skill, and vocabulary skill (Ganske, Monroe, & Strickland, 2003).

However, struggling in reading skill may be derived from weaknesses in alphabetic principle and other items such as phonemic awareness and its analysis, fluency, vocabulary, comprehension, teacher's reading training, or different integrations

(Berninger, Abbot, Vermeulen, & Fulton, 2006). This result offers a clear indication that reading comprehension involves a number of essential skills that serve as a process that leads to successful reading comprehension in young and adult learners.

Thus, the process of reading comprehension occurs automatically in many situations of readers' understanding written text. Most of them are unaware of the processes they use while practicing reading written texts (Davoudi, 2005). During reading texts, they effortlessly decode words by recognizing letters and mapping letters onto sounds. Then, they understand single sentences by making inferences that integrate various parts in the reading text (Oakhill, Cain, & Bryant, 2003). They then make connections that interconnect different parts of any written text provided.

Consequently, the process of making connections to understand a given text occurs automatically for most readers. It is however effortful for large number of young children. It should be noted that young children gradually develop their ability to make connections in written text to be understood over time (Snow et al., 1998; van den Broek et al., 2005).

Results concerning the development of children's reading comprehension are derived from studies that have mainly included children in elementary schools. There is limited research on younger children who are in preschools or kindergartens (Kendeou, van den Broek, White, & Lynch, 2009). This can be attributed to their ages in which they cannot read yet. Therefore, it is not possible to evaluate their skills in reading comprehension. However, comprehension can be evaluated in a non-reading context by introducing stories in other forms of media. For instance,

stories can be introduced by the use of pictures (Paris & Paris, 2003), or through the use of aural skill (Diakidoy, Stylianou, Karefillidou, & Papageorgiou, 2005).

In this study, the focus will only be on EFL young learners' understanding of phonemic segmentation skill in a way that they can decode words and map letters onto sounds since they will not be exposed to reading passages. Once EFL young learners gain the skill of reading comprehension, they are expected to develop their reading fluency.

2.2.1.5 Reading Fluency

Developing children's reading fluency has been the focus of attention of many years for a number of researchers and theory developers (Jenkins, Fuchs, Van den Broek, Espin, & Deno, 2003; National Reading Panel, 2000; Snow et al., 1998).

Reading fluency is one of the most significant skills to be mastered by children who are in their beginning years of elementary school. It has effectively become well-known element in reading instruction for those who are elementary graders (Kuhn & Stahl, 2003). According to Torgesen and Hudson (2006) and the National Reading Panel (2000), the definition of reading fluency can be achieved when students are able to read text at a quick and accurate speed, make no effort while practicing reading, and pay attention to the appropriate expression. This definition stresses accurate and automatic word recognition as well as integrating other ingredients such as phonemic awareness and letter–sound associations in which the whole process helps students identify words rapidly and correctly (Fletcher, Lyon, Fuchs, & Barnes, 2007).

41

Fluency and automaticity are not the same. In their research, Hook and Jones (2002) differentiate between the two terms, fluency and automaticity. They showed that automaticity relates to reading single words in text quickly and with much effortless act. On the other hand, fluency includes not only automatic word recognition but also how relevant prosodic features (e.g. rhythm, phrasing, and intonation) can be applied at different levels such as the text, the sentence and phrase. It is crucial to indicate that the increase of word recognition skill accurately puts children in an outstanding position that influences the fluency in reading passages (Therrien & Kubina, 2006; National Reading Panel, 2000; Therrien, 2004).

Pikulski and Chard (2005) found that accuracy is a fundamental ingredient of fluency. Therefore, teachers working with beginning readers must spend remarkable time on fundamental word recognition instructions and the skills of word analysis (Pikulski & Chard, 2005). To perform these instructions and skills in an effective way, teachers should daily offer instructions that introduce opportunities that let students learn to read words in an accurate and systematic manner (Snow et al., 1998).

As mentioned earlier, fluency includes a progressive process that seems to be different frequently. The process begins with identifying the letter fluently and sight word recognition. Then, it moves to the fluency of decoding or automaticity. After that, it moves to the fluency of vocabulary and comprehension strategies (Pikulski & Chard, 2005). It should be noted that this developing process is viewed as a keystone in most effective programs of reading instruction (Rasinski, Homan & Biggs, 2009). Furthermore, research has found that the instruction of reading fluency has resulted in students' reading fluency improvements as well as having more important results

in substantial reading achievement of students (Kuhn & Stahl, 2003; Rasinski & Hoffman, 2003). However, a study, conducted by Rasinski and Padak (1998), noted that struggling readers who are in the elementary grades have shown more difficulty in reading fluency compared to word recognition and reading comprehension.

Described as being fluency researchers, Stahl and Kuhn (2002) recommended that students should be provided with opportunities to read sentences again and again. In doing so, they are fostered to make the act of reading look like their daily utterances in which good progress should be made with a number of components such as fundamental decoding, showing the understanding of the reading performance, and expressing the state of confidence occurred in kindergarten or in first grade.

Looking for a suitable framework for reading fluency, Ehri and McCormick (1998) noted that, in the final phase of the theory of word learning, readers unconsciously use different strategies in order to confirm and decode unknown words in a way that results and leads to accurate and fluent reading. The theory systematically explained the way how readers advance through stages in order to accomplish fluency which in turn deeply goes in harmony with a fluency of construct development (Ehri & McCormick, 1998). In addition, reading fluency is regarded a good predictor of the performance of reading comprehension (Fuchs, Fuchs, Hosp, & Jenkins, 2001; National Reading Panel, 2000; Rasinski, 1990).

In the present study, the focus will only be on EFL young learners' phonemic segmentation skill since they learn English with limited exposure to the language. It should be noted that young children should develop their reading skills as they have gained the required skill of phonemic segmentation to achieve the fluency of word

43

recognition by decoding words. The next section discusses the issue of skills in reading.

2.2.2 Skills in Reading

Reading is considered an essential life skill. It is the cornerstone for the success of children in schools and throughout life. It is a foundational skill in their future academic (Chou, Wang, & Ching, 2012; Snow et al., 1998). Research has indicated that if children do not learn the basic early set of reading skills, they are probably to be placed at a distinct disadvantage through their formal schooling years henceforth (Moats, 1999). When children have the adequate language skills, including vocabulary, they will be able to read and easily understand the written text when facing the printed words (Roth, Speece, & Cooper, 2002; de Jong & Leseman, 2001; Snow et al., 1998).

There are two different types of skills that support reading development. The first kind involves skills that identify single words in written text and the other kind deals with skills that help learners build meaning (Torgesen, 2002). The skill which begins with identifying words in print is created from small clusters of knowledge. Many of these knowledge clusters are referred to as ―constrained skills‖ (Paris, 2005). Paris (2005) stated that learners quickly learn these constrained skills. These skills require a brief duration of acquisition. Nevertheless, other skills, like vocabulary, are considered to be unconstrained with respect to the acquisition of the knowledge or due to the learning duration (Paris, 2005). According to Paris (2005), ―constrained skills‖ involve phonological awareness and letter knowledge. These skills are categorized as constrained since they involve a relatively small amount of concepts and everyone has the ability to master them.

44

As a result, young learners in their beginning of reading deal with skills that let them identify single printed words to be learned swiftly and with a brief period of acquisition. Research coalesces with a restricted set of skills that are restricted and used to identify separate printed words. These set of restricted words are acceptable predictors for identifying children who struggle of reading (Foorman & Moats, 2004). As mentioned earlier, the importance of phonological awareness, phonemic awareness, alphabet knowledge, and word recognition is firmly established as fundamental for early reading development. Further, it has been found that the ability of phonemic segmentation is a fundamental, though insufficient, condition for learning to read (Tunmer & Nesdale, 1985). After identifying the skills in reading concerning young children, a quick look should have been given to strategies in reading.

2.2.3 Strategies in Reading

Beginning literacy skills offer a basic framework for the development of successive reading skills. Such skills, regarded as foundational part of emerging reading, involve the awareness of print, initial awareness of grapheme–phoneme relationships, phonological awareness, and the development of vocabulary (Stuart, Stainthorp, & Snowling, 2008; Stuart, 1995; Snow et al., 1998; Roth, Speece, & Cooper, 2002). It should be noted that the most important part of reading is to make the association between the individual letters of the printed word and its representation of the phonological segments (Shankweiler, 1999). In other words, the language structures that match the child's oral communication skills to written communication skills are vital components of the school reading program at early stage. Bursuck et al. (2004) affirmed that the instruction of effective reading

commences early and involves instructional strategies from which phonological awareness and understanding of the alphabetic letters are developed.

Despite the fact that there are strong arguments among researchers about the best method valid for pre-emerging instruction of reading, one fundamental ingredient that appears from the research as a significant foundation for children's literacy is phonological awareness (Yopp & Stapleton, 2008). Though phonological awareness should be noticed as an individual component of language instruction, it has been found that phonological awareness is significant for beginning readers (Yopp & Yopp, 2000). Young learners who start their school without or little instruction in phonological awareness skills can gradually grow these skills by using explicit and direct instruction. In doing so, a learner's reading and writing proficiency will be significantly facilitated and accelerated (Yopp & Stapleton, 2008; Adams, 1994).

It has also been found that students who have been exposed to reading programs which consist of explicit instruction in phonological awareness show more success in their reading achievements than their peers who have been exposed incidentally or have not had the required instruction (Savage & Carless, 2005). Integrating phonological awareness, as a predictor of reading success, into an emerging reading program could recognize those students who potentially struggle with reading at an early stage. Therefore, students who have difficulty in reading can be provided with meaningful, instructional intervention to aid them in their learning needs.

In order to make an active and successful instruction, every single emerging reading skill requires a consideration of explicit instruction; it is integrated into a reading program in which it is progressively relevant as well as meeting learning needs of

every individual child. An example for such instruction comes from demonstrating the instruction of phoneme segmentation. Phoneme segmentation is demonstrated when young learners are provided with a word and try to orally segment the provided word into its smallest components (Adams, 1994; snow et al., 1998).

It has been strongly evident from experimental research that the impacts of teaching phonemic segmentation skills positively can be generalized to reading comprehension (Yeh & Connell, 2008). Yeh and Connell (2008) conducted a randomized study and found that phoneme segmentation training for children who are 4 and 5 years old resulted in improvement in the expected performance of reading in future. Moreover, phoneme segmentation is a skill that better predicts the early advance in learning to read than other skills such as rhyming skill or vocabulary knowledge. Consequently, the focus will only be on EFL young learners' phonemic segmentation skill as they are in their early years of learning English language.

2.2.4 Issues in Reading

There are a number of critical issues in the area of reading. In this study, these issues will be presented in terms of the impact of L1 on L2 as well as the issues of cross-language transfer between L1 and L2. It should be noted that L1 refers to the child's first language that is Arabic, while L2 refers to child's foreign language which is English. In Jordan, English is presented as a foreign language (Altamimi & Rababaa, 2007).

47

2.2.4.1 Impact of the First Language on the Reading of the Foreign Language

From the outset, Arabic language deploys an alphabetic orthography which has consonant and vowel phonemes correspondence (Fender, 2003). The orthographic system of the Arabic Language is phonologically characterized as transparent (Abu-Rabia, 1999) in which it should help Arab learners facilitate their L1 word recognition (Abu-Rabia, 1997). On the other hand, the orthographic system of the English language is phonologically described as less transparent (Fender, 2003) due to the fact that the English orthography has a number of irregularities concerning the representation of vowels and the various sensitive contexts of phoneme-grapheme inconsistencies (Cortese & Simpson, 2000). Hence, fluent readers of English are required to carry phonological processing and orthographic skills in order to acquire and simplify word recognition (Siedenberg, 1992). In other words, Jordanian EFL children tend to depend on these skills developed through their L1 literacy when they experience the skill of reading English words whether in texts or in isolation (Altamimi & Rababaa, 2007).

Thus, Fender (2003, p. 294) posited that learners' dependence on their native skills leads to ―a slower and perhaps even less accurate [EFL] word recognition". Consequently, Jordanian learners should depend on English phonological processing skills; this includes phonological awareness of English which is expected to develop their word recognition of English (Altamimi & Rababaa, 2007; Perfetti, 2007; Shankweiler, 1999). In addition, high attention has to be offered to the development of Jordanian EFL beginning readers' phonological awareness of English and particularly phonemic segmentation in order to get a quicker and a more accurate EFL word recognition and literacy development (Bing, Hui, & Bingxia, 2013). The previous process can be arguably done by explicit instruction of phonological

awareness, particularly phonemic segmentation (Bing, Hui, & Bingxia, 2013; Snow et al. 1998; Ball and Blachman 1991) in which it poses challenges that phonological awareness is only obtained truly and naturally (Foorman & Liberman, 1989). In a word, the aforementioned demands and the possibility of L1 interference may have driven Arab EFL learners into additional burden and more challenges.

2.2.4.2 Cross- Language Transfer Between the First Language and the Foreign Language

It has been argued that theories on cross-linguistic transfer probably offer a better understanding of how a learner's L1 knowledge affects his/ her ability to acquire literacy in L2 (Cardenas-Hagan, Carlson, & Pollard-Durodola, 2007; Cummins, 1979). Leafstedt and Gerber (2005, p. 227) defined cross-linguistic transfer as ―the access and use of linguistic resources in L1 by students while learning other languages".

Thus, by facilitating L1 literacy, it has been found that the acquisition of required skills can be transferred to subsequent language learning in L2 (Mizza, 2014; Cummins, 1979). Thus, if children do not have the required support of such literacy skills, they are likely to encounter deep challenge in the acquisition of literacy in subsequent languages (Bialystok, 2007; Cummins, 1979). Moreover, research showed that the early cognitive development of L1 in young children is considered to be essential before L2 learning due to the facilitation of explicit learning (Larson-Hall, 2008; Tellier & Roehr-Brackin, 2013; Cummins, 1979).

Finder (2003) claimed that Arab learners would depend on their processing skills in phonology evolved from their L1 literacy experience when they read the words in the second language. Consequently, they will encounter a challenge in acquiring

word recognition skills of L2. Further research support this claim that EFL learners in the Arab world may encounter different kinds of hardships at the word level when they are reading their school English books (Brown & Haynes, 1985; Ryan & Meara, 1991).

Viewed as a scaffold that supports literacy skills, L1 can facilitate L2 learning acquisition. Research indicated that ―cross-language transfer‖ requires that learners of a language can transfer skills they have in their first language in order to learn the second language (Durgunoglu, 2002).

According to Alshaboul et al. (2014), the degree to which phonological awareness in L1 facilitates learning to read in L2 refers to cross-language transfer. It is a critical research area which is concerned in the phonological awareness of bilingual children. It has been noted that similarities between two languages regarding the development of phonological awareness propose that the ability of phonological awareness skills can be transferred between these two languages, L1 and L2 (Cisero & Royer, 1995).

Further, research has investigated the relationship between word reading in English and phonemic awareness in Spanish (Durgunoglu, Nagy, & Hancin-Bhatt, 1993). It has been found learners did well on three phonemic awareness tasks such as segmentation, blending and matching given in Spanish. This good performance was connected with learners‗ ability to read English words and pseudo-words. In another study, Oney and Durgunoglu (1997) noted how Turkish children develop their literacy in Turkish language considered as a language with a transparent orthography, meaning that Turkish has systematic mappings between phonology and

orthography. In their study, first graders were assessed in the beginning of the school year. A number of factors such as phonological awareness, word and pseudoword recognition, letter recognition, syntactic awareness, spelling and listening comprehension tests were assessed. The effect of these factors on development in subsequent spelling, word recognition, and reading comprehension was also examined. At the end of the study, the findings suggested that in the early stages of reading, phonological awareness contributed to word recognition. This is similar to the situation with English language (Durgunoglu & Oney, 2000). Durgunoglu and Oney (2000) argued that metalinguistic factors of one language can transfer to the second in which L2 reading development can be facilitated. Comeau, Cormier, Grandmaison, and Lacroix (1999) encouraged the previous result and contended that English phonological awareness was highly and reciprocally connected to reading achievement in French.

Locally, a research conducted by Alshaboul et al. (2014) investigated Arabic phonological awareness to check whether it can assist Jordanian learners in performing well on the transfer tasks of English language. In the study, they tested all participant learners using tasks that involve large phonological units such as syllable, onset and rime and small phonological units. They concluded that the reason of children‘s poor performances on L2 could be related to their poor performances on phonological awareness of L1.

To summarize, the present study will only focus on Jordanian EFL young learners as they are in their early stage of learning to read English. One can note the importance of the role foundational skills play in learning to read and their urgent need to be acquired. Once acquired, Jordanian EFL young learners have the ability to develop

more sophisticated skills, particularly phonemic segmentation skill, in order to become better readers since the previous studies have not dealt with the skill of phonemic segmentation and its relation to word recognition through using the interactive whiteboard. The next section discusses the relationship between reading and word recognition.

2.3 The Relationship between Reading and Word Recognition

Reading is a skill that is prominently connected to vocabulary. Many different studies have been undertaken to find out about this relation. Large numbers of words are identified and understood by fluent readers who practice reading without difficulty comparing to those who have limited number of words (Samuels, 2002, as cited in Bromley, 2007). Another study conducted by Stahl and Fairbanks (1986) noted that students who recognize large numbers of words do well while dealing with the text and have high score on achievement tests than those who identify small numbers of words. Likewise, in a study conducted by Zhang and Anual (2008), there has been noticeable correlation between reading comprehension and the level of learners' vocabulary. Hence, vocabulary knowledge is required to understand the text better. Since this study deals with the influence of phonemic segmentation on Jordanian EFL young learners' word recognition, the emphasis in this section will be on two components of skills related to decoding skills and comprehension. In this study, word recognition was assessed through word recognition test.

It has been found that there are two sets of skills that are crucial in early reading and are recognized by most schools of thought: there are skills that are related to decoding such as phonological processing and word reading. There are skills, on the other hand, which are related to comprehension such as vocabulary knowledge

52

(Gough & Tunmer, 1986; Snow, 1991). In early reading development, i.e. from pre-kindergarten through first grade, a number of researchers stressed that phonological processing skills are crucial to initiate reading ability since they are the foundation of decoding or the ability to match the sounds of a language with the letters of the same language (Frost, Madsbjerg, Niedersoe, Olofosson, & Sorensen, 2005).

Furthermore, Wagner and Torgesen (1987) stated that phonological processing skills are considered as the most crucial predictors and major cognitive determinants of word recognition skills; these skills begin to become known in the first grade and burgeon around second grade. To confirm the previous claim, they reviewed the literature and founded three main types of phonological processing abilities that support word recognition. The first type is concerned with phonological awareness. The second type is the phonological recoding in lexical access (i.e. the bringing back of phonological codes from long-term memory), and the final one is the phonetic recoding for holding information in the short term memory (i.e. phonological coding in working memory).

According to Gathercole and Baddeley (1990) the phonological memory term refers to the ability that children have to create temporary phonological designs of unfamiliar sound sequences in short term working memory. This ability has also been connected to vocabulary acquisition. More specifically, it has been noted that phonological memory has a direct contribution to vocabulary by the way of predicting vocabulary knowledge (Baddeley, Gathercole, & Papagno, 1998; Gathercole, Willis, Emslie, & Baddeley, 1992; Gathercole & Baddeley, 1990). Furthermore, a number of scholars have found that phonological memory has a critical part in the second language acquisition (Cheung, 1996; Masoura &

53

Gathercole, 1999). It will be significant to find out how bilingual readers acquire reading skill through phonological processing.

As for second language readers, a study conducted by Durgunoglu et al. (1993) investigated the relationships between reading and phonological awareness in native Spanish speakers who learn English as a second language. The researchers concluded that first graders' phonological processing skills in L1 and L2 correlated with word recognition in the target language (L2). Moreover, the performance of young learners who acquired powerful Spanish phonological awareness as well as word recognition skills when they read English words and English pretended words is better than those who acquired poor Spanish phonological awareness as well as the skills of word recognition.

In the same thread, Ehri et al. (2001) confirmed that phonemic awareness is one type of metalinguistic ability that has a great role in early reading. A number of researchers investigated the relationship between metalinguistic skills and vocabulary. They particularly found that phonemic awareness in English accounted for unique variance in vocabulary learning of English (Yeung, Siegel, & Chan, 2013) and English word reading (Keung & Ho, 2009).

Thus, the current study shows (like other studies such as Linan-Thompson & Vaughn, 2007; Ball & Blachman, 1991; Chard & Dickson, 1999; Lundberg, Frost, & Petersen, 1988; and Griffith & Olson, 1992) that young learners can be taught to segment words into phonemes. Ball and Blachman (1991) found that the phonemic segmentation skill connecting to alphabetic letters significantly improved the early reading and spelling skill. They noted that children's energy and attention must focus

on processes of word recognition. However, these studies did not explore the effect of phonemic segmentation skill on young learners' word recognition through using the interactive whiteboard.

In other words, it has been found that phonemic awareness skill obtains varying levels of statistically strong prediction on English word recognition performance. Therefore, it should be noted that there is a clear relation between phonemic awareness and learning to read. In addition, once phonological processing acquired, EFL beginning readers' word recognition can be facilitated during English phonemic awareness instructions, particularly phonemic segmentation skill.

2.4 The Relationship between Learning to Read and Phonemic Awareness

This section will discuss the issue of learning to read in relation to phonemic awareness skill in general and one of its components which is phonemic segmentation skill in particular.

2.4.1 Phonemic Awareness and Learning to Read

A teacher, who has struggling readers, often tries to look for appropriate techniques that help learners improve their reading skills. One of these skills is phonemic awareness that has been described as a critical skill in the process of learning to read (Hoover, 2002). A learner who struggles with reading frequently needs additional instructions in literacy skills in order to be a better reader. The lack of these instructions can create a gap that may accompany young learners in their later school grades (Wang, 2008). Berg and Stegelman (2003) noted that inadequate level of phonemic awareness skills and instructions can cause difficulties in language learning for a large number of students, particularly in spelling and reading.

A large number of students in the beginning years of primary school encounter difficulties with reading in which their ability to be further successful at school as well as thriving in life skills might be influenced. A number of scholars suggest that the first stages of learning to read should be in the very beginning, where many students experience difficulties and encounter problems with reading (Manyak, 2008; Lane et al., 2002).

Further, Adams (1994) pointed out that reading in English language is a complicated system of skills and knowledge in which every part of this system works collectively and enhances each other. To decode the written words in this intricate system, children learn that the spoken words they hear are composed of sounds and letters of the alphabet represent these sounds (Ehri, 2005a; Glenberg, Goldberg & Zhu, 2011). In order to identify a word, Morris (1993) clarified that a child may have the ability to analyze words to explain the sounds involved in words and eventually connect them to letters. Linan-Thompson & Vaughn (2007) also explained that two letters may represent one sound, some letters have more than one sound, and letter names do not vitally describe that letter's primary sound. The authors agreed that there is a connection between phonemic awareness that is the awareness of speech sounds and beginning reading.

Phonemic awareness has a crucial role to play in the reading acquisition of children, and it is considered essential for later autonomous reading (Goswami, 2001; Yopp, 1988). There is ―compelling evidence" (p.779) in which phonemic awareness is needed to develop to letter-sound relationships when moving through the stages of reading acquisition (Juel, 1991). It should be noted that a developed awareness of the sounds in words has been corresponded to awareness of how the alphabet symbols

56

are used to spell and read words. Children having phonemic awareness can rhyme, form words by blending sounds, count the sounds in a word, segment words into sounds, and manipulate such as substitute, add, and delete sounds in words (Yopp, 1988).

Like many other researchers, Yopp (1995) found out that most young learners who enter kindergarten lack phonemic awareness. She suggested that since there are so many students lacking phonemic awareness skills, the need for quick and effective intervention is encouraged in order that students can make progress in the regular education curriculum without providing a referral to special education services. A study was conducted by Ball and Blachman (1991) showed that there will be ongoing difficulties in reading and spelling instruction to children who do not receive these skills before formal reading instruction as they move through their educational experiences.

Literature supports the claim that phonemic awareness instruction plays an effective role in both teaching phonemic awareness skills and helping children acquire the skills of reading and spelling. Regarding the suggestion presented by the National Reading Panel (2000) that phonemic awareness becomes an integrated component of daily reading instruction, a meta-analysis study was conducted by Ehri et al. (2001). The researchers contented that many experiments showed the same findings concerning the benefits of phonemic awareness instruction. Thus, these experiments provided solid evidence and encouragement to the claim that the instruction of phonemic awareness is more proactive in teaching the skills of phonemic awareness as well as assisting young learners in gaining the skills of spelling and reading than any other alternative forms of instruction. Hence, phonemic awareness is

undoubtedly related to the success of reading and that children benefit from phonemic awareness instruction.

A study conducted by Cunningham (1990) investigated whether explicit verses implicit instruction in phonemic awareness had influence in children's achievement in reading. She found that explicit instruction which connected phonemic awareness to the reading process was more effective than skill and drill. Children showed more motivation to use phonemic awareness and strategies for decoding as well. It has been found that Yopps' (1995) statement lent support to Cunningham's findings; she stated that ‒phonemic awareness should not be addressed as an isolated skill to be acquired through drill type activities" (p. 27), and that ‒phonemic awareness activities should be playful and engaging, interactive and social, and should stimulate curiosity and experimentation with language" (Yopp & Yopp, 2000, p.132).

It is important to note that instructions in phonemic awareness teach students the sounds in terms of thinking, noticing, and manipulating them in spoken language (Yopp & Yopp, 2009; Yopp & Yopp, 2000). However, Woods (2003) suggests that children can and should informally develop phonemic awareness skills before school. Phonemic awareness does not only predict success of reading skill in the future, it also has been found to be entirely essential for students who are learning to read. Hecht and Close (2002) stated that emergent learners show a deep disposition to increase their phonemic awareness when the instruction is teacher-led and specific.

Due to the large number of contentions, it may be hard to understand what role phonemic awareness plays in reading. Walsh (2009) possibly presented the best case regarding the state of phonemic awareness whether it is truly a prerequisite or it is a result of learning to read. Walsh suggested that if one thinks that phonemic awareness is a result of reading then reference to phonemic awareness skills is made. The second view involves the idea that one has to understand that phonemic awareness is developed prior to phonemic awareness skill and knowledge of the alphabet; children can only perform a skill that they have prior knowledge of and phonemic awareness skill is then supported by phonics.

As indicated above, building a solid literacy education is regarded a very important action required for developing phonemic awareness in beginning readers. Griffith and Olson (1992) proposed that if students have the ability to acquire a strong understanding of phonemic awareness, they will then become more aware of the basic sounds of speech. In addition, Edelen-Smith (1997) highlighted the importance of early training in phonemic awareness that is considered to be a primacy in the classroom in order to help and improve early reading instruction and reduce reading failures.

As a result, students need instruction which is relevant for their level of phonemic awareness. Phonemic awareness includes various skills. It should be then targeted during instructional times. Three of the skills were consistently addressed in research. One of these skills is phoneme segmentation. Since this study focuses on the impact of phonemic segmentation skill on EFL beginning readers' word recognition, an inquiring look should be focused on the present literature regarding this particular skill.

2.4.2 Phonemic Segmentation Skill

Phonemic awareness is regarded as a skill that predicts beginning learners' success in the English reading skill (Torgesen, 2004; Chard & Dickson, 1999; Yeung, Siegel & Chan, 2013). Concerning young learners' early literacy, literature supported the significance of phonemic awareness, particularly segmenting and blending skills, in the stages before literacy and the development of early literacy (Nation & Hulme, 1997; Yeh, 2003; Anthony & Lonigan, 2004). Therefore, the skill of phonemic segmentation is very crucial in these critical stages of early literacy because of its link with future reading success (National Reading Panel, 2000; Schuele & Boudreau, 2008; Vaughn & Linan-Thompson, 2004).

To date, there has been a growing consensus in which beginning readers who struggle with reading, require attentive instruction that has particular skills. For instance, young readers need to know the manipulation of phonemes which are known as the smallest unit of speech. It has been noted that young readers are required to grow the sense that they are able to manipulate and hear separate sounds before being able to understand the printed letters (Gyovai, Cartledge, Kourea, Yurick & Gibson, 2009). Linan-Thompson and Vaughn (2007) strictly argued that phonemic awareness is a skill that is based on aural activity which deals with the progress of a number of phonemic awareness skills such as phoneme identification, manipulation, segmenting and blending skills. Hence, phonemic segmentation is one of several skills of phonemic awareness in which beginning readers can segment words into individual phonemes. For example, ―What are the sounds in bag?‖ (Ehri et al., 2001)

The skill of phonemic segmentation is however regarded as the most difficult skills of phonemic awareness (Yopp & Yopp, 2009; Griffith & Olson, 1992; Adams, 1994). It has a strong correlation concerning learning to read and word recognition (Stanovich, 1986; Adams, 1994) and it forms an essential bridge that results in the development of word recognition (Alhumsi & Shabdin, 2016). For example, Gyovai et al. (2009) confirmed that the level of phonemic awareness, particularly phonemic segmentation, is the most effective level that predicts reading as well as spelling skills in the beginning years of school. As for Adams (1994), identification of phonemes is supposed to be the easiest skill. This skill includes recognizing the initial, final and middle sound of a word.

To clarify how the skill of phonemic segmentation works, Griffith and Olson (1992), Adams (1994) and Manning (2005) asserted that phoneme segmentation is demonstrated when a teacher gives students a word and ask them to try to orally break the word apart into its smallest parts. Students who have the ability to segment words should also have the ability to write and read the word as they divide it into the smaller phonemes. Additionally, as for teaching phonemic segmentation, Kindervater (2012) and Woods (2003) included a kinesthetic manner in order to have learners become comfortable with this skill. The procedure is as follows: the student says a familiar word and divides it into its separate phonemes. When a specific finger is designated for each phoneme, the activity then becomes kinesthetic.

Being a progressive process, Manning (2005) suggested that phoneme segmentation skill should be demonstrated in four different levels. The first level involves no segmentation of the word but the student repeats the word being heard instead. In the second level, the students are required to divide the word by syllables. Third level

61

requires a student to separate one of the syllables into segments. The fourth level is accomplished when a student segments all of the phonemes in the word (see Table 2.1). Thus, in order to help educators improve the development and success of each single student when practicing segmentation skill, they should be able to identify the precise progressive level in which a student is segmenting words into phonemes.

Table 2.1

The Four Different Levels of Segmenting the Word "pony"

Progressive Level	Student Reaction	Demonstration
Level 1	/pony/	There is no segmentation of the word
Level 2	/po/-/ny	Words are divided by syllables
Level 3	/p/-/o/-/ny/ or /po/-/n/-/y/	Students separated one syllable into segments
Level 4	/p/-/o/-/n/-/y/	Students segmented all phonemes

(Adapted from Manning, 2005)

Phonemic segmentation tasks have also been found to be an effective component of phonological awareness program (Chiappe, Siegal, & Wad-Wooley, 2002; Chard & Dickson, 1999; Good, Simmons & Smith, 1998). Phonemic segmentation requires children to break down words into their constituent sounds (Tunmer & Nesdale, 1985; Yopp & Yopp, 2000; Adams, 1994). It has been found that segmentation skill facilitates the reading process (Adams, 1994; Lundberg et al., 1988; National reading Panel, 2000; Yeh & Connell, 2008). It is important to note that researchers have showed that the skill of phonemic segmentation has increased more success in word recognition (Ball & Blachman, 1991; Kim, Kim, & Lee, 2007) and reading comprehension (Yeh & Connell, 2008). This skill probably supports reading

development for students with LI (Language Impairments) as well (Al Otaiba, Kosanovich, & Torgesen, 2012).

Phonemic segmentation is thought to contribute to a child's development in reading performance as it reinforces the link between sounds and their corresponding letters (Ball & Blachman, 1991; National Reading Panel, 2000). Findings from two studies showed that the phonemic segmentation skill was to be a strong predictor of successful reading in future. In one study conducted by Nation and Hulme (1997), phonemic segmentation skill was found to be a significant predictor of performance concerning measures of phonological awareness and word recognition at the end of second-grade. It was also found to be a stronger predictor than rhyme, alliteration, and onset-rime segmentation skills.

As for the second study, Yeh and Connell (2008) found that the skill of phonemic segmentation is a better predictor of early development in learning to read compared to vocabulary knowledge or rhyming skill. However, these two studies did not focus on the phonemic segmentation skill and its effect on word recognition through incorporating the interactive whiteboard.

Other researchers have noted that a lack of the phoneme segmentation skill is an indicator of difficulty in early reading. This difficulty can persist with a child throughout his/her school years (Ball & Blachman, 1991; Liberman, 1973). This result proposed that those children who do not have the ability to segment words into their single sounds should be given early training in this particular skill (Chard & Dickson, 1999; Tunmer & Nesdale, 1985).

Being important component to the reading process, phonemic segmentation did not appear to develop naturally. It is evident to indicate that researchers found that young children experience difficulty with respect to these types of tasks of phonemic awareness (Ball & blachman, 1988; Liberman, 1973; Lundberg et al., 1988). For instance, Liberman (1973) noted that young children could not segment words into their separate sounds until the age of 5. The minority of these children could successfully do that skill without assistance. Although 6-year-old children showed more success with phoneme segmentation, there were still nearly 30% of children who were unable to complete such tasks independently. However, researchers found that children in kindergarten stage can be successfully taught to divide words into their individual phonemes. Such training can help them in generalizing their skill in segmentation to words that are not included in the intervention (Ball & Blachman, 1991).

Most training programs in phonemic awareness involve segmentation activities such as alliteration or phoneme deletion. Research conducted by Ball and Blachman (1991) and Liberman et al. (1974) indicated that the majority of kindergarten children do not have the ability to segment words into its constituent phonemes and this typically leads to a failure in segmentation tests. In addition, their research showed that these kindergarten children can benefit from phonemic awareness instruction as well as alphabetic coding regarding the issue of literacy acquisition.

Research in Sweden conducted by Lundberg et al. (1980) demonstrated that the single most powerful predictor of future reading and spelling skills was the ability to divide words into their individual phonemes within a group of children who were at the end of their kindergarten year.

Another research conducted by Vellutino and Scanlon (1987) provided evidence that phonemic segmentation is connected to reading achievement. This causal relation was for normal and poor readers. The researchers suggested that lack in phonemic decoding may cause deficiencies in phonemic segmentation. This could hamper word recognition on the basis of the English alphabetic principle. Additionally, phonemic decoding, oral reading and segmentation ability were essentially related skills.

Extensive research by Adams (1994) and Vellutino and Scanlon (1987) suggested that phonemic awareness associated with knowledge of how the sound segments related to letters leads to word recognition. One of the important factors that lead to successful reading is word recognition (Chard & Dickson, 1999).

Nation and Hulme (1997) compared four phonological skills. These skills included phonemic segmentation, rhyme sound categorization, alliteration, and onset-rime. The researchers found that phonemic segmentation was the strongest predictor of reading and spelling ability compared to onset-rime skill which was the weakest predictor when analyzing the four skills. Their findings concurred with other researchers (Yeh & Connell, 2008; Liberman et al, 1974) who determined the increase of the phonemic segmentation skill with age as well as describing as being a strong predictor of reading ability. Given its strong predictive value, the researchers suggested that phonemic segmentation is the most sensitive measure that helps student screen and identify their early reading problems.

In another study, specifically in Malaysia, Tajuddin and Shah (2015) examined the competencies of primary school English teachers experienced in education field in

respect of phonemic awareness instruction. In their study, the researchers randomly selected the teachers and data were anonymously collected in the form of a Survey. This survey examined the phonemic awareness knowledge and skills of teachers. At the end of the study, the researchers concluded that significant numbers of English teachers of primary schools are inadequately prepared with regard to the instruction of phonemic awareness. The results showed that the teachers of primary schools have limited knowledge concerning the conceptual background of phonemic awareness. Furthermore, they are generally unable to select activities or appropriate task materials and lack the skill of phonemic segmentation, analyzing the printed words into its individual sounds.

Literature has demonstrated that phonemic awareness instruction may help students perform better in future reading, but most are conducted in English as L1 context. For example, in Reading and Van Deuren's research (2007), their kindergarten participants are divided into two groups. Both groups of phonemic-aware and non-phonemic-aware children are provided with daily in-class phonemic instruction after enrolling elementary school. Evidence showed that the first graders who did not receive phonemic awareness training in kindergarten can be comparable to those who had been previously instructed in phonemic awareness. The results also showed that with four months of phonemic awareness instruction, those children who are non-phonemic aware can reach an average performance at the benchmark level by the middle of 1st grade on the DIBELS Phoneme Segmentation Fluency and Oral Reading Fluency tests. In other words, the group of early phonemic awareness training scored higher on phonemic segmentation and had fewer children identified for reading difficulties at the beginning of 1st grade. By middle of first grade, literacy skills of children that had no early training were comparable to skills of children with

66

the same training in kindergarten. The findings suggested that learning phonemic awareness skills during the first grade encouraged grade level reading. It is important to note that learning skills of phonemic awareness can occur within a short period of time.

There is now strong evidence from experimental studies that teaching segmentation skills has positive effects that can generalize to reading comprehension (Yeh & Connell, 2008). Training in phonemic segmentation for 5-year-old children and 4-year-old children in a randomized study resulted in improvement in anticipated future reading performance. Furthermore, phonemic segmentation skill is a better predictor of the process of developing learning to read than vocabulary knowledge or rhyming skill (Yeh & Connell, 2008).

In Jordan, beginning readers may not encounter a full-blown sense of English phonemic awareness at the time of entering school (Al-Shaboul et al., 2013). Fortunately, in USA, Reading and Van Deuren (2007) found that phonemic segmentation, which is one of the phonemic awareness skills, can be gained within duration of time. It also helps students reveal the obscurity that leads them to struggle with reading in the very beginning reading stages. In other words, reading ability may explicitly develop through the assistance of the instruction of phonemic awareness skills.

As mentioned earlier, phonemic awareness instruction, particularly phonemic segmentation is thus regarded useful to beginning readers (Ball & blachman, 1991) and it is considered an effective predictor of learners' beginning English reading success (Griffith & Olson, 1992; National Reading Panel, 2000).

Before moving to the next section, it should be noted that one of the remarkable benefits of phoneme segmentation skill is to help beginning readers spell words. When students begin segmenting words in order to hear all of the individual phonemes presented, they are beginning to spell (Ouellette & Senechal, 2008). Segmenting phoneme is one of the specific developmental sequence students follow when learning how to spell. Ehri et al. (2001) pointed out that the sequence of skills includes rhyming, comparing initial phonemes, blending phonemes into words, and segmenting phonemes.

In relation to the previous studies, few studies however examined the effect of phonemic awareness on reading. They did not examine the effect of the phonemic segmentation skill on young learners' word recognition especially through using instructional technology such as using the interactive whiteboard. Thus, the present study demonstrates and focuses on EFL beginning readers' phonemic segmentation skill in which it can be acquired within duration of time since there is little research on phonemic awareness instructions of EFL learners of English (Al-Shaboul et al., 2013). Hence, this study deals with examining the effect of phonemic segmentation skill as one type of phonemic awareness instructions as well as the use of the interactive whiteboard on word recognition of Jordanian EFL beginning readers.

2.5 The Relationship between Reading and Technology

Technology affords a continuous change that reflects the way in which learners ponder, communicate and talk in the educational environment. This probably results in the change of the way learners learn and act inside classroom (Gilakjani, Lai-Mei, & Ismail, 2013; Yaworski, 2000). This section discusses the relationship between learning to read and technology. It should be noted that technology has provided

teachers with additional innovative and creative ways in teaching in order to help students develop their skills in reading (Chambers et al., 2011; Cheung & Slavin, 2011; Chambers, Abrami, Slavin & Madden, 2011; Englert et al., 2005). Specifically, in this study, the IWB will be introduced as one kind of the technological tools (Smith, Higgins, Wall, & Miller, 2005; Becta, 2003; Singh & Mohamed, 2012).

2.5.1 What is Interactive Whiteboard (IWB)?

In the United Kingdom, Hall and Higgins (2005), Smith et al. (2005), and Becta (2003) offered a clear explanation of IWB by stating that the interactive whiteboard is a large touch-sensitive board linked to a computer and a digital projector. The image from the screen of the computer can be shown on the large board. The board will then take the place of the computer either by using a special pen or by touching the board with a finger. Moreover, it has been viewed as a tool for teaching enhancement and a tool for learning support (Smith et al., 2005).

Based on the above explanation and the theory of which this review is conducted, one of the several benefits of practicing this technology is that the instructional message is received in two ways; two channels presented as words and as pictures. It has been noted that offering both words and pictures with emerging learners supports powerful understanding of the material being offered (Mayer, 2003). It is important to note that the Mayer's theory will be presented accordingly.

2.5.2 Advantages of the Use of IWB

Wall, Higgins and Smith (2005) indicated that ─IWBs can be effective tools for initiating and facilitating the learning process, especially where pupil participation

69

and use of the board is utilized" (p. 866). The researchers concluded that there is a relationship between the interactive whiteboards and students' views of learning, especially visual and verbal-social learning. Students were motivated by the color and movement in a way that reflected their attention and concentration.

The above statements provide a clear indication that the interactive whiteboards as instructional tools have a noticeable impact on learning process. In short, interactive whiteboards offer what students actually need to promote and develop their thoughtfulness which will positively reflect on their performance. Moreover, when students are able to combine both visual and aural information, learning process will be facilitated. Students can then make relations between what they hear and what they see (Smith et al., 2005).

Given the effective use of the interactive whiteboard in classrooms, it has been used in various ways and it has a number of advantages with respect to teaching and learning (Türel & Johnson, 2012; Hall & Higgins, 2005; Glover, Miller, Averis, & Door, 2007). However, the interactive whiteboard has disadvantages such as the lack of the experience of the teachers in relation to the use of this form of technology, technical problems, and the reflection of the shining light coming through the widow (Hall & Higgins, 2005). Additionally, in her study, Johnson (2012) investigated whether there is a significant difference in reading achievement among third grade students who received the SFA reading model where IWBs are not used compared to students who received the SFA reading model where IWBs are used. Her finding was surprising. Her study found that there is no significant difference in reading achievement among third grade students who received the SFA reading model with

the use of IWBs compared to students who received the SFA reading model without the use of IWBs.

Given the disadvantages of the use of the interactive whiteboard, this instructional tool of technology proves to get a considerable position in literature.

2.5.2.1 Interactive Feature

A study conducted by Smith et al. (2005) clarified how a lesson can be interactive. Students interact with lessons when they physically manipulate texts and other images on the touch screen. The use of the interactive whiteboard in primary and secondary schools encourages students' interest, more powerful learning, and more sustained focus. Teachers should be aware of the ways of the use of such technology that can be used to promote various learning styles. There is a distinguished connection between the teacher and the students through interactive lessons (Glover et al., 2007). Smith, Hardman, and Higgins (2006) noted that the interactive feature leads to higher levels of participation in the classroom as well as providing a remarkable increase in the academic performance. In addition, lessons created on the interactive whiteboard can boost students' motivation (Solvie, 2004; Becta, 2003; Hall & Higgins, 2005). As a result and based on the previous studies, the researcher decided to choose the interactive whiteboard technology as an instructional tool in this study.

2.5.2.2 Integration

The interactive whiteboard is considered as one kind of technology that can be integrated into the reading classroom. It is also used as an instructional tool that is a highly interactive presentation tool where teachers and students can manipulate and

control programs through using a touch sensitive screen (Bennett & Lockyer, 2008; Beauchamp & Kennewell, 2008; Reedy, 2008; Hall & Higgins, 2005).

2.5.2.3 Positive Attitudes

Recent technological tools change the way students think and behave. In Australia, Geer and Sweeney (2012) indicated that these new technological tools, such as interactive whiteboards, are changing the way students gain knowledge as well as the way they communicate with each other. It is evident that using the interactive whiteboard technology with learners is one way to engage and motivate them in a lesson or activity.

In a study conducted by Beeland (2002), it has been found that using interactive whiteboard technology beget the increase of student engagement in the classroom. Furthermore, when students are engaged during lessons, it has been concluded that there are fewer behavior issues, students show more positive attitudes, and less time is taken away from instruction. In the same study, Beeland (2002) noted that students were provided with three different sensory experiences which included visual, auditory, and tactile when practicing activities on the large touch screen. He stated that visual learning can range from pictures and text to more complicated aspects such as animation and video. Activities that include auditory learning involve displaying words on the interactive whiteboard and playing sounds which segment, blend, or isolate phonemes. Students are consequently allowed to physically interact with the interactive board that can help meet the needs of tactile learners (Beeland, 2002).

2.5.2.4 Duration of Time

As for the duration of time concerning phonemic awareness instructions, having phonemic segmentation as an instruction, a study conducted by Berg and Stegelman (2003) found that learners should not spend too much time on phonemic awareness activities since other language skills need to develop equally. Beginning readers' teachers are aware of their students' needs and understand that phonemic awareness is a progressive process. Therefore, it is necessary to ensure that students are developmentally ready to receive the appropriate phonemic awareness instruction and particularly phonemic segmentation skill at school.

Since phonemic segmentation skill is one component of phonemic awareness instructions, Scholars like Edelen-Smith (1997) and Berg and Stegelman (2003) posited that the instruction duration should be no longer than 15 minutes in duration. It should naturally occur in the classroom as well. The amount of instruction will be different for every student in a classroom when working one on-one or in small groups. The most important consideration is the age of the students because it would be developmentally appropriate to incorporate activities that focus on the sound of the language in a form of a lesson that only lasts few minutes a day for young learners (Edelen-Smith, 1997). The same researcher added that ―Those few minutes can result in a lifetime of reading benefits to children who otherwise might not learn to read" (p.110).

Yopp and Yopp (2000) suggested that in some studies, the instruction occurred every day. In other studies, it occurred two or three times a week. The training session could occur over the course of a minimum of 3 weeks up to 2 years. They added that it is not preferable to allocate a particular amount of time to be devoted to

73

instructions in phonemic awareness since time allocations do not consider individual differences among learners. They argued that the ―quality‖ and the ―responsiveness‖ of the instruction should have remarkable attention than the amount of time.

Moreover, in a similar study, Reading & Van Deuren (2007) concluded that phonemic awareness instruction, presenting phonemic segmentation as an example, should not be long in duration since their studies found no remarkable gain when the instruction offered continued within long time period. Hence, concerning introducing phonemic segmentation activities to children on an interactive whiteboard, the individual developmental levels determine the appropriate duration of the instruction.

2.5.3 Interactive Whiteboard and Student's learning to Read

Research asserted the influence of interactive whiteboard and learning to read. For example, Shenton and Pagett (2007) contended that interactive whiteboard technologies in the primary classrooms have been used in the context of literacy teaching such as phonics and spelling.

According to Smith et al. (2005), the academic literature that is available on interactive whiteboards is small in number. Besides, it is also growing slowly. However, there are many reports as well as summaries of small-scale research projects in the USA, Canada, UK, Australia, and other developing countries carried out by higher education institutions, schools, and individual teachers. Research evidence usually comes from interviews, questionnaires, and surveys that all focus on users‗ perceptions of interactive whiteboard potency.

As for using technology in a foreign language educational environment, Gray, Hagger-Vaughan, Pilkington, and Tomkins (2005) explored the influences that interactive whiteboards have on foreign language classrooms. They found that the use of visual effects such as color, highlighting and animation are felt to be the most essential aids in a way that draws attention to patterns such as endings, negative expressions and reflexive pronouns. It also draws attention to various parts of sentences such as adjectives, nouns and question words.

In Jordan, Jwaifell and Gasaymeh (2013) conducted a qualitative study that investigated and reported teachers' use of interactive whiteboard. It also reports the features of interactive whiteboard which have a noticeable impact on the decisions of the teachers' adoption and use of interactive whiteboard in Modern Systems School. To be more specific, the researchers used the theory of Rogers' (2003) diffusion of innovations to guide the investigation. It is noted that the study did not involve the effect of phonemic segmentation on young learners' word recognition in classrooms. At the end of the study, the researchers recommended that extra attention to training workshops should be offered concerning how to involve interactive whiteboard within the educational process.

Consequently, a few studies have explored the effect of the use of the interactive whiteboard on learners' engagement as well as teaching literacy in general (Smith et al., 2005). They however did not explore or examine the effect of the phonemic segmentation skill on beginning readers' word recognition through the use of interactive whiteboard. Hence, any activity used in a classroom to increase phonemic awareness skill, particularly phonemic segmentation skill, can be created on the

75

interactive whiteboard. In doing this, the lesson will be interactive and engaging as well.

To conclude, the present study will focus on EFL beginning readers' phonemic segmentation skill displayed on the interactive whiteboard technology. As one can notice that there is little research concerning EFL beginning readers' learning to read and technology. This study will shed more light on the importance of technology as an instructional tool in learning to read.

2.6 Related Studies

This section deals with related studies globally and in the Arab world particularly in Jordan in terms of EFL beginning readers' phonemic awareness and phonemic segmentation. It also tackles related studies in regard to the instrumentation used in this study.

2.6.1 Beginning Readers' Phonemic Segmentation Skill

Being one of the phonemic awareness skills, phonemic segmentation has its own reputation in literature. For example, Liberman (1971) suggested that the most important task of the beginning reader is to recognize that the speech flow can be segmented into separate sounds. Comparing with other tasks and skills, phonemic segmentation is a more powerful predictor concerning obtaining the ability of early reading (Hulme, Muter, & Snowling, 1998; Gyovai et al., 2009).

In USA, Wood, Mustian, and Lo (2013) examined the influences of computer-assisted reciprocal peer tutoring on the phoneme segmentation fluency. The level of participants was kindergarten students who were struggling with phonemic awareness. They found that peer tutoring improved the fluency of the phoneme

76

segmentation of all students. It has been found that the majority of the participants dramatically improved when peer tutoring started due to the explicit audio-recorded models regarding how to segment words in the tutoring sessions. The researchers did not involve the effect of phonemic segmentation on beginning readers' word recognition through using the interactive whiteboard. Instead, they investigated the effects of the use of computer-assisted peer tutoring to supplement phonemic awareness instructions to kindergarten students.

With regard to reading comprehension, Yeh and Connell (2008) strongly argued that there has been presently powerful confirmation from experimental studies that the impacts of teaching segmentation skills positively elaborate to reading comprehension. Hence, children aged 5 years old and 4 years old that received training in phoneme segmentation in a randomized study expected to improve their reading performance in future. Moreover, phoneme segmentation skill that well predicts young learners' development in the first years in learning to read rather than other skills such as vocabulary knowledge or rhyming skill (Yeh & Connell, 2008). This indicates the significant role phoneme segmentation plays in the foundation of the acquisition of reading.

In another study, Liberman et al. (1974) examined the phonemic segmentation of children aged 4, 5, and 6 years old. Children were required to tap a wooden block once for each phoneme or syllable in a spoken word. The findings of the study showed that children in each age group showed more ability in successfully segmenting words into syllables than segmenting words into phonemes. Thus, the ability of segmenting words into phonemes appeared at 5 years of age and there was

an increase in the number of children who were successful at phonemic segmentation from age 5 to age 6.

Unlike other phonemic awareness skills, it should be noted that segmenting and blending phonemes have a stronger correlation with later reading ability (Backman, 1983). In her study of early readers, Backman (1983) noted that children who could read before they entered school and experienced formal instruction had strong ability in phonemic segmentation and blending. In another study, Uhry and Shepherd (1993) found that segmentation instruction offered for first graders caused an improvement in their ability of reading skill. In Brazil, a positive correlation between phonemic segmentation and their reading and spelling ability was shown by children (Cardoso-Martins, 1995).

In Denmark, Lundberg et al. (1988) investigated the effect of phonological intervention that involved the skill of phonemic segmentation on developing for a number of Danish children's English reading ability. In their study, the experimental group, which included children participating in a pre-school phonological training program, outperformed the control group concerning the measures of single-word reading. At the end of their study, the researchers found that there was a small but significant effect regarding phonemic segmentation tasks that was described as dramatic.

To date, there has been little research about the phonemic awareness of Jordanian EFL beginning readers (Al-Shaboul et al, 2013). Phonemic segmentation is one component of the most difficult levels of phonemic awareness skills (Chard & Dickson, 1999). A research conducted by Al-Tamimi and Rabab'ah (2007) pointed

out that Jordanian first graders generally suffer when they deal with English basic skills. This can also be due to their poor English phonological awareness that could be connected to Jordanian first graders' L1 interference. The researchers investigated the impact of the instruction of phonological awareness on the EFL first graders' development of word- reading ability in a state school in Jordan. The instruction involved skills such as blending and segmenting phonemes. At the end of the study, they concluded that phonological awareness is appropriate for the progress of word- reading ability for learners in the first grade. They further found that the explicit instruction of phonological awareness is crucial for this progress.

In another study, Al-Shaboul et al. (2013) stated that all Jordanian learners are rightly exposed to English as a foreign language from the first grade and they have the only opportunity to experience their English learning inside formal learning setting. In their study, the researchers investigated whether Jordanian learners could understand the relationship between English orthography and its phonemic correspondences, i.e. understanding the relationship between letter and sound. They concluded that 25% of the Jordanian beginning learners lack phonemic awareness (Al-Shaboul et al., 2013). This obviously indicates that Jordanian beginning readers lack the skill of phonemic segmentation since this skill is considered the most powerful predictor of reading and spelling skills in the first years of school (Gyovai et al., 2009).

A recent study conducted by Alshaboul, Asassfeh, Alshboul, and Alodwan (2014) investigated the probability of transferring the phonological awareness of the Arabic language to learning English. In this study, the researchers examined if Arabic phonological awareness can support learners in Jordan to do well on the tasks of

English transfer. The researchers referred to the fact that cross-language transfer is the degree to which learning to read in L2 is facilitated by phonological awareness in L1. All participants who are considered beginning readers were tested using task that includes large phonological units such as syllable, onset and rime, on one hand and smaller phonological units such as segmenting phonemes, on the other. It has been concluded that cross-language transfer is positively confirmed.

Utilizing from previous research, researchers in another recent study develop and offer an instrument to assess EFL Arab beginning readers' phonemic awareness that addresses phonemic awareness in Arabic language that is the mother tongue of no less than 400 million people. This tool classifies the one hundred participants into three types. Further, the study highlights the role of kindergarten and reports on words the students found easy as well as words that are difficult to segment. At the end of the study, the researchers suggest that most of the participants have already carried an acceptable degree of phonemic awareness (Al-Shaboul, Asassfeh, Alshboul, & Al Tamimi, 2014). Their study did not explore the English phonemic segmentation of Jordanian beginning readers.

The significance of phonemic segmentation in developing the skill of reading is the common thread gathered from the aforementioned literature regarding EFL beginning readers. Further, the scholars did not highlight the effect of phonemic segmentation on beginning readers' word recognition through the use of the interactive whiteboard. Although Al-Shaboul et al. (2014) offered a tool that assesses phonemic awareness in Arabic, the study itself did not assess beginning readers in beginning readers' English phonemic awareness and particularly phonemic segmentation.

To conclude, though the participants were all beginning readers, the studies mentioned above did not involve EFL beginning readers' phoneme segmentation skill and the use of interactive whiteboard as an instructional tool as well. In other words, there is a lack of research globally regarding the effect of phonemic segmentation skill on Jordanian EFL beginning readers' word recognition through the use of the interactive whiteboard technology. This study, therefore, will shed light regarding this critical issue.

2.6.2 Studies Employed the Questionnaire Instrument

A number of studies regarding using questionnaire survey as an assessment instrument emphasize teachers' perception and knowledge of the phonological and phonemic awareness. Some of these studies focus on home literacy experience; parents who have got children with Down syndrome as well as children of different ages. It should be noted that none of these studies have explored the effect of phonemic segmentation on beginning readers' word recognition through the use of the interactive whiteboard. The Table 2.2 shows a summary of the some studies that used a questionnaire survey presented to teachers, parents and teachers and parents.

Table 2.2

A summary of Studies that Used a Questionnaire Survey

	Title	Researcher	Assessment Instrument	Respondents
1.	Implementing and Evaluating a Professional Development Program on Phonological Processing and Phonemic Awareness Instruction for Teachers of K-2 English Language Learners	Rangel (2013)	Quantitative and qualitative questionnaire	Teachers
2.	Teachers' Perceptions and Pedagogical Content Knowledge of Phonological Awareness, Phonics, and Dyslexia	Williams (2012)	Qualitative survey	Teachers of kindergarten and first grade
3.	Phonological Awareness in The Kindergarten Classroom: How Do Teachers Perceive This Essential Link From Oral Communication to Reading Skill Development	Dahmer (2010)	Quantitative survey	Teachers
4.	Speech, Phonological Awareness and Literacy in New Zealand Children with Down Syndrome	van Bysterveldt (2009)	Quantitative and qualitative questionnaire	Teachers and Parents
5.	Phonemic Awareness and Sight Word Reading in Toddlers	McInnis (2008)	Qualitative questionnaire	Parents
6.	Teacher Education in Phonemic Awareness Instruction	Cheesman (2004)	Quantitative survey	First year teachers certified in early childhood, elementary, or comprehensive special education
7.	The Phonemic Awareness Knowledge and Skills of First-Grade Teachers: A Sound Investment?	Sekel (2003)	Quantitative questionnaire	Teachers

In this section, seven studies will be briefly described and explained why six of these studies will not be chosen for the current study.

The purpose of the first study, which was conducted by Rangel (2013), is to describe a grounded theory approach in order to identify the knowledge components of Teacher Content Knowledge (TCK) as well as Teacher Pedagogical Knowledge

82

(TPK). Rangel (2013) pointed out that ESL teachers must often teach reading to young English language learners with little literacy training. The researcher in that study explored how the sessions focusing on phonological processing and phonemic awareness in the professional development regarding ESL teachers could cause teachers' better preparation in working with learners of English language. The researcher used the knowledge components in teachers' evaluation whether they have the required Teacher Content Knowledge to work with English language learners or not. The questionnaire used in Rangel's (2013) study focused on early literacy instructional practices for English Language Learners in grades K-2. Thus, the aforementioned study will not be chosen for the current study because it does not include items or themes regarding the significance and use of phonological awareness and its relation to learning to read. It focuses on teacher content knowledge as well as teacher pedagogical knowledge, instead.

In the second study, Williams (2012) conducted a research study concerning teachers' knowledge of dyslexia, phonological awareness, and phonics instruction. Williams (2012) explored kindergarten and first grade teachers' knowledge with regard to dyslexia, phonological awareness, and phonics. Her study described how kindergarten and first grade teachers practically used this knowledge in the groups of reading intervention as well. Further, her research questions concentrated on the perceptions of teachers towards dyslexia as well as their pedagogical knowledge and practical use of phonics and phonological awareness in the groups of reading intervention. Williams' (2012) qualitative instrumental case study was used for data collection that included semi-structured interviews with 4 kindergarten and first grade teachers who provided lesson plans. A district wide survey had been conducted as well. Consequently, the second study will not be chosen for the current

study because it focuses on the perceptions of teachers towards dyslexia. It also focuses on teachers' pedagogical knowledge and use of phonics and phonological awareness as well.

The third study, which was conducted by Dahmer (2010), described the kindergarten teachers' perceptions and behaviors with respect to the usage of the phonological awareness in their classroom. Participants of 151 kindergarten teachers in elementary schools were included in the study. A description of the perceptions of kindergarten teachers concerning the use and significance of phonological awareness instruction was provided from the attained data. According to Dahmer (2010), the instrument included two main types of items were employed such as a Likert scale and a rating scale. In addition, the investigator used two minor types of items such as multiple-choice questions and one open-ended item. Since the third study focuses on the teachers' perceptions and behaviors with respect to the usage of the phonological awareness as well as significance of phonological awareness instruction, it should be noted that this particular study suits this research since it tackles items that have relation to phonemic segmentation skill and reading.

The fourth study involved New Zealand children with Down syndrome. In her study, van Bysterveldt (2009) investigated the home literacy environment of 85 children with Down syndrome in their primary school. In that study, participants' parents completed a questionnaire. That questionnaire explored a number of issues such as the frequency and duration of literacy interactions, priorities of parents for their children at school, the child's literacy skills, and other ways parents support and facilitate literacy. Van Bysterveldt (2009) also investigated the school literacy environment of 87 children with Down syndrome in their primary school. In the

same study, the participants' teachers completed a questionnaire. The questionnaire explored various issues such as the frequency and duration of literacy interactions, the role of the child during literacy interactions, other ways literacy is supported, and the child's literacy skills. It should be noted that the fourth study will not be chosen for this study since it focuses on issues that concern the frequency and duration of literacy interactions, priorities of parents for their children with Down syndrome at school and the literacy skills of children with Down syndrome.

The fifth study, conducted by McInnis (2008), investigated beginning skills in the phonemic awareness and printed sight word recognition abilities of toddlers who are two years old. McInnis (2008) used plain text and flash cards that demonstrated MorphoPhonic Face words. In her research, parents completed a Home Literacy Questionnaire to evaluate direct and indirect literacy experiences for each child. According to McInnis (2008), parents of qualifying participants completed a Home Literacy Questionnaire via phone. Two examples of direct and indirect literacy experiences were given to toddlers' parents. The direct question: ―*How often does your child see computers being used or actually use a computer?*‖ and the indirect question: ―*How often does your child ask you to pretend play with him/her*?‖ As for the fifth study, it will not be chosen for the current research because it focuses on the emerging phonemic awareness skills as well as the printed sight word recognition abilities of toddlers who are two years old.

In the sixth study, Cheesman (2004) explored the competencies of initially-certified teachers in regard to phonemic awareness instruction. The study conducted by Cheesman (2004) was both causal-comparative and descriptive in design. The investigator designed a measure which was the *Survey of Teacher PhAKS* (*Phonemic*

Awareness, Knowledge, and Skills). This measure was used to evaluate teachers'
knowledge of phonemic awareness and their ability to recognize phonemes in
printed words. Cheesman (2004) developed a 15-item, self-administered, multiple
choice instrument survey. Further, the total population of 719 teachers initially
certified in early childhood, elementary, and comprehensive special education
formed the subjects who were selected from among the total population. Hence, the
sixth study will not be chosen for this study since it deals with an evaluation of
teachers' knowledge of phonemic awareness.

The seventh study, which was conducted by Sekel (2003), investigated 108 first-
grade teachers' phonemic awareness knowledge and skills using a Likert scale. In
her study, Sekel (2003) investigated a number of issues such as teaching phonemic
awareness skills, understanding of the importance of phonemic awareness in reading
acquisition, the number of reading courses taken and teaching experience and how
these issues could impact reading achievement. In addition, Sekel's (2003) study was
divided into two parts. In the first part, first-grade teachers completed a survey
individually. The requested questionnaire was based on information in a multiple
choice format in relation to background information. It included teaching experience,
their degrees, philosophical orientation in reading, rating of their university
experience, and number of reading courses taken. To probe teachers' own ability and
understanding of phonemic awareness, a multiple choice format was formed to
investigate teachers' knowledge of identifying, counting, and locating sounds in
words. As for the second part of the study, the investigator made a comparison
between teachers' responses and reading scores of their students. Consequently, the
seventh study will not be chosen for this research since it focuses on first-grade
teachers' phonemic awareness knowledge and skills.

86

To conclude, most of the aforementioned studies focus on the teachers' content knowledge as well as teacher pedagogical knowledge regarding phonological and phonemic awareness skill. The above studies have not explored and investigated the effect of the phonemic segmentation on beginning readers' word recognition through the use of interactive whiteboard.

For the current study, the researcher will adapt the instrument designed by Dahmer (2010) since it represents the researcher's study as well as having items that are closely relevant to this research case. Dahmer's (2010) research focuses on teachers' perceptions with relation to the use and significance of phonological awareness instruction using a Likert scale. Phonemic segmentation, which is addressed in the questionnaire, is one of the instructions of the phonological awareness skills. This Likert scale rate will be used to investigate the perceptions of the importance of the effect of phonemic segmentation skill on word recognition among Jordanian EFL beginning readers.

2.6.3 Studies Employed the Instructional Technologies

Studies using instructional technologies through questionnaires, interviews or quasi experiment studies highlight perceptions of teachers and students concerning the use of instructional technologies for teaching and learning purposes. Some of these studies emphasize teaching and learning of English in schools in general. Few studies talk about the effect of instructional technology on reading. Table 2.3 demonstrates a summary of studies that describe instructional technology through research instruments such as questionnaires, interviews or quasi experiment research.

Table 2.3

A Summary of studies that used the Instructional Technologies

No	Title	Researcher, Year, Country	Instructional Tool	Research Instrument	Respondents
1	Do Teachers have Adequate ICT Resources and the Right ICT Skills in Integrating ICT Tools in the Teaching and Learning of English Language in Malaysian Schools?	Samuel & Zaitun 2007 Malaysia	ICT Tools: IWB, Laptop, Computer, Video/ Audio conference	Questionnaire Survey	Teachers
2	It Makes the Whole Learning Experience Better: Student Feedback on the Use of the Interactive Whiteboard in Learning Chinese at Tertiary Level	Xu & Moloney 2011 Australia	IWB	Questionnaire	Students
3	Students' Voices about Learning with Technology	Geer & Sweeney 2012 Australia	The Internet as a resource, Interactive Whiteboards Laptops/ computers	Focus groups, Questionnaires and Drawings	Students
4	Teachers' Belief and Use of Interactive Whiteboards for Teaching and Learning	Turel & Johnson 2012 Turkey	IWB	Questionnaire	Teachers
5	The Effect of Integrating Interactive Whiteboards on Reading Achievement	Johnson, 2012 USA	IWB	Quasi-Experimental research	Students
6	Teachers' Perspectives on Interactive Whiteboards as Instructional Tools in Four Jordanian Schools	Abuhmaid, 2014 Jordan	IWB	Questionnaire	Teachers
7	Enhancing English Phonemic Awareness of Thai Grade One Students through Multimedia Computer-assisted Language Learning	Thajakan & Sucaromana, 2014 Thailand	Computer	Semi-structured interview	Students

This section presents a brief description of the studies involving the use of instructional technology in teaching and learning English language.

The first study conducted by Samuel and Zaitun (2007) in Malaysia investigated the availability of the information and communication technology (ICT) resources as well the level of English language teachers related to ICT skills. It also tried to determine whether serving teachers have the ability to promote ICT incorporation in the English Language teaching and learning in Malaysian schools. The researchers conducted a questionnaire survey. That survey included items related to ICT such as IWB, laptop, computer, video/ audio conference. The findings showed that a quite large number of teachers have the necessary ICT skills. However, the use of the available ICT resources with respect to teaching and learning English language has not reach a satisfied level. At the end of their study, the researchers concluded that passive attitudes of teachers concerning the use of ICT in teaching and learning English language are related to their poor support. They suggested the interactive lessons represented by e-learning that positively reflect and speed up the English language teaching and learning among students. Thus, Samuel and Zaitun's (2007) study will not be chosen for this research since it does not primarily focus on the interactive whiteboard technology as an instructional tool within the research. Their study did not examine the effect of IWB on word recognition, either.

Unlike the first study, the second research conducted by Xu and Moloney (2011) in Australia examined Chinese students' perceptions of the interactive whiteboard pedagogy in Chinese language acquisition in general. It also examined the effective use of interactive whiteboard in order to maintain the Chinese characters in particular. The most difficult tasks in learning Chinese are the retention and

recognition of characters in a way that caused confusion to large number of students whose first language is non-logographic. The results showed that the presentation of the interactive whiteboard created several visual activities that influenced the retention of characters as well as syntactical elements. It has been also found that students stated that the interactive whiteboard enhanced the learning experience. IWB reflected an increase in motivation, participation, and engagement through interacting with this technology as well. It provided a proof to be fruitful in facilitating critical awareness in students and teachers respectively.

It is important to note that the questionnaire conducted by Xu and Moloney (2011) will be adapted for the current study in which it covers items from 17 to 26 because the questionnaire conducted by the two researchers includes items suited the investigations of the Jordanian teachers' perceptions towards the use of interactive whiteboard in relation to word recognition of Jordanian EFL beginning readers. Their questionnaire's items involve perceptions towards participation, motivation, enhancing learning through the use of interactive whiteboard.

In the third study conducted by Geer and Sweeney (2012), it investigated the student voice as a means of recognizing 21st century pedagogical methods concerning learning with technology. Their study explored the use of Australian students' voice in a primary school as a valid approach. This was to inform teachers about the appropriate tools that can best encourage and support students within learning. The researchers used drawings, questionnaires, and focus groups in order to identify strategies, settings, and technologies that assist students in learning. At the end of their research, they concluded that students expected to use several different technologies in their learning since large numbers of students use technologies in

90

their everyday life in a form of a natural tool to improve their learning opportunities. However, Geer and Sweeney's (2012) study will not be chosen for this research since their study did not focus deeply on the interactive whiteboard. In addition, it tackled ICT tools in general.

With respect to the fourth study, it was conducted by Turel and Johnson (2012) in Turkey. Their study examined the perception and the actual usage and behaviors concerning the features of the promising interactive whiteboard in practical settings. The purpose of their research paper was to evaluate both teachers' usage and perceptions towards the interactive whiteboard through conducting a questionnaire. Their findings indicated that teachers believed that interactive whiteboards can be used for several subject domains as well as facilitating learning and instruction made by teachers. To improve the competency of the interactive whiteboards, this can be done through training about fruitful instructional strategies using interactive whiteboards, collaboration with colleagues, and teachers' frequent use of such instructional tool of technology.

In spite of the use of interactive whiteboards as instructional tool, Türel and Johnson's (2012) research will not be chosen for this study since the researchers focused on teachers' perceptions towards usage and behaviors that generally dealt with learning in relation to the use of interactive whiteboards.

As for the fifth study, Johnson (2012) conducted a quasi-experimental design to determine whether the use of the interactive whiteboard during Success for All (SFA) reading model instruction had an impact on students' academic achievement in reading in the third grade. The aim of her quantitative study was to determine if

91

there was a significant difference in reading achievement between the students taught with the SFA reading model where interactive whiteboard was not used and those taught with the SFA where interactive whiteboard was used in the third grade. The findings of her study showed that there was no significant difference in reading achievement between the group taught with the use of interactive whiteboard and the other group taught without the use of interactive whiteboard. The researcher concluded that the use of interactive whiteboard had little effect on reading achievement. Despite the use of the interactive whiteboard as an instructional tool in the fifth study, it will not be chosen for the current study because it does not focus on phonemic segmentation skill; it does not provide teachers' perception towards the use of interactive whiteboard.

In the sixth study, Abuhmaid (2014) investigated perspectives of Jordanian teachers regarding two main aspects of the incorporation of interactive whiteboard in four Jordanian private schools. The first aspect tackled teachers' perceptions of the use of the interactive whiteboard as an instructional tool. Second, it dealt with the presence of different supporting factors identified by the literature for the success of incorporating interactive whiteboard into schools. The researcher conducted a questionnaire to investigate the perceptions of teachers in the four private schools towards the use of interactive whiteboard. The findings indicated that the participating schools spend more efforts and resources in incorporating the interactive whiteboard into their contexts; however, some supporting factors for the effective implementation might have been neglected. Such factors included adequate infrastructure, teacher training, school principals, mentoring, and follow up and support. Although Abuhmaid (2014) used a questionnaire in his study to examine the teachers' perception towards the integration of the interactive whiteboard, his study

will not be chosen for the current research since it focuses on the factors supporting the educational performances.

Unlike the sixth study, the seventh study conducted by Thajakan and Sucaromana (2014) investigated whether a multimedia CALL (Computer-Assisted Language Learning) program can improve the English phonemic awareness of Thai first graders through the whole word approach. In addition, it explored the views of Thai first graders regarding enhancing the skill of phonemic awareness through a multimedia CALL program when learning the English language by the whole word approach.

Thai first graders were divided equally into experimental and control groups. Each group divided into good, fair, and poor group. Three participants from each good, fair, and poor group were randomly chosen to participate in a semi-structured interview. Quantitative and qualitative data were collected from phonemic awareness tests and the semi-structured interview respectively. The researchers concluded that there was a significant difference in favor of the experimental group with regard to English phonemic awareness. Furthermore, the results from the qualitative data showed that the Thai first graders who were provided with the multimedia CALL program had positive views concerning improving their phonemic awareness through this instructional tool when learning the English language through the whole word approach.

It is important to indicate that Thajakan and Sucaromana's (2014) study will not be chosen for the current study because it does not focus on phonemic segmentation skill as well as the use of interactive whiteboard.

The next section discusses the issue of Teachers' Perception towards the Use of the Phonemic Segmentation and the Use of IWB.

2.7 Teachers' Perception towards the Use of the Phonemic Segmentation and the Use of IWB

As for teachers of beginning readers who are responsible of the change that decreases the number of young learners who struggle with reading skill, they are required to show effective, sustaining instructional practice inside the classroom (Al-Shaboul et al., 2013; Runge &Watkins, 2006; Al-Tamimi & Rabab'ah, 2007; Mathes & Torgesen, 1998) with the help of technology represented by IWB (Hall & Higgins, 2005). It is evident through the literature review that studies are lacking with respect to the EFL teachers' perception of phonemic segmentation as well as the use of IWB in improving word recognition of EFL beginning readers.

It is important to note that effective instruction related to phonemic awareness and phonemic segmentation skill in particular will allow a beginning reader to become a better reader. Thus, providing authentic explicit phonemic awareness skill instruction is beneficial for teachers to perceive phonemic segmentation as well as the IWB as an essential component of the first grade reading program and to reflect this perception in their daily classroom practice. The next section presents demographic variables related to the gender, teaching experience, grade, and age.

2.7.1 Demographic Variables

The demographic variables used in this research are concerned with the use of phonemic segmentation as well as the use of IWB in improving word recognition of EFL Jordanian beginning readers. These variables include gender, teaching

94

experience, degree, and age. The focus will be on gender and teaching experience in order to address the second research question.

2.7.1.1 Gender

Gender differences in education have been a rich area of research over the past several decades (Rose, 2009; Halpern, 1997). There is small but significant gender differences in pre-literacy measures (Below, Skinner, Fearrington & Sorrell, 2010). Francis et al. (2008) claimed that gender alone can never determine the quality of a teacher. Instead, having competent male and female teachers can only enhance the teaching profession quality. Therefore, gender differences have been explored in the education research literature. Research found that significant differences varied related to gender differences in relation to phonological awareness and reading.

Thus, the present study tries to determine whether a significant difference in the perceptions towards the use of phonemic segmentation as well as the use of IWB in improving word recognition of EFL Jordanian beginning readers between male and female teachers. It is crucial to note that there is a gender imbalance of large number of female teachers exists in the education system in most countries (Drudy, 2008). Consequently, if a significant difference exists in the perception of teachers towards the use of phonemic segmentation as well as the use of IWB in improving word recognition of EFL Jordanian beginning readers in relation to gender, one would then expect that gender would play a radical role in student's reading ability and achievement.

In a study conducted by Wolter, Braun, and Hannover (2015), the researchers noted that there was differential impact of preschool teachers' gender role attitudes on boys'

reading related skill development compared to girls' reading related skill development. However, they found that teacher's gender role attitudes did not have a substantial effect on girls' reading related motivation in preschool. Teacher's gender role attitudes did not have significant effect on girls later reading skills in primary school, either.

Moreover, Rose (2009) found that there was no significant difference between instructional practices in relation to the use of phonics activities and male and female teachers' perception towards that particular item. In the same study, the same researcher found that there was no significant difference between instructional practices pertaining to using comprehension activities and female and male teachers' perception towards that particular item.

2.7.1.2 Teaching Experience

Novice elementary teachers had little confidence concerning teaching when entering the first year of teaching although they had the basis of current knowledge and the fresh strategies and teaching skills (Turley, Powers, & Nakai, 2006). In their disciplinary knowledge study of early literacy, Cunningham, Perry, Stanovich, and Stanovich (2004) found that K-3 teachers who had less than three years' experience perceived their levels of knowledge more positively in all areas examined compared to teachers who had more experience. The researchers noted that ―With regard to actual knowledge, least experienced teachers did know more in their areas of phoneme awareness and explicit phonics, while no differences were observed in the areas of implicit phonics . . ." (p.158).

Furthermore, Al-Hazza, Fleener, and Hager (2008) investigated teachers' overall knowledge of phonological awareness. They also explored the differences in knowledge by teachers' years of experience. Using an independent samples t-test, the researchers investigated the difference between teachers with the category of 0-5 years of experience and those who had the experience of more than 6 years. It had been found that there was no significant difference between new teachers' means and experienced teachers' means.

In a study conducted by Dahmer (2010), she described the perceptions as well as behaviors of kindergarten teachers in respect of the use of phonological awareness in their classroom experience. Her study found that there is no significant difference between the frequency of behaviors related to the use of assessment of formal phonological awareness and the groups, years of teaching experience and years of kindergarten teaching experience.

In another study conducted by Sekel (2003), a correlation was run regarding the relationship between the number of years of teaching experience and teachers' understanding of the difference between phonemic awareness and phonics. She found that there is no statistically significant difference between the number of years of teaching experience and teachers' understanding of the difference between phonemic awareness and phonics.

Moreover, Bos, Mather, Dickson, Podhajski, and Chard (2001) investigated the perceptions and knowledge of pre-service and in-service educators about early reading instruction. On the basis of the in-service educators' years of teaching experience, the researchers found that there are no significant differences existed

among groups concerning their perceptions with respect to explicit and implicit code instruction in relation to the teacher perceptions about early reading and spelling measure. Also, they found that there are no significant differences existed between in-service teachers with 6 to 10 years of experience and their peers with 1 to 5 years or more than 11 years of experience.

As for the gender differences and teaching experience in technology integration, the literature indicated that there were differences between female and male teachers with respect to technology use, whereas other studies did not show significant differences between female and male teachers (Hong & Koh, 2002). For example, Nachimuthu and Vijayakumari (2012) conducted a study in order to identify the significant relationship between the college of education teachers' perception towards multimedia technology on the basis of gender wise, experience wise and other factors. Their results concluded that there are insignificant differences between the male and female teachers' perceptions of multimedia technology in terms of gender. However, the researchers found that there is a significant difference in teachers' perception towards multimedia technology with respect to teaching experience.

In the same thread, the results of the study conducted by Bal, Misirli, Orhan, Yucel, and Sahin (2010) revealed that there is no significant difference based on gender in relation to the use of technological tools in teaching. The researchers however found that there is a significant difference according to teaching experience. Furthermore, in another study, Balta and Duran (2015) tried to understand teachers' and students' attitudes toward interactive whiteboard technology. Both researchers found that there

is significant difference with respect to gender in the attitudes toward interactive whiteboards.

It is important to note that other studies (e.g. Bakr, 2011; Oz, 2014) found insignificant differences in terms of gender and teaching experience. For example, Oz (2014) investigated teachers' and students' perceptions of interactive whiteboards (IWBs) in the English as a foreign language (EFL) classroom in order to identify differences of perceptions with respect to some variables including gender and teaching experience. His findings showed no significant difference existed in the teachers' perceptions of IWB use based on gender and years of experience.

In short, significant differences varied with respect to variables including gender and teaching experience. It is important to indicate that the results of most studies demonstrated that there is no significant difference based on gender and teaching experience in relation to the early literacy and the use of IWB. To have a look at the theories and its relation to this research, the next section discusses the theoretical framework of the current study.

2.8 Theoretical Framework

It is a crucial step for researchers to establish a framework for their research in order to provide guidance about the whole parts of their studies as well as helping them understand how the adopted framework is connected with other research to be presented to the readers (Creswell, 2003, 2012). Therefore, it is sensible and practical to look for the appropriate framework that guides the study whether the researcher chooses a qualitative, quantitative or mixed method approach. It has been found that researchers have often used the following terms *literature review*,

theoretical framework and *conceptual framework* interchangeably. Rocco and Plakhotnik (2009) pointed out that these terms clearly represent a noticeable kind of review and should be addressed and used properly although these three terms allocate similar relationships and functions for other sections of research manuscript. Furthermore, Creswell (2012) pointed out that the framework of the study depends on the researchers' worldview and selectively culminates in a quantitative or a qualitative paradigm.

Creswell (2009, p.55) argued that ―In *quantitative* studies, one uses theory deductively and places it toward the beginning of the proposal for a study." He added that the purpose of using a theory is to test or verify theory instead of developing it. Thus, the researcher starts the study by suggesting a theory, collecting data to test it, and reflecting on whether the results confirmed or disconfirmed the theory advanced in the study. Consequently, the theory changes to a framework for the whole study. It also forms hypotheses for the procedure of data collection or an organizing model for the research questions (Creswell, 2009).

On the other hand, Creswell (2012) provided a definition to qualitative research in which the focus would be on the methodological nature and the naturalistic inquiry of the nature of the research. He stated that qualitative research can be defined as ―an inquiry approach useful for exploring and understanding a central phenomenon. To learn about this phenomenon, the inquirer asks participants broad, general questions, collects the detailed views of participants in the form of words or images, and analyzes the information for description and themes." (p.626)

It is extremely important to note that two theories that offer the cornerstone for this study will be presented accordingly. These theories are the theory of Ehri's Phases of Word Recognition and the theory of multimedia learning.

2.8.1 Developmental Models of Word Recognition

Many theories of reading development assert that word learning develops in stages or phases (Mason, 1980; Ehri, 2005a; Chall, 1983; Frith, 1985; Gough & Hillinger, 1980; Stuart & Coltheart, 1988). In general, these theories affirm that progress in literacy knowledge enable readers to accurately recognize words and possess a large store of easily identifiable words. Table 2.4 shows a summary of the relationship between different stages or theory phases of reading development.

Table 2.4

A Summary of the Relationship between Different Stages or Phase Theories of Reading Development

Proponents	Gough & Hillinger (1980)	Mason (1980)	Chall (1983)	Frith (1985)	Ehri (2005)	Stuart & Coltheart (1988)
Number of Developmental Periods	2	3	5	3	4	2
Pre-reading	↑ Cue reading	Contextual dependency	Pre- reading	Logographic	Pre alphabetic	↑ Partial
2. Early reading	↓	Visual recognition	Alphabetic decoding	Alphabetic	Partial alphabetic	orthographic ↓
3. Decoding	↑	Letter-sound analysis	Attending to letters/ sounds	Orthographic	Full alphabetic	Complete
4. Fluent reading	Cipher reading ↓		Fluency Consolidation		Consolidation automaticity	orthographic ↓

(Adapted from Ehri, 2005a).

A number of researchers support a developmental model of word recognition; they explain how readers learn to recognize words, the types of words they are able to recognize at different phases of development, and when rapid word recognition occurs (Bhattacharya & Ehri, 2004; Chall, 1984; Ehri & Wilce, 1983, 1987; Masonheimer, Drum, & Ehri, 1984; Share & Gur, 1999; Troia, Roth, &Yeni-Komshian, 1996). Some of the developmental Models of Word recognition will be presented accordingly.

Many theories asserted that the progression of printed word recognition develops from an emerging, limited understanding to a more sophisticated, advanced understanding. For example, theories- like Chall's (1983) stages of reading development (as cited in Chall, 1984), Frith's (1985) and Ehri's (2005a) developmental models of word recognition, Gough and Hillinger's (1980) stages of development of reading- vary in the detail used to explain sight word reading, but describe similar word recognition trajectories.

 Ehri's (2005a) developmental model of word recognition will be chosen as the theoretical foundation of this study over other models because of the attention her model allocates to the development of literacy skills necessary to early word learning. Further, current research has disproved some of the older theories of reading development, such as Frith's (1985) developmental model of word recognition and Chall's (1983) stages of reading development.

In this study, two researched theories of reading development will be described and explained why those two theories will not be chosen for further investigation. The first model is Frith's (1985) developmental model of word recognition and the

second is Chall's (1983) stages of reading development. As for Frith's (1985) developmental model of word recognition, it has a trajectory highly similar to Ehri's (2005a) model. However, it is limited by an inaccurate developmental model of phonemic awareness development. Likewise, Chall's (1983) stages of reading development are similar to Ehri's (2005a) phases, but do not give detail of the progression of skill development from early to mature readers.

2.8.1.1 Frith's Developmental Model of Word Recognition

One of the earliest models of reading development was Frith's (1985) developmental model of word recognition. This model consisted of three sequential phases: the logographic, alphabetic, and orthographic phase. Frith (1985) suggested that the literacy skills representative of each phase build upon each other, demonstrating an increasingly sophisticated awareness and application of written language. The term phase rather than stage was used to describe the developmental sequence of word recognition growth because the skills central to each phase develop continuously, rather than categorically. Frith (1985) found that individuals can rely on strategies from a previous phase even if they have advanced in literacy knowledge and are capable of using more sophisticated strategies.

The first phase of Frith's (1985) developmental model of word recognition is the logographic phase. According to Frith's (1985) model, a logographic reader is in his or her first phase of word recognition development. A logographic reader uses salient letters as cues to instantly recognize a small set of familiar words. For example, a child in this phase might remember the word book because it has two ―o‗s‖ in the middle of the word or he/she might remember the word dog because the tail on the letter g looks like a dog's tail. Frith (1985) theorized that children start to

104

have an awareness of and can distinguish between the metalinguistic terms word and sentence during this phase.

Regarding the alphabetic phase, Frith (1985) found that reader's transition from the logographic phase to the alphabetic phase is demonstrated as follows: firstly, understanding that word identification based on salient visual clues makes it difficult to read visually similar words. Secondly, understanding that letters are connected with sounds (i.e. understand the alphabetic code) and finally applying the alphabetic code to sound out words. In this phase and during their literacy development, it has been found that readers have developed full phonemic awareness, or they are able to recognize single sounds in words, and they can associate individual sounds to letters in words (Frith, 1985). At the end of this phase, learners are ready to shift to the orthographic phase.

As for the last phase in Frith's (1985) developmental model, it has been found that readers' transition from the alphabetic to the orthographic phase is demonstrated when they decode words using more sophisticated, larger orthographic units, rather than only using individual letters. According to Frith's theory, the transition from the alphabetic to orthographic phase develops from the need to learn and internalize standard spellings, as application of Grapheme to Phoneme correspondence (GPC) does not succeed in consistently producing accurate spellings.

This modal is described as being inadequate to represent an accurate image of spelling development. For example, Treiman and Bourassa (2000) criticized a number of developmental models of word recognition. Being one of these developmental models, it has been found that although this model provides a rough

105

general image of spelling development, it does not fully handle the complexities of the representations of phonological and morphological units regarding the spelling issue (Treiman& Bourassa, 2000).

As a result, Frith's developmental model of word recognition will not be chosen for the current study because Frith's model is limited by an inaccurate developmental model of phonemic awareness development (Ebert, 2009). Frith (1985) affirmed that readers' transition develops from no phonemic awareness in the logographic phase directly to full phonemic awareness in the alphabetic phase, without showing partial phonemic awareness. However, research proves that phonemic awareness develops in a more gradual manner (Ebert, 2009).

2.8.1.2 Chall's Stages of Reading Development

Chall (as cited in Chall, 1984) proposed five stages of reading development progressing from birth to college and beyond. Her theory differs from other prominent theories; it does not just focus on early reading development, but rather progresses a reader's entire reading development, from pre-reading to the using and application of analytical thinking skills when reading (Chall, 1984). Although her theory is not similar to Ehri's (2005a) model and Frith's (1985) theory, it offers a comprehensive conceptual framework for development (Ebert, 2009). Chall's stages of reading development will be administered respectively; they began from the stage 1 till the stage 5.

According to Chall's (1984) paper, the main feature of stage 1 is that children are in the first stage of reading development which is known as a pre-reading and decoding stage. During this stage, children typically gain a limited amount of alphabet

106

knowledge, learn the letters in their names, and learn to print their names. In this stage, children can also orally identify and manipulate sounds in language like rhymes and syllables (Chall, 1984). They then move to the next stage.

In stage 2, children enter the next reading stage in Chall's model from the age of six to seven or during first and second grade. Students in this stage have developed a concept of word i.e. they are able to match speech to print. The understanding and application of the alphabetic principle by corresponding graphemes to phonemes in order to decode unknown words is regarded a watershed in this stage (Chall, 1984)

As for stage 3, Chall (1984) affirmed that students in levels 4-8 enhance their reading fluency and speed during this particular stage which is known as the confirmation and fluency stage. Children frequently interest in repeated reading of familiar text in order to increase their ability to automatically and accurately recognize more words. Instant recognition of sight words gradually replaces phoneme-by-phoneme decoding and word-by-word reading. Children in this stage do not read text to gain new information because new concepts are not typically introduced in their text (Chall, 1984). However, children are ready to move to stage 4.

As for stage 4, Chall (1984) pointed out that readers typically succeed through the multiple viewpoints stage throughout high school or between the ages of 14 to 18. Chall (1984) added that during the fourth stage, students are in charge of independent reading, analyzing, and gleaning information from text with multiple viewpoints. In this stage, students learn to cope with lengthier and more advanced

107

textbooks than those experienced in middle and elementary school. Thus, stage 4 students show independent reading of fiction and newspapers.

Regarding the final stage 5 in demonstrating her developmental model, Chall (1984) claimed that students enter the most advanced and mature reading stage which is the construction and reconstruction stage during college and subsequent years. Described by the knowledge of how to select appropriate text and how much to read for a certain purpose, readers apply higher level thinking skills to read and analyze various types of text (Chall, 1984).

Given the stages provided by Chall (1984), her model may or may not consequently be appropriate for all children (Beecher, 2011). Furthermore, her theory does not address the developmental progression of some early reading skills such as phonemic awareness (Ebert, 2009).

In contrast, Ehri's (2005a) developmental model only refers to beginning readers who are at the word level of text (Beecher, 2011). When considering the reason why some children suffer from learning to read, some question probably rose to whether or not this theory is useful. However, it seems clear that children may face hardships in any or all of the phases (Ehri & Snowling, 2004). Hence, it should be noted that Ehri's (2005a) phases of word recognition will be chosen for this study since it focuses on beginning readers' word recognition. Besides, both of the aforementioned models fail to offer a detailed model of early word recognition as well as the swift shift between the stages (Ebert, 2009). Four significant phases of Ehri's (2005a) developmental reading regarding word recognition will consequently be presented ahead.

2.8.1.3 Ehri's Phases of Word Recognition

According to Ehri (2005a), certain prerequisite literacy knowledge is crucial for children to form complete connections. Ehri (2005b) found that three components allow for a word's complete spelling pattern, meaning, and pronunciation to amalgamate, creating a sight word. They are presented as follows: (a) alphabet knowledge, (b) knowledge and application of the alphabetic principle that involves the understanding that letters map to sounds), and (c) phonemic awareness which is the facility to manipulate and identify the smallest unit in oral language.

The phases of word recognition development, illustrated in Figure 2.3, are most readily applicable to decoding, or the process of sounding out and blending graphemes into phonemes.
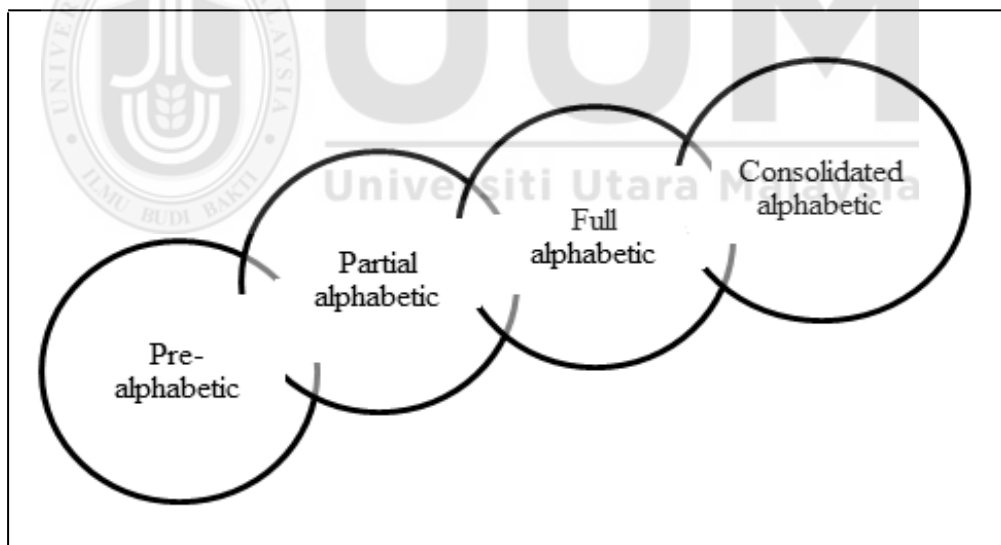
Figure 2.3. An Illustration of Ehri's (2005a) Phases of Word Recognition Development. (Adopted from Basaraba, 2011)

This theoretical framework suggested by Ehri (2005b) and others (Ehri & McCormick, 1998; Ehri & Snowling, 2004; Perfetti & Marron, 1998) introduces the possibility that students' advance through four phases of development when learning to decode words. The four phases are as follows: pre-alphabetic, partial alphabetic,

full alphabetic, and consolidated alphabetic phases. During the pre-alphabetic phase, children depend mainly on environmental cue to read words since they have little understanding that the letters in written words systematically map onto the sounds they hear in spoken language. When having gained this understanding, having learned the sounds of letters in the alphabet, and having used this knowledge to remember how to read words, children have then advanced to the next phase which is the partial alphabetic phase. Because students in this phase do not have complete knowledge of the alphabetic system and thus retain having difficulty with some letter-sound connections, vowels in particular, one might expect word reading during this phase is an imperfect process potentially full of errors for those students' whose letter-sound relationship knowledge is not firm (Ehri, 2005a).

Advance to the full alphabetic phase takes place when children have the ability to build full associations between letters and sounds within pronunciations. They also have the ability to divide words into phonemes that correspond to the graphemes they see in a printed word. Since children continue to have more sight words in their memory, they burgeon to the consolidated phase. Within this phase, grapheme-phoneme associations in words are kept as larger units in memory. Maintaining more sight words in the memory takes place when words that can be automatically accessed as students have firm understanding of the relation between the phonemes and graphemes (Ehri, 2005a).

As for the consolidated alphabetic phase, Ehri (2005a) offers a discussion of the advantages of this process for reducing memory load. For instance, in the consolidated phase, the word ‗chest' might be processed only as two units ‗ch' ‗-est' compared with four units (ch, e, s, t) in the full alphabetic phase. To illustrate this

110

process, Ehri (2005a) cites the study conducted by Ehri and Robbins (1992) on children in the first grade. Those first Graders acquired some decoding skills and they were subdivided into two groups. The first group was offered a set of words and then it was followed by a second set that based on analogy with similar rime spellings (e.g. ‗feed‘, ‗seed‘). As for the second group, it was provided with a second set which had the same letter-sound associations but the rime pattern was not based on analogy. It has been found that the second group learned words with analogy words slower than the first because of the help of the shared letter patterns to this consolidation process. Consequently, gaining new words is going to be increasingly made easy by the gathering sight word information process.

In a word, Ehri (2005a) views the acquisition of the large number of sight words essential for facile word recognition as a process, occurring in four phases: the pre alphabetic, the partial alphabetic, the full alphabetic, and finally the consolidated alphabetic. This term *phases* has been used to describe the process rather than stages, as students may not fully master all skills associated with a phase before demonstrating skills associated with a subsequent phase (Ehri, 2005b).

The present study chose Ehri‘s (2005a) phases of word recognition development since it concerns beginning readers‘ acquisition of word recognition and only refers to beginning readers who are at the word level of text (Beecher, 2011; Ebert, 2009). It provides a deep detailed model of early word recognition as well (Ebert, 2009). Since Ehri‘s theory offered the word recognition processes through critical distinct phases (Blackwell & Laman, 2013), the current study used this particular theory to investigate the effect of the phonemic segmentation skill on beginning readers‘ word recognition.

111

It should be noted that the multimedia learning theory was also chosen as this study would investigate EFL beginning readers' word recognition through the use of the interactive whiteboard. Therefore, it would be presented in the following section.

2.8.2 The Theory of Multimedia Learning

Using interactive whiteboard technology in classrooms is considered one of the most current education trends. According to Smith, Higgins, Wall, and Miller (2005), an interactive whiteboard can be defined as a large, touch-sensitive board that controls a computer which is linked to a digital projector. This kind of technology has many benefits. One of the advantages of using this technology is that the student can receive the instructional message in two ways. Mayer (2003) asserted that the instructional message can be received as words and as pictures. What encourages deeper understanding of the material being presented is to combine both words and pictures with beginning readers (Mayer, 2003). Mayer (1997) pointed out that the Multimedia Learning Theory is a theory that originates from the idea that learning is meaningful when learners choose relevant information, organize the information, and combine the information with other knowledge. Mayer (2003) used the ideas of dual coding theory to clarify that learners deal with two different information systems, a visual system and a verbal system.

Concerning the multimedia learning theory, ―Are We Asking the Right Questions" is a study conducted by Richard Mayer. Mayer (1997) defined multimedia learning as ―presenting explanations visually as well as verbally" (p. 1). He also pointed out that learners have an interest in multimedia learning when they are provided with information in more than one way, for example pictures and words. In his study, Mayer examined multimedia as ―presenting computer-generated animations

112

synchronized with computer-generated narration" as well as "presenting illustrations next to corresponding text" (p. 1).

At the end of his study, Mayer (1997) concluded that there is still research left to be done on how technology influences students' learning. He stated that "the potential for computer-based aids to learning remains high, although the current contribution of technology to pedagogic innovation is frustratingly low", recommending that "research is needed in how people learn with multimedia" (p.17). However, he emphasized some important theoretical concepts about the Generative Multimedia Learning Theory and explained that captioned illustrations and narrated animations help students choose appropriate visual and oral information in which it assists them in the organizing process when generating cause-and-effect relationships among the processed information. Since educational technology usually includes some kind of visual and verbal combination, students' learning will be influenced due to the fact that the multimedia technology can help organize cognitive processes, though the study does not prove this positive effect.

McTigue (2009) conducted another multimedia-related study taking the principles of Mayer's multimedia learning theory and applied the ideas to students in the middle grades when reading science texts. Unlike Mayer's study, McTigue' study did not directly discuss technology as a form of multimedia. However, the findings of the study can be expressed with technology in mind.

The major aim of the research was to notice if middle grade students' comprehension of science text was influenced due to using diagrams within the text. Students were presented with text either about life-science or physical science. These texts were

113

then manipulated; some of the texts had no illustrations. On the other hand, others had illustrations with parts labeled. Still others had illustrations with main process descriptions, and some contained illustrations with labels and descriptions. Then, students either read standard text or text that gestured them to access the diagrams. The findings of the study showed that the diagrams in science texts did not benefit students' comprehension. In order to truly help young readers who struggle to comprehend text, McTigue (2009) recommended that it is crucial to continue to research the multimedia learning theory using younger populations and within the classroom setting. As expressed by Mayer's study, ongoing research in multimedia learning should explore the potential effect of technology.

In their study, Yilmaz-Soylu and Akkoyunlu (2009) investigated the impact of learning styles on achievement in different learning environments. In this study, the researchers used both Kolb's Learning Style Model and Mayer's Generative Theory of Multimedia Learning as a framework for their research. The researchers focused around three main questions: First, they question the impact of learning styles on success in text-based learning environments. Second, they question the impact of learning styles on success in a narration-based learning environment. And finally they question the impact of learning styles on success in computer-mediated (music, text, narration, static picture) learning environments? At the end of the study, they found that the different learning styles of the students have not impacted the students' achievement in varied learning environments. However, the authors of the study do state that what is important is the time and place of the media use regardless to the type of media being used in the learning environment.

Throughout these three studies, the prevailing theme is that multimedia of technology does not influence students' learning; this conclusion based on the fact that technology is ongoing trend in education and widely used in classrooms nowadays is surprising. Potent uses of technology and screen media are active, engaging, hands-on, and should be used as one of many tools to support learning (Gartrell, 2013; The National Association for the Education of Young Children (NAEYC), 2012). Because technology is the most popular form of multimedia today, it is important that more research take place in this domain, especially taking into consideration McTigue's (2009) point that elementary school-aged children have not been researched as a population, it is crucial that more research should occur regarding this area. However, other important features of learning such as motivation, attention, and engagement have not been included by these studies. Some basic reading skills have not been included, either.

2.9 Conceptual Framework

Existing research has suggested that phoneme segmentation skill is a better predictor of early progress in learning to read than rhyming skill or vocabulary knowledge (Hulme et al., 1998; Hatcher & Hulme, 1999). It has been found that phonemic segmentation skill was the best predictor among the phonemic awareness skills of word reading performance for a sample of first graders (Nation & Hulme, 1997). The skill of phonemic segmentation also correlated positively with beginning reading acquisition (Tunmer & Nesdale, 1985; Bradley & Bryant, 1983; Liberman et al. 1974). Therefore, phonemic awareness, phonemic segmentation in particular, has been identified by researchers as an important link and powerful predictor of the development of reading skill at early stages (Hammer & Miccio, 2006; Nation & Hulme, 1997; Ziegler & Goswami, 2005; Craig, 2006).

115

The literature review provided in this section presented the framework for EFL teachers' perception towards the use of phonemic segmentation skill as well as the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers. A visual representation of the framework was provided in Figure 2.4. Information concerning reading was initially provided. After that, the links established between reading and phonemic awareness, reading and word recognition, and finally reading and the interactive whiteboard were reviewed. The specific and important role of phonemic segmentation skill and interactive whiteboard concerning reading progress was identified in the reviewed literature.
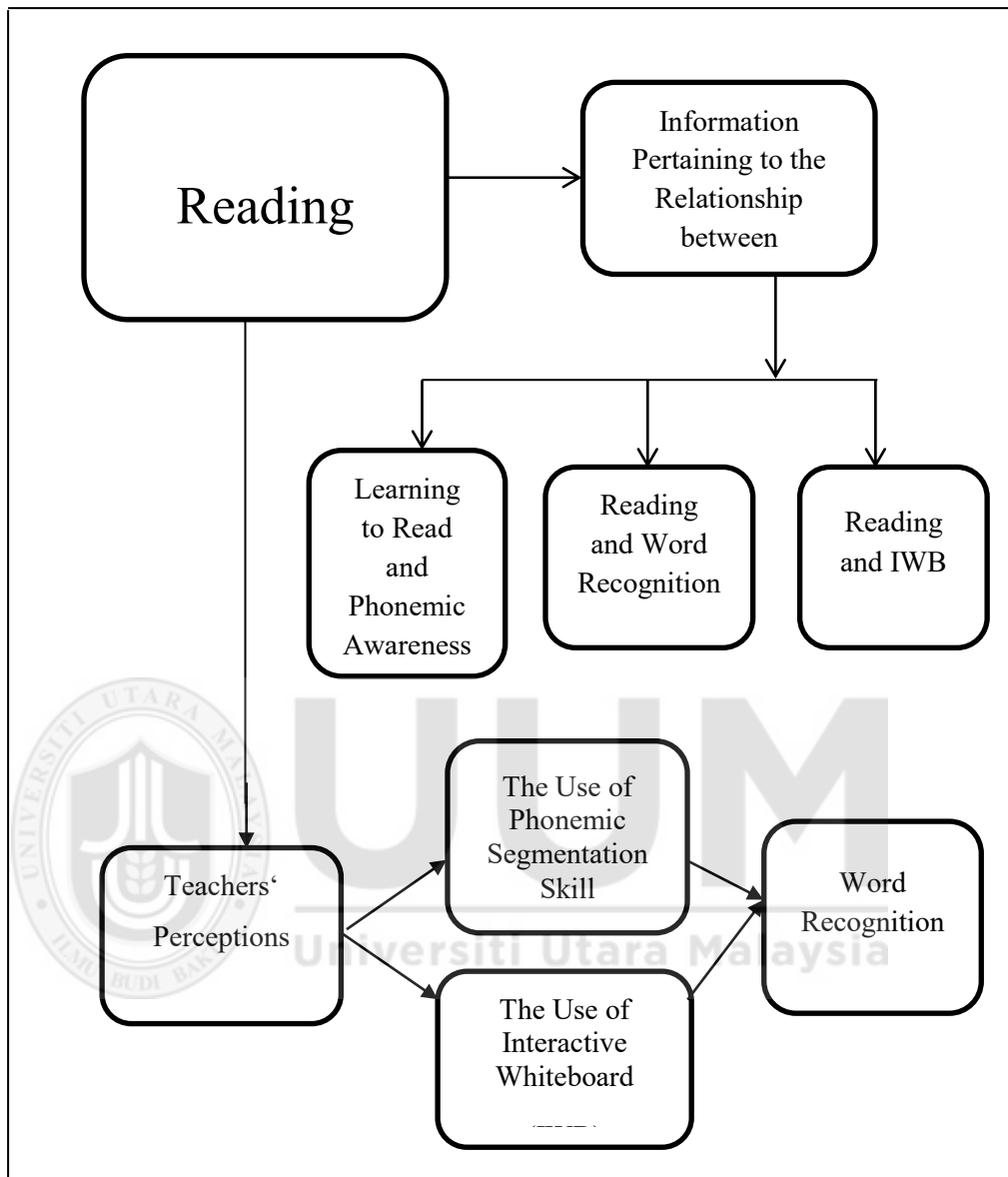
Figure 2.4. The Conceptual Framework.

117

2.10 Summary

A review of recent literature confirmed the significance of involving phonemic awareness instruction and particularly phonemic segmentation skill in a kindergarten and first grade reading classroom and its effects on present and future reading success. In addition, teachers who help beginning readers understand how to break the word into individual phonemes should be adequately aware of how to effectively implement instructions in the phonemic awareness and particularly phonemic segmentation skill.

The aforementioned literature has not explored the effect of phonemic segmentation on EFL beginning readers' word recognition through using the interactive whiteboard. Further, it should be noted that there is a need for efficient and direct instruction and activities in the classrooms to target the word as a whole not just as letters. Therefore, qualified and dedicated teachers are also needed to identify areas of strengths and weaknesses and level the ground for those children to become better readers (Alshaboul et al., 2014).

Due to little research related to what precise strategies for the integration of phonological awareness should regard the degree of phonological awareness instruction needed at each stage in schools (Al-Tamimi & Rabab'ah, 2007) and how first grade teachers actually perceive the significance and use of phonemic awareness instruction (Al- Shaboul et al., 2013) especially phonemic segmentation skill through the use of interactive whiteboard, the current study will be developed to provide a noticeable awareness of how phonemic segmentation skill might increase EFL beginning readers' word recognition through using an interactive whiteboard to become better readers.

118

In brief, all of the aforementioned studies involved considerable actions. However, none of them has explored the use of technology to offer lessons to learners in order to spot the effect of phonemic segmentation skill on EFL beginning readers' word recognition. It is evident that there is little research regarding the 21st century instructional tools of technology. In addition, the researcher will examine the influence of phonemic segmentation skill as well as the use of interactive whiteboard on word recognition in EFL beginning readers' classrooms.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter outlines the procedures and processes of this study as well as providing an overview of the type of research design used for this research study. This chapter reports the results of pilot study. It includes a description of the research design, the sample of the study and the instrumentation. It explains the procedure taken for data collection. Finally, it sheds light on the techniques of data analysis.

3.2 Research Design

The purpose of this study is to investigate the effect of phonemic segmentation skill and the use of interactive whiteboard on EFL beginning readers' word recognition. The researcher collected and analysed data gained from the quasi experimental study and cross-sectional questionnaire survey. Thus, the researcher used quantitative research method.

Cohen, Manion, and Morrison (2007) asserted that the research questions and objectives of the study determine the design of any research. Therefore, the current research used quantitative research method. In addition, Sekaran (2003) stated that the choice of the researcher for a particular research methodology relied critically on the relationship between the methodology and objectives of the research.

Based on the above interpretation, the researcher decided to adopt quantitative research method. The quantitative components of this study were the word recognition test scores as well as the questionnaire results. Figure 3.1 shows the research design for this study.

120
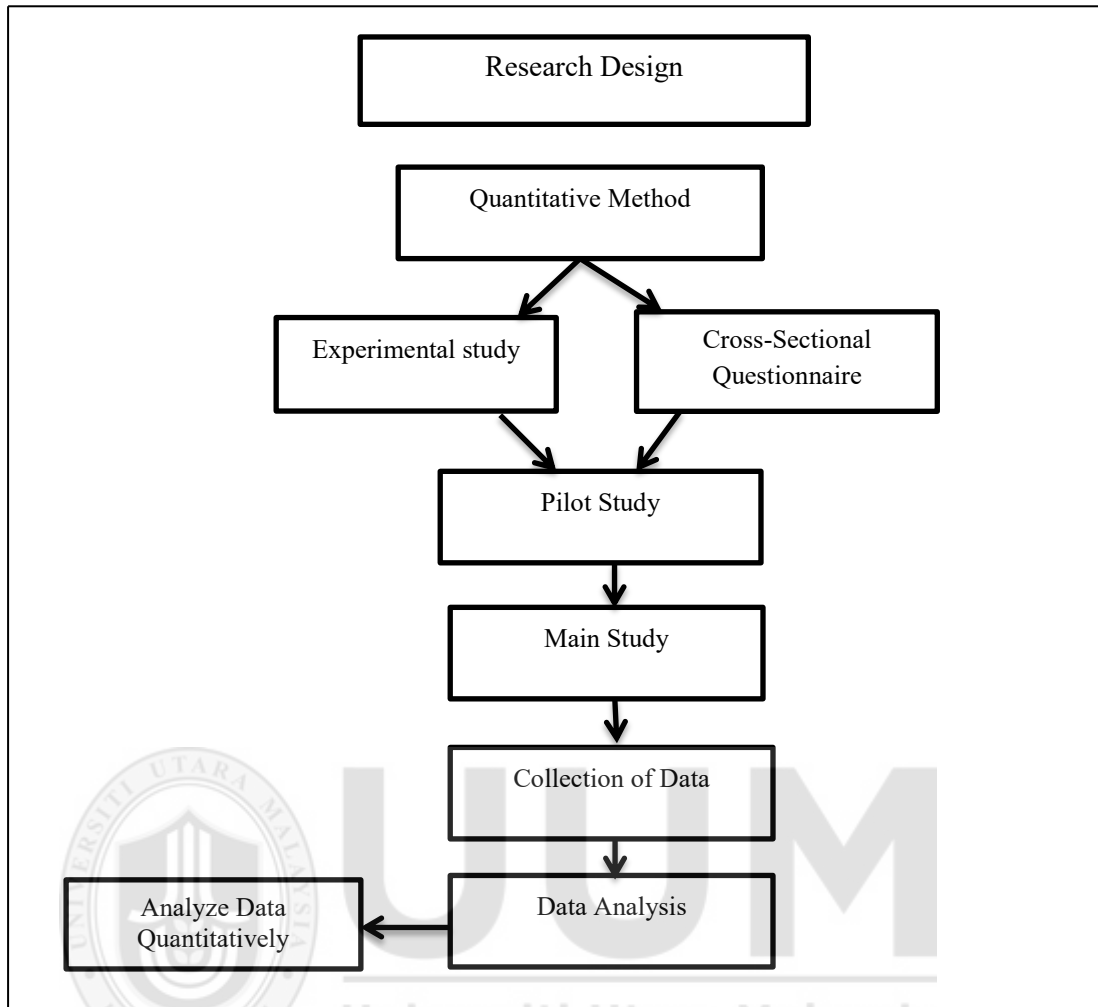
Figure 3.1. Research Design

Concerning the quantitative component, a quasi-experimental design was used in the current study with pre- and post-tests. According to Creswell (2012), the experiment study positively produces useful information about outcomes. Creswell (2012) also asserted that a pre-test and post-test are required for a treated and comparison group in quasi-experimental designs in which a comparison of existing groups can be made. Quasi-experimental designs are commonly used in social and educational program research when random assignments are not possible and where intact groups are accessible to the researcher (Creswell, 2008, 2012, 2014; Lee, 2012).

Thus, the research began with a quasi-experimental design. This particular design was conducted to investigate the effect of the use of the interactive whiteboard in teaching phonemic segmentation skill on EFL beginning readers' word recognition. Two classes of the participant teacher represented the two intact groups. Group A, the experimental group, received phonemic segmentation instructions using the interactive whiteboard. On the other hand, group B, the control group, received phonemic segmentation instructions without the use of the interactive whiteboard. Both groups had a pre-test and post-test. Table 3.1 explains the experimental design for this study.

Table 3.1

Research Experimental Design

GROUP	INITIAL ASSESSMENT	EXPERIMENTAL ACTIVITY	FINAL ASSESSMENT
EXPERIMENTAL GROUP	Pre-test	Activities in phonemic segmentation skill using the IWB	Post-test
CONTROL GROUP	Pre-test	Activities in phonemic segmentation skill using a traditional chalkboard	Post-test

(Adapted from Campregher (2010)

After the post-test period in the quasi- experimental design, a cross-sectional questionnaire was conducted and distributed to teachers of EFL beginning readers. This questionnaire addressed the perceptions of teachers of Jordanian EFL beginning readers towards the use of phonemic segmentation skill in improving word recognition as well as their perceptions towards the use of the interactive whiteboard

in improving word recognition among Jordanian EFL beginning readers. The next chapter demonstrates the variables of the study.

3.3 Conceptual Framework of the Variables of the Current Study

As mentioned earlier, this study employed a quasi-experimental design and a cross-sectional questionnaire. In the quasi-experimental design and cross-sectional questionnaire, there are a set of variables, namely the independent variables (IV) and the dependent variables (DV). The independent variables in this study were the demographic variables, phonemic segmentation skill, and the interactive whiteboard. On the other hand, the dependent variables were word recognition test scores (utilized in quasi-experimental design) and teachers' perceptions of the use of phonemic segmentation skill as well as teachers' perceptions of the use of the interactive whiteboard (utilized in cross-sectional questionnaire). Figure 3.2 shows the conceptual framework for these variables.
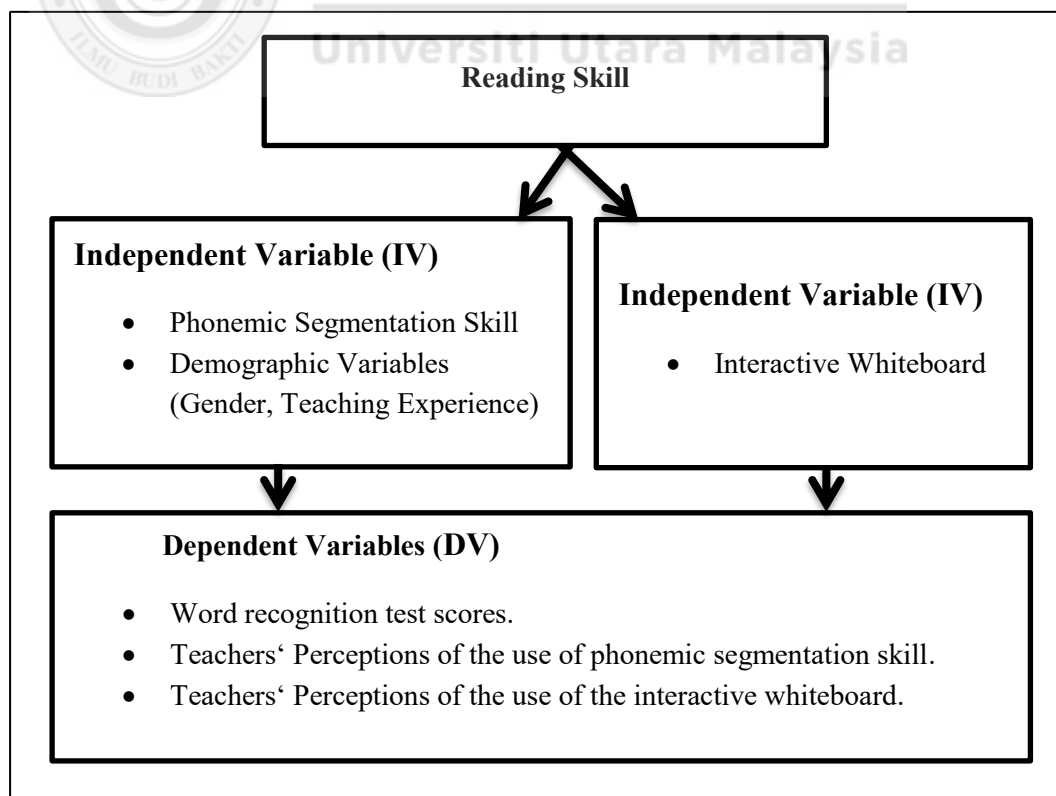
Figure 3.2. The Conceptual Framework for the Variables.

3.4 Sample of the Study

This study had two target populations and one research sampling. One target population included EFL beginning readers from Jerash Basic State School for Boys. The other population included 110 teachers of beginning readers. As for the sample of this study, it was convenience sampling of the EFL beginning readers in Jerash Basic State School for Boys.

This school selected for this study is a large urban Basic State School for Boys located in Jarash, the northern part of Jordan. It is one of the target populations in this study. This school, which is called Jerash Basic School, is just similar to thousands of state schools distributed across the country and run by the Ministry of Education. However, this school is different from the other schools in a way that it contains first grade classes in addition to the existence of interactive whiteboard. Hence, this school has been selected for the following reasons. First, the interactive whiteboard is available inside the school. Second, the participant teacher who masters the use of the interactive whiteboard to implement the interactive lessons is available. Third, there are the physical facilities equipped with interactive whiteboard, data show and computer device required for implementation of the lessons.

Furthermore, the beginning readers have similar curricula in all state schools in Jordan in addition to the similarity in teachers' qualifications and parents' socio-economic status. Hence, the sample of this study regarding the quantitative instruments is considered a convenience sample (Creswell, 2014; Fraenkel & Wallen, 2009) since the researcher gets the permission of the principal and can obtain consent from the students (Creswell, 2012) of the Basic State School to

124

participate in this research. According to Farrokhi and Hamidabad (2012), a convenience sample is the most common type of sample used in L2 studies.

As yet, the target sample of this study was students from this Basic State School for Boys located in Jarash. The study included forty one first grade students who were 7 years old on average from Jerash Basic State School for Boys. They were all Arabic native speakers and they were EFL beginning readers according to their teachers. This school is an affiliate of the Jerash Directorate of Education. In the school, there were three classes of the first grade. Two classes were chosen randomly by the principal of the school. Both classes, represented by forty one students, randomly assigned to two intact classes or groups (creswell, 2012). Group A represented the experimental group and group B represented the control group. Thus, forty one beginning readers participated and represented the sample of the population of the Basic State School targeted in this study. The experimental group had 21 students and the control group had 20 students.

Alongside the EFL beginning readers, the population of the study also consisted of 110 first graders' teachers who had everyday schedule and were distributed in schools within the Directorate of Education in Jerash. Teachers of first grade have been chosen due to the availability of interactive whiteboard in their schools. It is important to note that there is only one interactive whiteboard in each school. They taught English skills through the use of the interactive whiteboard according to the school timetable provided by the school principal. Another reason for choosing the teachers of first grade is that they spend time with EFL beginning readers. It is crucial to know the child in the first grade well; this helps his teachers to determine the appropriate plans to raise his formal schooling. Therefore, this current study

125

investigated teachers' perception towards the phonemic segmentation skill as well as the interactive whiteboard in relation to word recognition of Jordanian EFL beginning readers. It is important to indicate that teachers of first grade represent the population of the study.

To determine the sample the target population, 86 first graders' teachers who have taught English language participated in this study. Thus, 86 teachers of first graders were chosen in accordance with Krejcie and Morgan's (1970) table of determining the sample size. The next section discusses the instrumentation used in this research. Table 3.2 shows Krejcie and Morgan's (1970) table of determining the sample size.

Table 3.2

Krejcie and Morgan's (1970) Table of Determining the Sample Size

N	S	N	S	N	S
10	10	50	44	90	73
15	14	55	48	95	76
20	19	60	52	100	80
25	24	65	56	**110**	**86**
30	28	70	59	120	92
35	32	75	63	130	97
40	36	80	66	140	103
45	40	85	70	150	108

(Adopted from Krejcie & Morgan, 1970)

3.5 Instrumentation

The instruments used in this study were: (1) the pre-tests, post-tests and delayed post-tests adopted from Clay's (1979) Ready-to-Read Word Test (List C) and (2) a

126

cross-sectional questionnaire survey adapted by Dahmer (2010) and Xu and Moloney (2011). Table 3.3 shows the data collection instruments.

Table 3.3

Data Collection Instruments

Research Questions	Data Collection Instruments	Sample
1. What are the differences in the word recognition test scores between first grade students who are taught with the phonemic segmentation skill using the interactive whiteboard and those who are taught with a traditional teaching method?	Pretests and Posttests Adopted from Clay's (1979) Ready-to-Read Word Test (List C)	EFL Beginning Readers
2. What are the differences in the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard in terms of gender and teaching experience?	Cross-Sectional Questionnaire	Teachers of EFL Beginning Readers
3. What are EFL teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers?	Cross-Sectional Questionnaire, items: 1-16 Adapted from Dahmer (2010)	Teachers of EFL Beginning Readers
4. What are EFL teachers' perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers?	Cross-Sectional Questionnaire, items: 17-26 Adapted from Xu and Moloney (2011)	Teachers of EFL Beginning Readers

3.6 Pilot study

The pilot study in this research involved the quasi- experimental study and EFL teachers' perception questionnaire. They were all first piloted with some of the teachers of beginning readers and beginning readers respectively. It is a crucial step to conduct a pilot test for the current study using data collected from a group of participants who are similar to the target group.

Creswell (2003) stated that a pilot study is an essential step in having a rehearsal of the protocol in which the researchers can follow before the main study. It should be noted that a pilot study has the same meaning as feasibility study intended to provide guidance in order to plan out a large-scale investigation (Thabane et al., 2010). Hence, in order to have a brief description of this pilot study, this section includes objectives of the pilot study for the instruments, reasons for using the questionnaire, content validity, piloting the study and the reliability of the instruments.

3.6.1 Objectives of the Instruments of the Pilot Study

For this current study, the researcher decided to implement preliminary version of the data collection before commencing conducting the main study. The piloting process helped the researcher determine the right question in most effective way and whether the participants were able to answer the questions properly or not. It also helped in refining the survey before being distributed for collecting data of the main study. It enabled the researcher to check the clarity of the questionnaire items. It also enabled the researcher to check the validity and reliability of the instrument. In a word, it enabled the researcher to avoid ambiguity and reduce the difficulties in the main study by making the necessary amendments if needed.

3.6.2 Reasons for Using the Cross-Sectional Questionnaire

The researcher decided to use cross-sectional questionnaire related to teachers' perception for the following reasons: First, the questionnaire is a considerable tool of social investigation used within social science research (Bulmer, 2009). It has also been used for acquiring information concerning public knowledge, perception attitudes (Bird, 2009). Second, previous studies pertaining to phonological and phonemic awareness skills used survey questionnaires (e.g. Williams, 2012; dahmer,

2010; sekel, 2003; Cheesman, 2004; Rangel 2013). Third, a questionnaire is useful to gather information from a large number of respondents (Kelley, Clark, Brown, & Sitzia, 2003). Finally, the questionnaires can produce a large amount of data in a short time for a fairly low cost (Kelley et al., 2003).

3.6.3 Content Validity

The content validity of an instrument refers to the extent to which the questions of an instrument measures what it aims to measure (Creswell, 2008; Dornyei & Taguchi, 2010). The following steps were established in order to determine the validity of the items of the questionnaire and lesson plans.

3.6.3.1 Panel of Six Judges

To identify the content validity of the research instruments to be sure that questions are valid (Creswell, 2008; Dornyei & Taguchi, 2010), all the instruments were sent to six professional judges or experts. Thus, the researcher invited three English language senior lecturers majoring in Applied Linguistics from Jordanian universities, one senior lecturer majoring in Linguistics and finally two school supervisors of English language with considerable expertise in education (see Appendix G). The role of this panel was to examine whether the items were accurately constructed and suitable for the purposes of the study as well as measuring what the present study intended to measure. The six experts were also requested to review and evaluate the content validity of the instruments as a whole. Those senior lecturers are considered as language experts regarding their area of specialization in English Language.

3.6.3.2 Doing the Amendments

Based on the suggestions and feedback received from the panel of judges, the researcher made the necessary amendments and additions. The panel of judges wrote their notes on their offered papers. Their suggestions were also given on the instruments of the study (See Appendix H). For example, the researcher added the definition of the interactive whiteboard to the survey. Thus, they reviewed academic questions appropriate to the areas of investigation without deletions of the items (see Appendices J, K, M, and N). Furthermore, it should be noted that the research instruments were printed in a well-organized design to make as good impression as possible on the participants.

3.6.4 Piloting the Study and the Reliability of the Instruments

This section provides information about piloting the quasi-experimental study and the survey. It includes the reliability of the instruments used in this study. It is important to note that permission was granted from the Jerash Education Directorate, the principal, the participating teacher, the parents of the students and the students themselves before conducting the pilot and the main study (see Appendices A, B, C, D, and E).

The criterion of reliability refers to the consistency of a measure. A test is considered reliable if we get the same result repeatedly (Creswell, 2003). In order to ensure the reliability, the questionnaire items were checked through a reliability check analysis which was performed on word recognition test as well as the questionnaire items. Dornyei and Taguchi (2010) pointed out that acceptable reliability of the questionnaire will be found if the alpha (α) is at least equal 0.70   ($\alpha >= 0.70$). After

collecting the data from the questionnaire, the data were calculated using SPSS version 22 for Windows.

3.6.4.1 Quasi-Experimental Study

The researcher conducted a pilot test for the quasi-experimental study in the middle of January 2015. This test is Clay's (1979) Ready-to-Read Word known as word recognition test (Durgunoglu et al. 1993; Alshaboul et al., 2014) (See Appendix I). The Clay's (1979) Ready-to-Read Word List C has been used in a number of researches (e.g. Alshaboul et al. 2014; Durgunoglu et al. 1993; Kim, 2009) and has a considerable reliability. For example, the cronbach alpha for the word recognition test, list C, in a study conducted by Kim (2009) was estimated to be .92. It is important to indicate that the Cronbach alpha for the Clay's Ready-to-Read Word List C for this sample was estimated to be .85. Table 3.4 shows the reliability of the word recognition test.

Table 3.4

Reliability Check of the Word Recognition Test

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.85	.90	2

In this pilot test, there were two groups of ten beginning readers. The first group is referred to as experimental group and the other group is referred as control group. The purpose of this test is to identify the reliability of the test. There were pre-test and post-test presented to beginning readers in the early of February 2015. In other words, ten beginning readers participated in this pilot experimental study. These ten students had a pre-test, an intervention and finally a post- test. The treatment of this

pilot study took one week. The students received a short instruction in Arabic before administering the pre-test, the intervention and the post-test sessions.

3.6.4.2 The Questionnaire

As for the questionnaire, it was distributed to a sample of Jordanian EFL teachers of beginning readers from outside the study sample to ensure its stability or reliability in the early of April 2015. The questionnaires were sent to 30 teachers both male and female to identify the clarity the content of the questionnaire. From this pilot study, the researcher realized that respondents spent 10 to 15 minutes to complete the questionnaire.

It is important to note that the survey items 1-16 represent Jordanian EFL teachers' perceptions of the use of phonemic segmentation skill towards improving EFL beginning readers' word recognition. On the other hand, the survey items 17-26 represent Jordanian EFL teachers' perceptions of the use of the interactive whiteboard towards improving EFL beginning readers' word recognition.

After collecting data from the questionnaires, the data were calculated using SPSS 22 for Windows. The alpha coefficients of the questionnaire items 1-16 was 0.76. The alpha coefficients of the questionnaire items 17-26 was 0.71. The overall coefficient was estimated to be 0.71 ($\alpha = 0.71$), which is considered good reliability. Thus, the present questionnaire was reliable and could be used in the main study. Table 3.5 shows the reliability check of the questionnaire of the pilot study.

Table 3.5

Reliability Check of the Questionnaire of the Pilot Study

Questionnaire Items	Cronbach's alpha
1-16	.76
17-26	.71
Overall	.71

3.6.5 Summary of the Findings of the Pilot Study

This section describes the results obtained from the pilot study. As mentioned earlier, the researcher conducted a pre-and post-test of word recognition and cross-sectional questionnaire. First of all, the findings obtained from word recognition pre- and post-test in the experimental pilot study showed that there was clear weakness in the children's word recognition ability (mean score around 1.5/15 for pre-test and 3.0/15 for post-test). However, there was a slight improvement in the post-test results.

Second, the results obtained from the questionnaire had a significant contribution in identifying the use of phonemic segmentation skill as well as the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers. There was favourable support among teachers of first grade towards the use of phonemic segmentation skill as well the interactive whiteboard in improving the word recognition of EFL beginning readers. Thus, the results of this pilot study showed that Jordanian teachers are aware of the importance of the use of phonemic segmentation as well as the use of the interactive whiteboard in improving the word recognition of EFL beginning readers. The results were attained using descriptive statistics (see Appendix L). After the completion of the questionnaire survey of the

pilot study, the main study is ready to launch. The following section describes the research instruments used in the main study.

3.7 The Research Instruments of the Main Study

As mentioned earlier, the study used quantitative research method. In this study, the instruments include word recognition test and cross-sectional questionnaire. Thus, two instruments were used to determine and identify the objectives of the study.

3.7.1 Word Recognition Test

The word recognition test aimed at identifying the children's needs of learning and teaching, particularly those who struggled with reading. It was used to measure emergent literacy development as well (Nutbrown, 1997). Therefore, the researcher used word recognition test to assess EFL beginning readers' word reading ability measured by Clay's (1979) Ready-to-Read Word Test. However, in addition to its major role in programs related to reading recovery, the test has been used in evaluation studies (Sylva & Hurry, 1996) and has been used in other research studies which are not associated with reading recovery (Neuman, 1996).

The ready to read word test consisted of three lists of group of words (A, B and C). These lists are all identified as the most frequent words occurred in the ready to read series of basic reading texts with regard to young children (Nutbrown, 1997). In the test, the child is asked to read one of the three lists selected by the tester and his performance is scored (Nutbrown, 1997). Thus, the researcher decided to choose list (C). It is important to indicate that this tool of the assessment (list C) consists of 15 common English words to assess how many words the children could already read in English (Alshaboul et al., 2014; Durgunoglu et al., 1993). Furthermore, in order to

134

determine how many words the EFL beginning reader could read in English, Clay's (1979) Ready-to-Read Word Test (List C) was used. Ready-to-Read Word Test enjoys a reliability of .90 (Clay, 1979, as cited in Durgunoglu et al. 1993; Denton, Ciancio, & Fletcher, 2006) in which it will be qualified as a suitable tool to make decisions about participants (Nutbrown, 1997).

Furthermore, the word recognition test was administered to two groups of EFL beginning readers as a pretest and posttest instrument. It is important to note that each beginning reader was tested on two occasions separated by an interval of four weeks. After the pre- and post-test session, the cross-sectional questionnaire session was ready to conduct.

3.7.2 The Cross-Sectional Questionnaire

A cross-sectional questionnaire of the perceptions of teachers of Jordanian EFL beginning readers was conducted by the researcher in April 2015. It was also distributed to teachers of EFL beginning readers in the Basic State Schools in Jerash. This questionnaire is a 26-item Likert-scale type instrument adapted from Dahmer (2010) and Xu and Moloney (2011) for measuring the perceptions of teachers of EFL beginning readers. The questionnaire items (1-16) were adapted from Dahmer (2010) and items (17-26) were adapted from Xu and Moloney (2011) as their questionnaire items were close and suitable for the objectives of this research. Furthermore, all items were arranged in a manner in which it allowed the respondents to answer each survey section by placing a tick in one of the boxes or by circling the number of their preferred responses.

Thus, the Likert scale was helpful to get descriptive data so that the frequencies of responses for each teacher's response to each single statement are observed. Ary, Jacobs, Razaviah, and Sorenson (2010) contended that ―A Likert scale (a summated rating scale) assesses attitudes toward a topic by presenting a set of statements about the topic and asking respondents to indicate for each whether they strongly agree, agree, are undecided, disagree, or strongly disagree" (p. 209). A Likert scale is considerably suited to perception statements as it allowed respondents to indicate, on a continuum, the level of agreement that they have toward a specific issue. It is interesting to note that the 5-point scale.is effective for collecting data on the basis of interval scale. It helps the respondents choose their responses correctly, clearly, and in an easy way. This can be done by determining the degree of agreement –from strongly disagree to strongly agree- with the matter proposed. Thus, likert scale can evaluate the respondents' view according to their perceptions of the subject matter

For the current study, the 5-point Likert scale provided the respondents with an opportunity to show their degree of agreement for various statements related to the significant use of phonemic segmentation skill and the interactive whiteboard towards EFL beginning readers' word recognition. Concerning the cross-sectional questionnaire used in this study, it randomly contained items that do and do not support the significant use of the phonemic segmentation skill in relation to EFL beginning readers' word recognition. In addition, it contained items that do and do not support the significant use of the interactive whiteboard in relation to EFL beginning readers' word recognition. A Likert scale was useful to assess these perceptions of respondents since a numerical value, which is in the form of a frequency number and percentage, can be collected for descriptive purposes. Specifically, remarkable consideration will be given to each item development in

136

order that the participant teachers can complete the questionnaire with ease, lucidity and timely appropriateness.

3.8 Data Collection Procedure of the Main Study

Creswell (2003) asserted that quantitative research includes data collection so that information can be quantified and subjected to statistical treatment so as to support or refute ―alternate knowledge claims" (p. 153). Figure 3.3 summarizes the procedure for data collection of the main study.

3.8.1 Permission

Data collection process began when the access to Jerash Basic School is obtained. Letters of consent forms were sent to Jerash Directorate of Education, school principal's office, the volunteer teacher and parents of beginning readers (Appendices A, B, C, and D). Once the permission from the aforementioned obtained, training session for the participating teacher began directly.
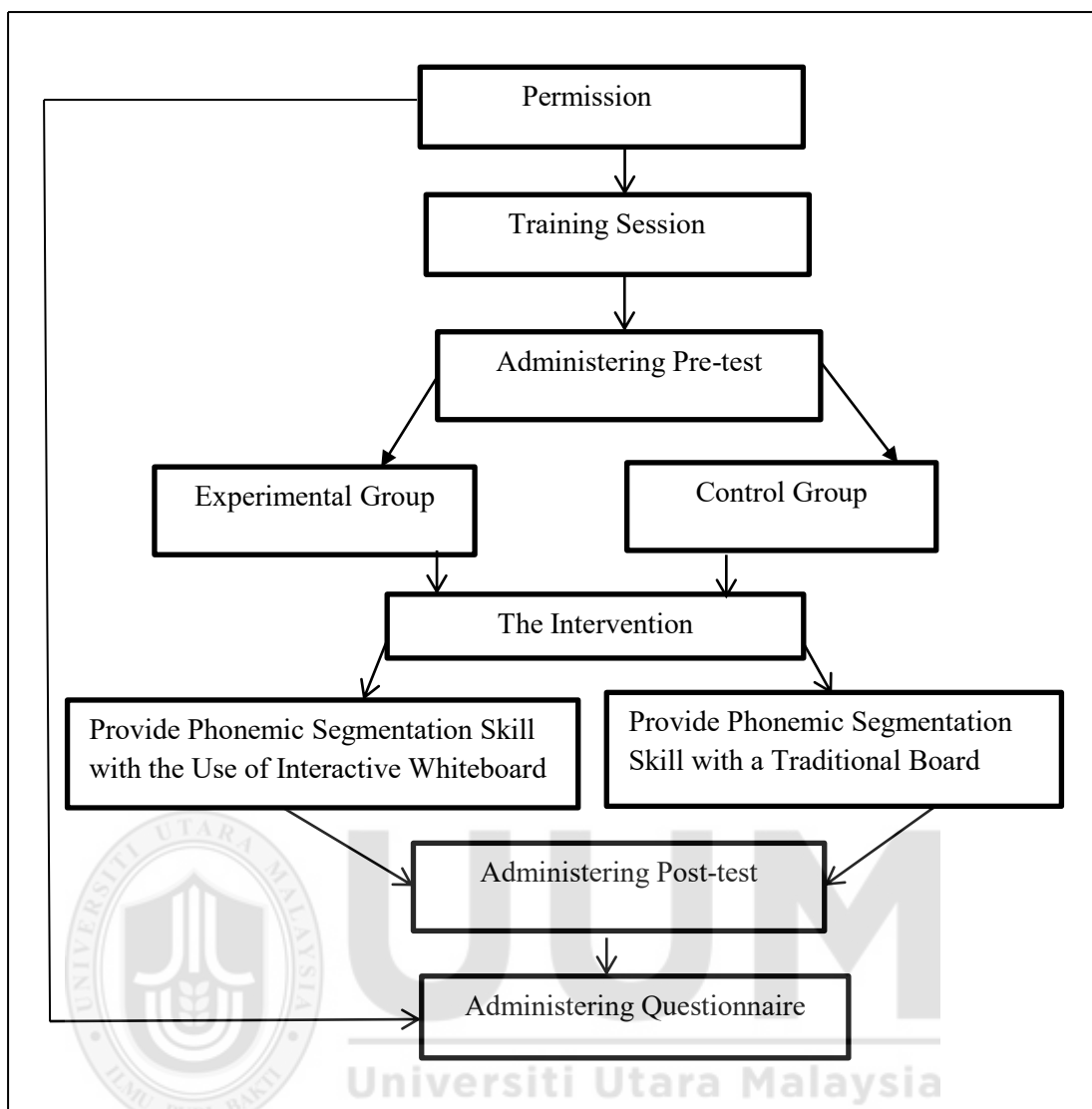
Figure 3.3. Flow Chart of Data Collection Procedures

3.8.2 The Training Session

The consent form signed by the teacher who agreed to participate in the study is in Appendix C. The participant teacher was trained by the researcher. The training session lasted one week in the early of February 2015. Training comprised a general description of the research project and a deep discussion of the concept of phonemic segmentation skill. Interactive lessons in phonemic segmentation were demonstrated through the use of interactive whiteboard as well as traditional chalkboard. Furthermore, the questions raised by the participant teacher were answered during

the training session. After the training session, the participant teacher practiced with the scripted lessons and materials for the intervention in the experimental group through the integration of the interactive whiteboard as an instructional tool. This teacher was well trained with respect to the use of the interactive whiteboard technology as he presented lessons through this technology before. Therefore, no further training in presenting phonemic segmentation through using the interactive whiteboard was provided to this teacher.

Since both groups had the same teacher, there is no need for further instruction or training concerning the control group. The same teacher of the control classroom presented the lessons in relation to the phonemic segmentation skill through the use of a traditional teaching method, a traditional chalkboard in particular. In other words, scripted lessons in phonemic segmentation skill were demonstrated through the use of traditional teaching method. Thus, both groups were taught by the same teacher in order to minimize the teacher differences based on teaching experiences, qualifications and other educational skills. After the end of training session, the pre-test session began directly.

3.8.3 Pre-Test Session

First of all, the consent forms signed by parents giving permission for their beginning readers to participate in the study are in Appendixes D and E. These consent forms actually launched the stage of pre-test session. In the pre-test session, all pre-tests were individually administered to the participants of the two groups by the researcher. In addition, each participant student was individually pre-tested by the researcher using the word recognition test (List C) (See Appendix I). During the first testing session, the researcher provided an explicit instruction in order to tell the

students who participated in the study that they were going to read English words. Then, he asked each individual to read the fifteen words in list C. The participant student credited one point for each word he correctly read. Thus, instructions were given in English and were translated into Arabic (the first language of the participants) in order to avoid any misunderstanding or miscommunication in the pre-test sessions.

Moreover, it should be noted that the instrument was administered by the researcher in middle of February, 2015 within two sessions that lasted two days. The first session lasted approximately one hour with short breaks between tests. Similarly, the second had the same procedure. The researcher gave instructions in English and translated them into Arabic. It is crucial to note that in the pre-test session the test was individually administered to each beginning reader by the researcher. In addition, testing took place during the school day in an isolated and quiet room on school campus. After the pre-test session, the intervention session was introduced to the experimental group (Group A) and the control group (Group B).

3.8.4 Intervention Session

The purpose of this intervention is to investigate the effect of the incorporation of the interactive whiteboard on word recognition of EFL beginning readers in relation to the instruction of phonemic segmentation skill. This intervention consisted of two groups, namely the experimental group (A) and control group (B). There were 21 and 20 students in the experimental and control group respectively.

It is important to note that both of the experimental and control group participants in this study received instructions in phonemic segmentation skill. Regarding the

intervention session, the experimental group received instructions in the phonemic segmentation skill through incorporating the interactive whiteboard as an instructional tool, whereas the control group received the phonemic segmentation instruction using a traditional teaching method. Table 3.6 demonstrates the intervention session.

Table 3.6

The Intervention Procedure

Group/ Teacher	No. Students	Teacher's Training Session	Treatment (February and March 2015)	Duration of the Single Session	Duration of Whole Treatment	Lesson Plan
Experimental (A) The same teacher	21	Lasted for one week before the intervention	Phonemic segmentation instruction using the interactive whiteboard	10 min	Four weeks (3sessions in a week)	Lessons adapted from Buys (1992)
Control (B) The same teacher	20	Lasted for one week before the intervention	Phonemic segmentation instruction using the traditional teaching method	10 min	Four weeks (3sessions in a week)	Lessons adapted from Buys (1992)

In addition, both groups were organized into intact groups. Intact groups are groups that correspond to their classrooms in which the participants of this study were randomly enrolled at their entrance. A well-trained teacher administered all tasks regarding the intervention as well as the control group. The researcher did the video recordings. It should be noted that the researcher has trained the participant teacher.

After administering the pre-test instrument, the intervention was directly commenced. The single intervention session approximately took 10 minutes in length over four weeks. There were three sessions of treatment in a week.

141

Additionally, the lessons concerning the phonemic segmentation skill were adapted from Buys (1992). The whole intervention session took about 130 minutes in length.

Buys (1992) conducted a study to examine the effectiveness of three instructional methods in relation to the teaching of kindergarten students' phonemic segmentation. The participants of her study were arranged into experimental and control group. In her study, the members of the experimental group participated in instructions in phonemic segmentation. Moreover, the experimental groups used the IBM Writing to Read program. It should be noted that IBM Writing to Read program is a computer-based system designed to develop reading skills in young children through their writing. This IBM Writing to Read program taught phonemic analysis and segmentation through a system of computer assisted lessons.

Based on the above explanation, the researcher decided to adapt Buys' (1992) lessons plan since the experimental group received phonemic segmentation through an instructional tool of technology. In addition, the control group did not receive lessons through this IBM Writing to Read program. This makes her study very close to the current research and the intervention in particular.

Regarding the intervention provided by the participant teacher, there were two sessions held concerning the experimental and control groups during the whole intervention in the school day. The school day has two sessions separated by food break. The first intervention session that involved the experimental group followed by the second session that involved the control group took place either before or after the food break. Once the participant teacher finished the class represented by the experimental group, he immediately went to the other class represented by the

142

control group. Therefore, there is no chance for the students in the two groups to meet with each other. Both sessions occurred in the same day using the instruction of phonemic segmentation skill. The school administration was very strict in order to keep order in the school during both sessions. The school principle supervised the whole sessions in order to avoid any disturbance that could arise. It is interesting to note that there were three sessions in a week for each group and the whole sessions lasted four weeks in length. The following sections describe the instructional implementation of the experimental group and the control group.

3.8.4.1 Instructional Implementation of the Experimental Group

The participant teacher implemented his treatment for four weeks, three days per week in the first session of the intervention. Students in the intervention classrooms received the instruction in phonemic segmentation with the use of the interactive whiteboard three days per week. The teacher was trained in the phonemic segmentation instructions before the implementation of this research project by the researcher. In the first session, the participant teacher focused on the sound of the language rather than their corresponding letters. He also confirmed that the phonemes comprised the sounds of the English language. For example, he divided the English word ―eat‖ into its individual sounds /k/, /a/, and /t/. The instructions were provided on the interactive whiteboard with respect to three given words and the phonemes that make up those words. The instructions of the phonemic segmentation presented by the incorporation of the interactive whiteboard lasted about 10 minutes per lesson. The students were required to identify the initial, middle and final sounds of the given words.

In other words, each lesson required the teacher to give an initial review of the concept of phonemic segmentation. Several demonstrations of phonemic segmentation were provided to the students in each lesson by first saying the given word in a normal way (man) and then stretching this particular word in a way that each sound was made explicit (mmm – aaa – nnn). The students repeated each word in its normal form as well as its stretched form by showing this feature of sound segmentation on the interactive whiteboard after the demonstration of the teacher. This participant teacher used Elkonin boxes (or sound boxes) to begin breaking words into its individual sounds through the use of interactive whiteboard during the whole intervention lessons. According to Bodrova and Leong (1998), Elkonin Boxes is considered a useful technique of reading recovery that represents the sounds in which children are encouraged to listen for sounds and analyze a spoken word into its component phonemes. McCarthy (2008) claimed that Elkonin Boxes is a technique that teaches the student how to hear the phonemes in words in sequence through the connection of the slow verbal stretching of sounds of a word. It is important for educators to begin their teaching with sounds. Then, they connect these sounds to letters instead of associating letters to sounds. By doing so, young children become more aware of the sound-letter association (McCarthy, 2008).

The lessons of the experimental group contained about 10 target words to use in each instructional session. Moreover, the students would be occasionally asked to suggest a word for the class to segment. The lessons concluded with a review of the concept of phonemic segmentation and a given activity.

It is important to indicate that the major focus was on the sounds of the words in all these lessons. Hence, students only dealt with the sounds of the English language. There were no follow-up worksheets to be practiced in the skill of phonemic segmentation. All activities were done through the interactive whiteboard. In addition, all lessons were delivered to the whole class during instructional periods of about 10 minutes. It should be noted that lessons are in Appendix M. Figure 3.4 demonstrates one of the lesson plans intended for the intervention.

Topic: Phonemic segmentation training Lesson Title: segment individual sounds Date: February 17th, 2015	Lesson No. 1 Number of students: 21 (Experimental Group)	Duration: About 10 minutes Age: 7 years old Grade: 1st Grade First Session

The objectives of the lessons:

1-Students will be able to identify the initial, middle and final sounds of the given words.
2-To encourage students to recognize the concept of phonemic segmentation

The structure of the lesson:

Time: 10 min	Introduction	Teaching Materials
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -Laptop -Data Show -List of words: Bed-horse-clock-lorry-desk-doll-deer-duck-fan-ball-sun
	Procedures of the lesson	
	a-Introduce the lesson: identifying the initial, middle and final sound in the provided words The teacher explains the sound parts in words. 2- The teacher explains that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- The teacher introduces the concept of phonemic segmentation and illustrates how it will help us learn to read. 4- Let the students listen carefully to hear the initial, middle and final sounds in words. For example, /d/, /u/and /k/ sounds represent the word "duck". b- The teacher will use the interactive whiteboard to illustrate the activity of identifying initial, middle and final sounds in given words illustrated by the Elkonin boxes.	
	Closure (Assessment)	
	At the end of the Power Point Presentation on the interactive whiteboard, some activities will be given in which the students have to identify the initial, middle and final sound of the given word.	

Figure 3.4. Lesson Plan (Experimental Group)

3.8.4.2 Instructional Implementation of the Control Group

On the other hand, students in the control group received instructions in phonemic segmentation skill with a traditional teaching method. They received these instructions three days in a week in the second session of the intervention. The whole sessions lasted four weeks. Thus, the students in the control group did not receive the

146

instructions with the incorporation of the interactive whiteboard. Additionally, the same teacher provided follow-up worksheets and other activities to practice the skill of phonemic segmentation during the whole lessons. All lessons were delivered to the whole class during instructional period that approximately lasted 10 minutes. (See lesson plans in Appendix N). Figure 3.5 shows one of the lesson plans intended for the students in the control group.

Like the experimental group instruction, the teacher provided an initial review of the concept of phonemic segmentation in each lesson. Various instructions of phonemic segmentation were given to the students in the control group. For example, the teacher began saying the target word in a normal way (cat) and then stretching it in a way that each sound was made explicit (kkk – aaa – ttt). The job of the students was to say the word slowly by stretching it and then saying it in a normal speed. In other words, the students repeated each word in its normal and stretched form by demonstrating this skill of sound segmentation through the use of Elkonin boxes drawn on the traditional whiteboard. The participant teacher used Elkonin boxes or sound boxes to start dividing words into its separate sounds through the use of the traditional whiteboard during the whole lessons. He drew these boxes and showed the sounds in each box. It should be noted that these lessons included about 10 provided words to use in each instructional session. Furthermore, the students would be occasionally asked to give a word for the class to segment. The lessons concluded with a review of the concept of phonemic segmentation and activities related to the target instructions. After the end of the intervention of the two groups, the post-test session started in the following day.

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: February 17th , 2015	Lesson No. 1 Number of students: 20 (Control Group)	Duration: About 10 minutes Age: 7 years old Grade: 1st Grade Second Session

The objectives of the lesson:

1-Students will be able to identify the initial, middle and final sounds of the given words. 2-To encourage students to recognize the concept of phonemic segmentation

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	-Elkonin boxes -Traditional board -List of words: cat-bed-ball-bat- Bed-clock-lorry-desk-fan-ball-sun
	Procedures of the lesson	
	a-Introduce the lesson: identifying the initial, middle and final sound in the provided words The teacher explains the sound parts in words. 2- The teacher explains that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- The teacher introduces the concept of phonemic segmentation and illustrates how it will help us learn to read. 4- Let the students listen carefully to hear the initial, middle and final sounds in words. For example, /k/, /a/and /t/ sounds represent the word *"cat"*. b- The teacher will use the traditional board to illustrate the activity of identifying initial, middle and final sounds in given words illustrated by the Elkonin boxes.	
	Closure (Assessment)	
	At the end of the lesson, some activities will be given in which the students have to identify the initial, middle and final sound of the given word.	

Figure 3.5. Lesson Plan (Control Group)

3.8.5 Post-Test Session

When the intervention is completed, the post-test instrument was administered by the researcher to the students in the experimental and control group under the same conditions as the pre-test session in order to evaluate the EFL beginning readers'

148

progress of phonemic segmentation skill. Thus, at the end of the fourth week of the intervention of the two groups, each participant student was individually post-tested by the researcher using the word recognition test (List C). It is important to indicate that in the post-test session the test was individually administered to each beginning reader by the researcher. In addition, testing took place during the school day in an isolated and quiet room on school campus. Furthermore, all post-tests sessions occurred within 2 days after the completion of the intervention session.

In brief, the word recognition post-test instrument was administered by the researcher in March, 2015 within two sessions that lasted two days. The first session lasted approximately one hour with short breaks between tests. Similarly, the second had the same procedure. The researcher gave instructions in English and translated them into Arabic (the first language of the participants) in order to avoid any miscommunication and to prevent misunderstanding.

Given the explicit instructions provided in the first testing session, the researcher in the second testing session also provided the same instructions in order to tell the students who participated in the study that they were going to read English words. Then, he asked each individual to read the fifteen words in list C. The participant student credited one point for each word he correctly read.

Once the intervention sessions and the posttest are completed, the stage of questionnaire survey began. Concerning the questionnaire survey, it was distributed to EFL teachers in the Basic State Schools in Jerash in April 2015. The questionnaire considered two sections related to the first two research questions; these sections are the perceptions of the use of phonemic segmentation skill and the perceptions of the

use of the interactive whiteboard towards improving EFL beginning readers' word recognition. In other words, the items of the instrument deal with certain issues such as the use of the phonemic segmentation skill as well as the use of the interactive whiteboard in relation to Jordanian EFL beginning readers' word recognition. To be more specific, some items deal with favorable and unfavorable perceptions of the use of phonemic segmentation skill and the interactive whiteboard towards improving Jordanian EFL beginning readers' word recognition.

It is extremely important to note that the procedures of the main study lasted for about four months. Table 3.7 below highlights the stages of data collection undertaken in the main study.

Table 3.7

Data Collection Stages

Stage	Date	No. Days / Weeks / Months	No. Participants
Permission	February 2, 2015	One Week	
Training Session	February 3, 2015	One Week	The Participant Teacher
Pre-Test Session	February 15, 2015	Two Days	41 Beginning Readers
Intervention Session	February 17, 2015	Four Weeks	41 Beginning Readers
Post- Test Session	March 15, 2015	Two Days	41 Beginning Readers
Cross-Sectional Questionnaire Session	April 13 – May 17, 2015	About 30 days	86 Teachers of beginning Readers

150

3.9 Data Analysis

Walliman (2011) clearly showed the importance of analysing data in order to gauge, make comparisons, forecast, examine relationships, test hypotheses, explore, control and explain, construct concepts and theories. Figure 3.6 shows the data analysis for this study:
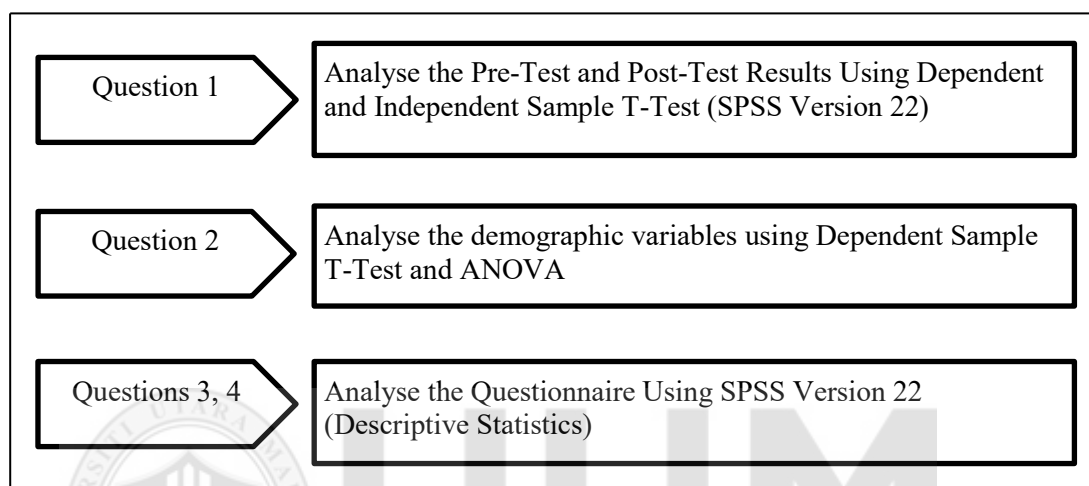
Figure 3.6. Data Analysis for the Current Study

The purpose of this quantitative study was to examine the effect of the phonemic segmentation skill as well as the use of the interactive whiteboard on word recognition of Jordanian EFL beginning readers.

As for the quasi experimental study represented by the first research question, an independent sample t-test is used. Independent sample t-test is a statistical method employed to demonstrate the variations among the means of two groups of a variable. This statistical method was used in this study in order to identify the significant differences between the beginning readers who are taught the skill of phonemic segmentation through the incorporation of the interactive whiteboard and those who are taught with traditional board. The purpose of conducting this experimental study was to examine the effect of the interactive whiteboard when

teaching phonemic segmentation skill on word recognition test scores among EFL beginning readers.

The results of pre- and post-tests were marked by the researcher. The answers of the Jordanian EFL beginning readers have been inserted in the SPSS program Version 22 regardless of being wrong or right. After that, the scores inserted by giving one mark for each correct answer and zero for incorrect answer. The whole test was also computed using SPSS. An independent samples t-test was used to check the homogeneity between both groups (experimental and control) in word recognition test before the phonemic segmentation instruction through the incorporation of the interactive whiteboard. After the completion of the intervention, the results of post-test have been compared to the results of pre-test by implementing independent samples t-test statistical procedure.

Thus, the researcher could examine the effect of the independent variable (using the interactive whiteboard in teaching phonemic segmentation skill) on the dependent variable (the change or growth of the scores in the word recognition test) by using an independent sample t-test. This technique was used in testing the null hypothesis related to the first research question.

Regarding the second research question, descriptive statistics that included means, standard deviation and frequencies were computed to summarize the responses of the Jordanian EFL teachers' perceptions towards the skill of Phonemic segmentation and the use of interactive whiteboard in relation to EFL beginning readers' word recognition; descriptive statistics and frequencies were employed to calculate the demographic data of the teachers with regard to experience, degree, age, and gender.

According to Howitt and Cramer (2005), an analysis of variance (ANOVA) is a method of statistical analysis used to determine differences among the means of more than groups of a variable. In the present study, this statistical method was used to determine the relationship among teachers' experience, degree and age with regard to the dependent variable (EFL teachers' perceptions).

With respect to third and fourth research questions, the returned questionnaire was tabulated with the assistance of Statistical Package for Social Sciences (SPSS) for windows 22 to identify Jordanian EFL teachers' perceptions towards the skill of phonemic segmentation as well as the use of the interactive whiteboard in relation to beginning readers' word recognition. It should be noted that different statistical methods were used to attain the main objectives of the present investigation. These methods include descriptive statistics, independent sample t-test, and analysis of variance (ANOVA).

3.10 Ethics and Participants' Rights

It should be noted that ethical considerations and issues are paramount in any type of research (Creswell, 2014). Participants' rights were protected for this study. Participants and their parents were informed in writing of the nature and purpose of the study. The letter was translated into the home language, and a signed consent form was returned and filed (see Appendices D & E). Additionally, students and their parents were informed that they could terminate participation in the study at any time. There was no risk associated with the participation in this study. Participants had a comfortable atmosphere that paved the way to participants not to face any psychological stress, negative effects on their health, unwanted solicitation, unwanted intrusion of privacy, or social or economic loss. The study did not include

153

participants' names, school of record, school email address, and school telephone number. All participant information and assessment records were being kept confidential.

A very vital point that should be taken into account when conducting any research is scientific honesty. Dishonesty in any research involves manipulation of design, methods, and manipulation of data (Brink, Van der Walt, & Van Rensburg, 2006). The researcher tried to avoid dishonesty in this research by video-recording of the participant_sintervention lessons as well as their tests sessions.

3.11 Summary

This chapter discussed the methodology that was used to investigate the effect of the phonemic segmentation skill as well as the use of the interactive whiteboard on improving Jordanian EFL beginning readers' word recognition. The study therefore examined the effect of the interactive whiteboard on word recognition test scores among Jordanian EFL beginning readers. After that, the study investigated the effect of demographic variables represented by gender and teaching experience on EFL teachers' perceptions in relation to the use of phonemic segmentation and the use of IWB. Finally, a questionnaire was administered to teachers of Jordanian EFL beginning readers to investigate the significant use of phonemic segmentation skill as well as the significant use of the interactive whiteboard in relation to Jordanian EFL beginning readers' word recognition.

In sum, this chapter explains a background of research methodology that includes research design, participants, instrumentation, data collection methods, and data analysis methods for the current research. The issues of validity and reliability in this

study are presented as well. Finally, at the end of this chapter, the ethical considerations of this investigation have been discussed and explained. Given the illustration of the research instruments which were used in this study, the quantitative results are presented thoroughly in the following chapter.

CHAPTER FOUR
FINDINGS

4.1 Introduction

Data analysis and results are presented in this chapter. The analysis focuses on the skill of the phonemic segmentation skill as well as the interactive whiteboard in improving word recognition of Jordanian EFL beginning readers. The findings will be presented and analysed based on the research questions that guide the current study. Hence, the aim of this chapter is to synthesize the multiple analyses and findings in order to provide a sense of what all the results mean. Thus, this chapter presents the findings of the four research questions. This chapter concludes with a summary.

4.2 Findings of the Quantitative Data

The findings of the first, second, third and fourth research questions were presented in this section. The first research question involved the findings of the experimental study in this research. In addition, t-test was used in testing the research hypothesis (H0) in relation to whether there is a significance difference in the word recognition test scores between EFL beginning readers who are taught with the phonemic segmentation skill using the interactive whiteboard and those who are taught with a traditional teaching method. With respect to the second research question, one way ANOVA analysis (degree, experience and age variable) and t-test analyses (gender) were employed to determine the significant differences between the variables of the present study in order to test the research hypothesis (H0) in relation to whether there is a significance difference in the EFL teachers' perceptions based on the demographic variables represented by gender and work experience in relation to the

156

use of phonemic segmentation and the use of IWB. As for the research questions

three and four, they involved the results of teachers' perception towards the use of

phonemic segmentation skill as well as the interactive whiteboard in improving word

recognition of the Jordanian EFL beginning readers.

4.2.1 Findings of Research Question 1

The data for this quasi-experimental study was organized into tables and charts. The

data for the experimental group and the control group were introduced in this

section. The data were analysed using the SPSS (Statistical Package for the Social

Sciences) (version 22). Upon collection, the numerical data were analysed according

to the research question stated in the introductory chapter. The raw scores were

analysed to determine if a significant increase was yielded in the post-test scores

from the pre-test scores by using t-test. Independent t-test results of the pre-tests of

the experimental and control groups were examined to identify the initial abilities of

the two groups.

In this section, the group statistics and the results obtained from both control and

experimental groups were demonstrated. An analysis of Independent t-test and was

conducted to determine if there was a significant difference in the scores of the

experimental group when compared to the scores of the control group at the

beginning of the study. Thus, the hypothesis of the first research question is as

follows:

H0: There is no significance difference in the word recognition test scores between

EFL beginning readers who are taught with the phonemic segmentation skill using

the interactive whiteboard and those who are taught with a traditional teaching method.

4.2.1.1 Group Statistics of Pre – Word Recognition Tests of the Two Groups

Data for a total of 41 first graders at one primary school were available for this study, consisting of 21 students in the experimental group and 20 students in the control group. Table 4.1 shows the group statistics of the word recognition pre-test for the experimental and control groups administered for the first-graders at the second semester of the school year 2015. It also shows the number of participants, mean and standard deviation on the word recognition pre-test for each of these two groups.

Table 4.1

Group Statistics of Pre- Word Recognition Tests of the Two Groups

Group	N	Mean	SD	Std. Error Mean
Experimental	21	2.90	2.52	.55
Control	20	1.55	2.06	.46

4.2.1.2 Comparison between the Two Groups in the Word Recognition Pre-Tests

The results of the Pre- Word Recognition Tests administered for the first-graders in both groups are shown in Table 4.2 below. From the table below, the results showed that there was no significant difference between the two groups in the word recognition tests (t=1.87, p＞.068). This means that the abilities of the word recognition tests of the experimental group and the control group were assumed to be identical at the beginning of the study. Therefore, any significant differences to be

detected after the treatment will be attributed to the effect of the interactive whiteboard.

Table 4.2

Independent Sample T-Test Results of Pre- Word Recognition Tests of the Two Groups

Group	N	Mean	SD	t	p
Experimental	21	2.90	2.52		
				1.87	.068
Control	20	1.55	2.06		

4.2.1.3 Comparison between the Two Groups in the Word Recognition Post-Tests

Based on Table 4.3, the results indicated that there was significant difference between the experimental and the control groups in the post word recognition test (t=2.58, p＜.05). The mean score of the experimental group was better than that of the control group. The use of interactive whiteboard that has resulted in the improvements of the experimental group students regarding the word recognition test was positively confirmed. The Interactive whiteboard therefore efficiently helped in improving students' skills in the phonemic segmentation skill. It led to their better performance in the word recognition test as well. The null hypothesis is therefore rejected.

Table 4.3

Independent Sample T-Test Results of Post Word Recognition Tests of the Two Groups

Group	N	Mean	SD	t	p
Experimental	21	6.24	4.76		
				2.58	.014
Control	20	3.00	3.00		

159

4.2.1.4 Results of the Experimental Group in Pre- and Post- Word Recognition Tests

Table 4.4 illustrated the paired-t test results. It showed that the treatment made a significant difference on the experimental group when using the interactive whiteboard (t= -5.26, p ＜ .05). Though the mean score of the experimental group is still relatively low, it nonetheless indicates a noticeable development in the group's word recognition. This becomes clearer when we compare the experimental group results in both pre and post word recognition tests based on Table 4.4 below.

Table 4.4

Paired Sample T-Test Results of Pre- and Post-Word Recognition Tests of the Experimental Group

Experimental	N	Mean	SD	t	p
Pre-test	21	2.90	2.52	-5.26	.000
Post-test	21	6.24	4.76		

4.2.1.5 Results of the Control Group in Pre- and Post- Word Recognition Tests

From table 4.5, it is obvious that the control group has made little advancement in both pre-and post-word recognition tests since the mean score of the control group is low. According to table 4.5 below, there is significant difference in word recognition ability (t = -3.68, P =0.002); i.e. p＜.05. However, the progress could be attributed to the instruction in phonemic segmentation skill.

160

Table 4.5

Paired Sample T-Test Results of Pre- and Post-Word Recognition Tests of the Control Group

Control	N	Mean	SD	t	p
Pre-test	20	1.55	2.06	-3.68	.002
Post-test	20	3.00	3.00		

4.2.1.6 Descriptive Analysis of Individual Words of the Word Recognition Post-Test

Given the descriptive analysis of individual words of the word recognition post-test after the intervention, Table 4.6 and 4.7 demonstrates the students' raw scores and results on the word recognition post-test in the experimental group. Tables 4.6 and 4.7 demonstrate mean and standard deviation for individual words of the word recognition post-test in the experimental group as well.

According to Table 4.6, it has been found that some students scored the maximum mark which is 15 and the minimum score was 1. Despite scoring the highest mark, the mean (6.2/15.00) still indicates that there is weakness among EFL beginning readers. It has been also noted that most of the Jordanian EFL beginning readers scored lower than 8. It is crucial to indicate that none of participants in the experimental group got zero.

Table 4.6

Students' Results on the Individual Words of the Word Recognition Post-Test in the Experimental Group

Instrument	N	Raw Score of Experimental Group	Minimum	Maximum	Sum	Mean	SD
	1	15					
Word	2	15	1.00	15.00	131.00	6.24	4.76
Recognition	3	8					
Post-Test	4	15					
(List C)	5	10					
	6	7					
	7	3					
	8	7					
	9	3					
	10	1					
	11	2					
	12	1					
	13	1					
	14	1					
	15	10					
	16	8					
	17	5					
	18	5					
	19	9					
	20	3					
	21	2					

In addition, Table 4.7 shows the mean and standard deviation for individual words of the word recognition post-test in the experimental group. The results showed that the lowest scores EFL beginning readers scored were *they* (M=.14, SD= .35), *get* and *ready* (M=.19, SD= .40), *went*, *this*, and *please* (M=.29, SD= .46), *come* and *you* (M=.33, SD= .48), and *father* and *we* (M=.43, SD= .50). The difficulty of most of the previous words is probably due to the existence of three phonemes compared to the word that have high scores such as *for* (M=.86, SD= .35), *a* (M=.81, SD= .40) and *at* (M=.62, SD= .49). Thus, Yopp and Yopp (2000) claimed that fewer sounds are easier than more sounds. As for the word *boys* (M=.57, SD= .50), the mean was high due to the probability of the easiness of the initial phoneme. Thus, identifying

the initial phonemes is one of the easiest tasks a young leaner experience (Yopp &

Yopp, 2000). It is important to indicate that the above low results are probably due to

the fact that teaching young learners the names of letters can cause confusion. This

occurs when young learners realize that there are differences between letter names

and its representative sounds (Block & Duke, 2015)

Table 4.7

Raw Score, Mean, and Standard Deviation for Individual Words of the Word Recognition Post-Test (Experimental Group)

No .of Students	Word	Raw Scores of Individual Word	Mean	SD
21	*father*	9	.43	.50
21	*come*	7	.33	.48
21	*for*	18	.86	.35
21	*a*	17	.81	.40
21	*you*	7	.33	.48
21	*at*	13	.62	.49
21	*school*	10	.48	.51
21	*went*	6	.29	.46
21	*get*	4	.19	.40
21	*we*	9	.43	.50
21	*they*	3	.14	.35
21	*ready*	4	.19	.40
21	*this*	6	.29	.46
21	*boys*	12	.57	.50
21	*please*	6	.29	.46

To make it more precise, Figure 4.1 shows a graph of individual words of the word

recognition post-test and the highest score gained in the experimental group. The

peak of the graph provided below represents the point at which words gain high

score. As mentioned earlier, the word *for* (M=.86, SD= .35) had the highest score

and the word *they* (M=.14, SD= .35) had the lowest score as displayed in the graph.
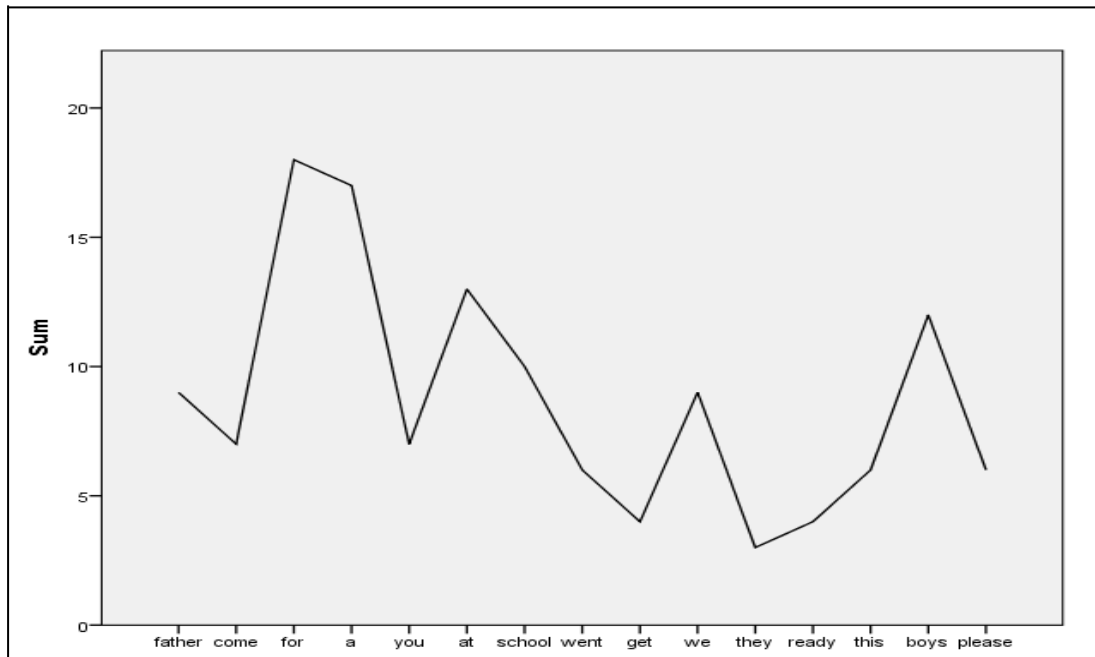
Figure 4.1. The Individual Words of the Word Recognition Post-Test and the Highest Score Gained in the Experimental Group.

To conclude, the participants in the experimental group scored better than those who are in the control group though both groups share weakness in the level of the participants. Thus, the intervention helps EFL beginning readers in the experimental group do well in the word recognition test compared to those who are in the control group. The main cause for this weakness is probably due to the confusion between the letter names and their sound representatives. The next section discusses the findings of research question 2.

4.2.2 Findings of Research Question 2

This section provides a description of the perception of Jordanian EFL beginning readers' teachers towards the use of the phonemic segmentation skill as well as the use of interactive whiteboard. In addition, significant variations in the frequency of the perceptions of the Jordanian EFL teachers towards the uses of the phonemic segmentation skill and the interactive whiteboard according to gender, age, years of experience, and degree are also described, discussed and analyzed in this section.

164

This section begins with a presentation of demographic characteristics to describe the target population, teachers of EFL beginning readers, in the study. It also provides a descriptive analysis of questionnaire items as well as the questionnaire findings. Thus, the results of this analysis were used to address the third and fourth research question.

4.2.2.1 Demographic Characteristics

There are 86 teachers of beginning readers who represented Jerash Directorate of Education participated in this current survey study. A summary of the demographic characteristics for this target population is presented in Table 4.8.

Table 4.8

Demographic Characteristics of Teachers of Beginning Readers in the Survey

Demographic Factors	Category	No. of Respondents	Percentage
Gender	Male	38	44.2 %
	Female	48	55.8 %
	Total	86	100 %
Age	25-34	43	50.0 %
	35-44	34	39.5 %
	45-55	8	9.3 %
	Over 55	1	1.2 %
	Total	86	100 %
Experience	Less than 5	11	12.8 %
	5-10	32	37.2 %
	11-15	23	26.7 %
	16-20	11	12.8 %
	More than 20	9	10.5 %
	Total	86	100 %
degree	Bachelor	73	84.9 %
	Diploma	5	5.8 %
	Master	7	8.1 %
	PhD	1	1.2 %
	Total	86	100 %

From Table 4.8, the findings showed that 55.8% of teachers were females and 44.2% of the participant teachers were males. With respect to the age of respondents, 50.0%

were in the 25-34 years old range, 39.5% in the 35-44 years old range, 9.3% in the 45-55 years old and 1.2% over 55 years old. Concerning the teaching experience, the years of teaching experience for the participants varied. However, there was a slightly higher percentage (37.2%) of teachers with 5-10 years of teaching experience. The remaining data indicated that 26.7% of the teachers had taught 11-15 years and an equal percentage 12.8% of teachers had taught 16-20 years and a period of less than 5 years. Those who have been teaching for more than 20 years represented 10.5% of the participant teachers. Finally, in terms of the academic degree, the majority of the participants (84.9%) had a Bachelor's degree, 5.8% had a Diploma degree, 8.1% had a Master degree, and 1.2% had a PhD degree

Based on the above description, one way ANOVA analysis (degree, experience and age variable) and t-test analyses (gender) were employed to determine the significant differences between the variables of the study. In other words, independent sample t-test was used for the study variable of gender while one way ANOVA was used for degree, experience and age. Table 4.9 shows the effect of gender on the teachers' perceptions towards the use of phonemic segmentation and interactive whiteboard by using independent sample t-test. It is important to indicate that items 1-16 represent the third research question, whereas items 17-26 represent the fourth research question.

Table 4.9

The Effect of Gender on the Teachers' Perceptions towards the Use of Phonemic Segmentation and Interactive Whiteboard by Using Independent Sample T-Test

	Gender	N	Mean	SD	t	p
(Items 1-16) Teachers perceptions towards the use of phonemic segmentation skill in improving Jordanian EFL beginning readers' word recognition	Male	38	3.51	.57	-1.54	.12
	Female	48	3.72	.66		
(Items 17-26) Teachers perceptions towards the use of the interactive whiteboard in improving Jordanian EFL beginning readers' word recognition	Male	38	3.35	.51	-.47	.63
	Female	48	3.40	.43		

As illustrated in Table 4.9, there is no significant difference in teachers' perceptions towards the use of phonemic segmentation skill and interactive whiteboard based on gender. Thus, independent sample t-test analysis shows no differences in teachers' perceptions between male and female. The p value = .12 pertaining to items 1-16 and .63 pertaining to items 17-26 indicated that there was no significant difference at the 0.05 level, which means there are no differences in teachers' perceptions towards the use of phonemic segmentation skill and interactive whiteboard with regard to gender.

Furthermore, analysis of Variance (ANOVA) was used in order to show if there are significant differences among teachers' perceptions based on degree, experience and age. Table 4.10 highlights teachers' perception towards using the skill of phonemic segmentation and the interactive whiteboard in relation to the academic degree.

Table 4.10

Teachers' Perceptions towards Using the Skill of Phonemic Segmentation and Interactive Whiteboard in Relation to the Academic Degree

	Degree	N	Mean	SD	f	p
(Items 1-16) Teachers perceptions towards the use of phonemic segmentation skill in improving Jordanian EFL beginning readers' word recognition	Bachelor	73	3.63	.67	.07	.97
	Diploma	5	3.56	.43		
	Master	7	3.67	.29		
	PhD	1	3.88			
	Total	86	3.63	.63		
(Items 17-26) Teachers perceptions towards the use of the interactive whiteboard in improving Jordanian EFL beginning readers' word recognition	Bachelor	73	3.38	.49	.19	.89
	Diploma	5	3.34	.25		
	Master	7	3.32	.22		
	PhD	1	3.70			
	Total	86	3.38	.46		

As shown in Table 4.10, there are no significant differences in teachers' perceptions towards the use of phonemic segmentation skill and the interactive whiteboard in regard to the academic degree. There are no significant differences in teachers' perceptions towards the use of phonemic segmentation represented by items 1-16. The p-value = .97; this means p < 0.05. As for teachers' perceptions towards the use of the interactive whiteboard represented by items 17-26, the p-value= .89

With respect to the teaching experience of Jordanian teachers of beginning readers, Table 4.11 demonstrates teachers' perceptions towards using the skill of phonemic segmentation and the interactive whiteboard.

Table 4.11

Teachers' Perceptions towards Using the Skill of Phonemic Segmentation and Interactive Whiteboard in Relation to the Teaching Experience

	Experience	N	Mean	SD	f	p
(Items 1-16) Teachers perceptions towards the use of phonemic segmentation skill in improving Jordanian EFL beginning readers' word recognition	Less than 5	11	3.45	.43	.49	.74
	5-10	32	3.58	.53		
	11-15	23	3.37	.73		
	16-20	11	3.48	.23		
	More than 20	9	3.41	.65		
	Total	86	3.47	.56		
(Items 17-26) Teachers perceptions towards the use of the interactive whiteboard in improving Jordanian EFL beginning readers' word recognition	Less than 5	11	3.53	.52	.66	.61
	5-10	32	3.38	.46		
	11-15	23	3.30	.49		
	16-20	11	3.48	.39		
	More than 20	9	3.27	.44		
	Total	86	3.38	.46		

From Table 4.11, it is important to note that there are no significant differences among teachers' perceptions towards the use of phonemic segmentation as well as the interactive whiteboard with regard to teaching experience. The p- value for items (1-16) and items (17-26) are .74 and .61 respectively. Since p- value < 0.05, one can easily notice that there are no significant differences among teachers' perceptions towards the use of phonemic segmentation skill as well as the interactive whiteboard.

Finally, to determine whether there are significant differences among teachers' perceptions towards the use of phonemic segmentation skill as well as the use of interactive whiteboard in relation to the age, Table 4.12 below shows teachers' perception towards using the skill of phonemic segmentation as well as interactive whiteboard pertaining to age group of participants.

Table 4.12

Teachers' Perceptions towards Using the Skill of Phonemic Segmentation and Interactive Whiteboard in Relation to the Age Group

	Age	N	Mean	SD	f	p
(Items 1-16) Teachers perceptions towards the use of phonemic segmentation skill in improving Jordanian EFL beginning readers' word recognition	25-34	43	3.52	.41	.65	.58
	35-44	34	3.41	.69		
	45-55	8	3.38	.74		
	Over 55	1	3.06			
	Total	86	3.47	.56		
(Items 17-26) Teachers perceptions towards the use of the interactive whiteboard in improving Jordanian EFL beginning readers' word recognition	25-34	43	3.42	.45	.62	.60
	53-44	34	3.31	.45		
	45-55	8	3.42	.61		
	Over 55	1	3.80			
	Total	86	3.38	.46		

Table 4.12 indicates that there are no significant differences among teachers' perceptions towards the use of phonemic segmentation skill as well as the use of interactive whiteboard in relation to age group. The p- value= .58 and .60 for items 1-16 and items 17-26 respectively since p- value < 0.05.

To conclude, the One Way ANOVA test analysis and Independent Sample T-Test show no significant differences in teachers' perceptions towards the use of phonemic segmentation skill as well as the use of interactive whiteboard in regard to academic degree, teaching experience, age groups and gender.

The next two distinct sections included survey instrument, a cross-sectional questionnaire, for obtaining descriptive data. The first section represented the third research question that focused on EFL teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers. As for the second section, it dealt with the fourth research

question that focused on EFL teachers' perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers. Hence, data attained from the questionnaire instrument were utilized to address the third research question and the fourth research question.

4.2.3 Findings of Research Question 3 (Items 1-16 of the Questionnaire)

It is important to note that instrument items 1- 16 in the first section of the instrument were designed to address the third question for this study. The third research question is ‗What are EFL teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers?' A frequency table (Table 4.13) shows the frequency and percentages for instrument items 1-16.

Table 4.13

Perceptions of EFL Teachers towards the Use of Phonemic Segmentation Skill

	Item and Text	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Total percentage
1	Phonemic segmentation skill is essential in developing EFL beginning readers' word recognition in the first grade.	6 (7.0%)	6 (7.0%)	7 (8.1%)	44 (51.2%)	23 (26.7%)	86 (100%)
2	Daily phonemic segmentation instruction is useful for predicting future reading difficulties.	1 (1.2%)	7 (8.1%)	12 (14.0%)	45 (52.3%)	21 (24.4%)	86 (100%)
3	Phonemic segmentation Instruction can be used to prevent future reading difficulties.	4 (4.7%)	10 (11.6%)	9 (10.5%)	36 (41.8%)	27 (31.4%)	86 (100%)
4	Difficulties in word recognition in grade one are often the result of the lack of phonemic segmentation instructions.	4 (4.7%)	10 (11.6%)	15 (17.4%)	40 (46.5%)	17 (19.8%)	86 (100%)
5	EFL beginning readers should informally and incidentally learn phonemic segmentation skill in the first grade.	13 (15.1%)	36 (41.9%)	21 (24.4%)	11 (12.8%)	5 (5.8%)	86 (100%)

172

6	EFL beginning readers who experience difficulties in word recognition would benefit from phonemic segmentation instructions.	3 (3.5%)	9 (10.5%)	10 (11.6%)	49 (57.0%)	15 (17.4%)	86 (100%)
7	Teaching phonemic segmentation skill should come first before phonemic blending or manipulation skills.	4 (4.7%)	14 (16.3%)	19 (22.1%)	38 (44.1%)	11 (12.8%)	86 (100%)
8	Difficulties in word recognition cannot be inhibited in grade one.	13 (15.1%)	30 (34.9%)	26 (30.2%)	13 (15.1%)	4 (4.7%)	86 (100%)
9	Explicit phonemic segmentation instructions can decrease or eliminate early word recognition difficulties.	3 (3.5%)	7 (8.1%)	19 (22.1%)	42 (48.9%)	15 (17.4%)	86 (100%)
10	Phonemic segmentation instruction does not help learners recognize the printed words.	5 (5.8%)	40 (46.5%)	11 (12.8%)	20 (23.3%)	10 (11.6%)	86 (100%)
11	Difficulties in word recognition ability cannot be identified until grade two or later grades.	9 (10.5%)	38 (44.2%)	20 (23.3%)	15 (17.3%)	4 (4.7%)	86 (100%)
12	Daily phonemic segmentation instruction helps young learners recognize words in print.	2 (2.3%)	6 (7.0%)	12 (14.0%)	46 (53.4%)	20 (23.3%)	86 (100%)

13	Phonemic segmentation instruction in grade one has an impact on word recognition in the later grades.	3 (3.5%)	6 (7.0%)	15 (17.4%)	41 (47.7%)	21 (24.4%)	86 (100%)
14	Phonemic segmentation skills should be explicitly taught with formal lessons to improve students' word recognition.	2 (2.3%)	11 (12.8%)	13 (15.1%)	43 (50.0%)	17 (19.8%)	86 (100%)
15	Word recognition involves segmenting sounds to say words.	3 (3.5%)	8 (9.3%)	10 (11.6%)	46 (53.5%)	19 (22.1%)	86 (100%)
16	Phonemic segmentation skill is easier than phoneme blending skill in learning word recognition.	1 (1.2%)	7 (8.1%)	26 (30.2%)	38 (44.2%)	14 (16.3%)	86 (100%)
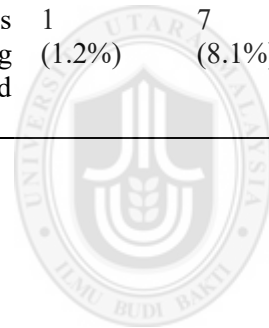
It should be noted that the focus of items1, 2, 3, 4, 6, 7, 9, 12, 13, 14, 15 and16 was related to an EFL teacher‗s favourable use of phonemic segmentation skill. These instrument items supported favourable use of phonemic segmentation skill towards improving EFL beginning readers' word recognition.

The findings of the item 1(51.2 %) and item 15(53.5%) are that the majority of the respondents agreed that phonemic segmentation skill is essential in developing EFL beginning readers' word recognition in the first grade to enable beginning readers to segment sounds in order to say words. As for item 7, it should be noted that 44.1% of the respondents believed that teaching phonemic segmentation skill should come first before phonemic blending or manipulation skills.

For items 2 (52.3%), 3 (41.8%) and 6(57%), the majority of respondents indicated that they agreed with the statements related to the use of phonemic segmentation instruction as a skill that is useful for predicting and preventing future reading difficulties in order to reduce reading difficulties. In addition, the research findings for item 4(46.5%) indicated that the majority of the respondents agreed that difficulties in word recognition in grade one are the result of the lack of phonemic segmentation instructions. Item 9 indicated that 48.9% of the respondents agreed that explicit phonemic segmentation instruction can decrease or eliminate early word recognition difficulties. Similarly, item 14 indicated that 50.0% of the respondents agreed that phonemic segmentation skills should be explicitly taught with formal lessons to improve students' word recognition. Responses to item 12 indicated that 53.4% of the survey participants agreed that daily phonemic segmentation instruction helps young learners recognize words in print. For the item 13, 47.7% of the majority of the respondents indicated that phonemic segmentation instruction in

175

grade one has an impact on word recognition in the later grades. The results of the item 16 indicated that 44.2% of the respondents agreed that phonemic segmentation skill is easier than phoneme blending skill in learning word recognition.

On the other hand, there were items that contradicted the above responses in the first section. For example, item 5 contradicted the responses for item 14. Item 8 contradicted the responses for item 3. Item 10 contradicted the responses for item 12. Similarly, item 11 contradicted the responses for item 13. In other words, items 5, 8, 10 and 11 did not support favourable use towards improving EFL beginning readers' word recognition in relation to phonemic segmentation skill. The aim of these items was to ensure that the participants were focusing on each item, instead of randomly selecting similar agreement statements and building redundancy into the instrument.

For item 5, 41.9% of the majority of the respondents did not agree that the skill of phonemic segmentation should be learnt informally and incidentally. In contrast, item 14 reported that 50% of the respondents agreed that phonemic segmentation skills should be explicitly taught with formal lessons to improve students' word recognition.

Item 8, which was added as a contradictory statement in contrast to item 4 and item 6, reported that 34.9% of the respondents did not agree with the statement that difficulties in word recognition cannot be inhibited in grade one. Unlike item 8, the findings for item 6, for example, indicated that 57.0% of the respondents agreed that EFL beginning readers who experience difficulties in word recognition would benefit from phonemic segmentation instructions.

176

For item 10, it seems that 46.5% of the respondents disagreed with the statement that phonemic segmentation instruction does not help learners recognize the printed words. It has been found that item 11 reported that 44.2% of the respondents did not agree with the statement that difficulties in word recognition ability cannot be identified until grade two or later grades. In contrast, item 13 reported that 72.1% of the survey participants, who indicated agree or strongly agree response, believed that phonemic segmentation instruction in grade one has an effect on word recognition in the later grades. After the completion of section one, the following section (section two) in the questionnaire survey discusses the fourth research question.

4.2.4 Findings of Research Question 4 (Items 17-26 of the Questionnaire)

With regards to items 17- 26 in the second section of the instrument, these items were designed to address the fourth research question of this study. The fourth research question is ‗What are EFL teachers‘ perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers?‘ Table 4.14 shows the frequency and percentages for items 17- 26.

Table 4.14

Perceptions of EFL Teachers towards the Use of Interactive Whiteboard

	Item and Text	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Total Percentage
17	Using an interactive whiteboard enhances EFL beginning readers' motivation in word recognition.	4 (4.7%)	2 (2.3%)	14 (16.3%)	18 (20.9%)	48 (55.8%)	86 (100%)
18	Using a traditional white board enhances EFL beginning readers' motivation in word recognition.	10 (11.6%)	46 (53.6%)	7 (8.1%)	7 (8.1%)	16 (18.6%)	86 (100%)
19	Word recognition will be more fun if an interactive whiteboard is used.	3 (3.5%)	2 (2.3%)	12 (14.0%)	12 (14.0%)	57 (66.2%)	86 (100%)
20	Using an interactive whiteboard helps EFL beginning readers participate more in improving their word recognition.	0 (0.0%)	5 (5.8%)	12 (14.0%)	16 (18.6%)	53 (61.6%)	86 (100%)
21	Teachers may waste time when using an interactive whiteboard to improve EFL beginning readers' word recognition.	9 (10.5%)	46 (53.4%)	16 (18.6%)	4 (4.7%)	11 (12.8%)	86 (100%)

22	EFL beginning readers' word recognition should only be improved through an interactive whiteboard instead of a traditional whiteboard.	4 (4.7%)	18 (20.9%)	26 (30.2%)	11 (12.8%)	27 (31.4%)	86 (100%)
23	Improving EFL beginning readers' word recognition requires teachers to do ongoing training when using an interactive whiteboard.	0 (0.0%)	8 (9.3%)	22 (25.6%)	25 (29.1%)	31 (36.0%)	86 (100%)
24	Improving EFL beginning readers' word recognition through using a traditional white board is easier than using an interactive whiteboard.	7 (8.1%)	37 (43.0%)	18 (20.9%)	3 (3.5%)	21 (24.5%)	86 (100%)
25	Using an interactive whiteboard reinforces EFL beginning readers' word recognition.	3 (3.5%)	3 (3.5%)	13 (15.1%)	24 (27.9%)	43 (50.0%)	86 (100%)
26	Using an interactive whiteboard may not suit the need of EFL beginning readers' word recognition.	9 (10.5%)	38 (44.2%)	22 (25.6%)	6 (7.0%)	11 (12.7%)	86 (100%)

179

Each of the above items (from items 17 to 26) is related to EFL teachers' perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers. Items 17, 19, 20, 22, 23 and 25 corresponded specifically to the favorable use of the interactive whiteboard; these items support that favorable use. The finding of item 17 was that 76.7% of the respondents agreed or strongly agreed that using an interactive whiteboard enhances EFL beginning readers' motivation in word recognition. Similarly, responses to item 19 indicated that 80.2% of the survey participants, who indicated agree or strongly agree response, believed that word recognition will be more fun if an interactive whiteboard is used. Item 20 indicated that 80.2% of the respondents agreed or strongly agreed that using an interactive whiteboard helps EFL beginning readers participate more in improving their word recognition.

The research findings for item 22 indicated that the majority of the respondents either strongly agreed (31.4%) or were undecided (30.2%) with the statement that EFL beginning readers' word recognition should only be improved through an interactive white board instead of a traditional whiteboard. For item 23, 65.1% of the majority of the respondents agreed or strongly agreed with the item statement pertaining to the claim that improving EFL beginning readers' word recognition requires teachers to do ongoing training when using an interactive whiteboard. The finding of item 25 was that 77.9% of the respondents agreed or strongly agreed with the belief that using an interactive whiteboard reinforces EFL beginning readers' word recognition.

Despite the previous statements that supported the favorable use towards improving EFL beginning readers' word recognition in relation to the interactive whiteboard, it

180

is important to indicate that instrument items18, 21, 24 and 26 did not support the favorable use towards improving EFL beginning readers' word recognition in relation to the interactive whiteboard. For example, item 18 reported that 53.6% of the respondents disagreed with the statement that using a traditional white board enhances EFL beginning readers' motivation in word recognition. For item 21, 53.4% of the respondents disagreed with the statement that teachers may waste time when using an interactive whiteboard to improve EFL beginning readers' word recognition.

Furthermore, item 24 reported that 43.0% of the majority of the respondents disagreed with the statement that improving EFL beginning readers' word recognition through using a traditional white board is easier than using an interactive whiteboard. In the same thread, the finding of item 26 was that 54.7% of the respondents disagreed or strongly disagreed with the belief that using an interactive whiteboard may not suit the need of EFL beginning readers' word recognition. The next section is the summary of the current chapter.

4.3 Summary

Chapter four focused on the findings of the effect of the phonemic segmentation skill as well as the use of the interactive whiteboard on improving Jordanian EFL beginning readers' word recognition. Independent sample t-test and dependent sample t-test were computed to find out any significant differences between the experimental and control group.

In addition, descriptive statistics, frequencies, means, standard deviations, and one way ANOVA were employed to identify the perceptions of Jordanian teachers of

beginning readers towards the use of phonemic segmentation skill as well as the interactive whiteboard in relation to word recognition of Jordanian EFL beginning readers. The results of the first research question showed that using the interactive whiteboard in learning the phonemic segmentation skill has a considerable effect on word recognition test scores among Jordanian EFL beginning readers. The experimental group has achieved a significant progress after receiving the instruction of phonemic segmentation skill through the incorporation of the interactive whiteboard compared to their control group counterparts.

Concerning the cross-sectional questionnaire, the findings revealed that teachers of EFL beginning readers support favorable uses towards improving Jordanian EFL beginning readers' word recognition in relation to phonemic segmentation skill as well as the incorporation of the interactive whiteboard. Moreover, it is important to note that demographic factors such as gender, age, years of experience and academic degree have been examined to find out any significant differences that may affect the teachers' responses. Thus, there were no significant differences in the teachers' perceptions towards the use of phonemic segmentation skill as well as the interactive whiteboard in relation to gender, years of experience, academic degree, and age.

In order to get a closer look at the findings of the four research questions represented by the quantitative data, the next chapter is devoted to summarize and discuss the quantitative findings obtained earlier. In addition, it aims at providing some pedagogical implications, limitations and suggestions for future research.

CHAPTER FIVE
DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter offers a discussion as well as an explanation of data analysis related to Chapter Four. It begins with the discussion of findings of the quantitative data. Then, it is followed by the strength of the study, implications of the study, limitations of the study, and recommendations for further studies. Finally, the conclusion of the study is provided in the last section. Thus, this chapter presents the discussion related to the fourth research questions in this study. The next section begins with the discussion of the first research question.

5.2. The Discussion of the Results of the First Research Question

This section provides a discussion of the results of the experimental design. At the outset, EFL beginning readers of the control and the experimental groups were identical in their word recognition test results (t=1.87, p＞.068) according to the first independent sample t-test. Hence, the results obtained from the pre-test demonstrate an obvious weakness in EFL beginning readers' word recognition (mean score around 2.25/15). This goes in line with the findings of Ryan and Meara (1991) and Brown and Haynes (1985) concerning remarkable reading problems as well as difficulties faced by Arab learners of English. This also supports Fender's (2003) conclusion that Arab EFL children confront difficulties with respect to the processes of acquiring word recognition. Given that the word recognition pre-test was administered only after four months of the EFL beginning readers' first-hand experience with English as a foreign language, one may argue that these findings are not surprising. However, these findings remain far below the expectations of the

Ministry of Education in Jordan since those young learners are expected by the end of first grade to read English and show understanding of learned simple words.

Furthermore, the comparison between scores in both pre-tests and post-tests demonstrated that experimental group has made a significant progress after the explicit instruction on using the phonemic segmentation skill through the incorporation of the interactive whiteboard technology.

It was evident that significant improvements were found in the experimental group after four weeks of explicit phonemic segmentation instruction through the use of the interactive whiteboard in class. The interactive whiteboard has significantly assisted beginning readers of the experimental group; they did better in the word recognition test than those of the control group who received the instruction of phonemic segmentation via a traditional whiteboard. It is important to indicate that the mean score of the experimental group was still relatively low (6.24/15). Once again, this provides further support to Brown and Haynes (1985), Ryan and Meara (1991), and Fender (2003). Nonetheless, this finding shows a remarkable development in the group's word recognition ability. This becomes clearer when the experimental group results in both pre and post word recognition tests were compared.

It is interesting to note that the control group showed significant improvements after the four-week phonemic segmentation instruction. This progress can be attributed to phonemic segmentation instruction. Although the mean score (2.25/15) of the control group is very low, it indicates that there is little development in the group's word recognition as shown in Table 4.5. The significant result was examined by the paired sample t-test of the control group of the students' pre- and post-word

recognition tests (t= -3.68, p＜.05). On the other hand, training in phonemic segmentation instruction through incorporating the interactive whiteboard in class explicitly helped the experimental group progress significantly in their post word recognition test. As shown in Table 4.4, the treatment made a significant difference on the experimental group when conducting the paired sample t-test of the scores of both pre and post word recognition tests (t= -5.26, p ＜ .05). To be more specific, the experimental group advanced three times in the mean score superior to the pre word recognition test. Furthermore, the experimental group's post word recognition test scores were significantly better than those of the control group as shown in Table 4.3 due to the incorporation of the interactive whiteboard. Based on these results, the interactive whiteboard has tremendously advanced the beginning readers' word recognition test scores.

In addition, EFL beginning readers of both groups received the pre–word recognition test at the outset of this study. The independent sample t-tests' results indicated that there was no significant difference between the experimental and control groups. The paired sample t-tests results indicated that the control group and the experimental group students did improve significantly after the instruction as shown in Table 4.5 and Table 4.4. It is noteworthy that although beginning readers in the control group did not receive the phonemic segmentation instruction through the use of the interactive whiteboard (the intervention), the results indicated that significant improvements were gained (t= -3.68, p＜.05). The phonemic segmentation instruction was considered as one of the effective ways that help students learn to read. The mean score of the beginning readers in the control group regarding the post word recognition test was one and a half point better than that of the pre- word

recognition test. This offers an additional crucial importance with respect to the instruction of phonemic segmentation. In the same thread, EFL beginning readers in the experimental group also showed a significant difference in the post word recognition test (t= -5.26, p＜.05). Hence, the instruction of phonemic segmentation through the incorporation of the interactive whiteboard was regarded efficacious in facilitating EFL beginning readers' word recognition. Specifically, the experimental group of EFL beginning readers improved three times on average in the post word recognition test compared to the pre-test of word recognition.

The fruitful instruction in phonological awareness, particularly phonemic segmentation, concluded in the present study lend support to Lundberg et al.'s (1988) findings of English single-word-reading superior performance of Scandinavian children who underwent a pre-school training program in phonological instructions. Furthermore, it confirmed a number of results to the effect of the instruction gained by many scholars (e.g. Al-Tamimi & Rabab'ah, 2007; Ball & Blachman 1991; Ehri et al. 2001; Vaughn, Hughes, Moody, & Elbaum, 2001; Littleton, Wood, & Chera, 2006). It also corroborated Leafstedt, Richards, and Gerber's (2004, p.253) claim that ―intervention that is effective for monolingual students may be similarly effective for EL students".

It is extremely crucial to note that the incorporation of the interactive whiteboard resulted in better improvements of the experimental group compared to the control group in the word recognition test which was positively confirmed. This finding is not surprising in light of the findings of the previous research. For example, Hall and Higgins (2005) found that students like interactive whiteboards since learning becomes more fun due to the various types of resources and activities. Thus, research

186

literature demonstrated empirical support for the use of interactive whiteboards in improving reading achievement and the interactive whiteboards are friendly user that benefits both teachers and students.

Consequently, one cannot deny the role the phonemic segmentation skill plays in the progress of improving word recognition of EFL beginning readers. This noteworthy progress reflects the usefulness of the phonemic segmentation instruction and appears to discover the shortcomings of the approach of ordinary teaching English practiced in Jordanian state schools that disregards the instruction of phonemic segmentation as well as its significance to the reading ability development. The next section addresses the discussion of the results of the second research question.

5.3. The Discussion of the Results of the Second Research Question

At the outset, the descriptive profile of the teachers of EFL beginning readers is presented in chapter four. It is interesting to note that the descriptive profile of the perceptions of the teachers of EFL beginning readers associated with phonemic segmentation skill and the use of interactive whiteboard was resulted from the data gained through this study. By examining the descriptive statistics, a number of findings have emerged and they can be interpreted accordingly.

The results of the second research question did not indicate any statistically differences in demographic characteristics of the study variables (gender, experience, degree, and age). Since the second research question addresses the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard in terms of gender and years of experience, the focus and discussion will be on these two distinct variables.

5.3.1 Gender

The findings of this research question indicated that there were no significant differences in the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard based on gender.

This result showed that gender has no influence upon the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation as well as the use of interactive whiteboard. This can be attributed to the fact that the majority of the teachers agreed with overall perceptions of EFL teachers of beginning readers towards the use of phonemic segmentation as well as the use of interactive whiteboard in improving EFL beginning readers' word recognition. This also implies that teachers predominantly are aware of the significant use of phonemic segmentation and the interactive whiteboard.

Thus, this result was supported by Wolter, Braun, and Hannover (2015), Rose (2009), Bakr (2011), Oz (2014), Nachimuthu and Vijayakumari (2012), and Bal et al. (2010). These studies found no significant differences between male and female in their perceptions towards the literacy skills and interactive whiteboard in relation to gender. However, the result of this research question was not supported by Balta and Duran (2015) who found that there is significant difference based on gender in the attitudes toward interactive whiteboards. It is apparent that most studies found that gender difference has no effect on teachers' perceptions towards the use of literacy skills, represented by phonics and phonological awareness, and the use of interactive whiteboard.

5.3.2 Teaching Experience

According to the demographic data, it has been found that the majority of the participant teachers (37.2%) had 5-10 years of teaching experience with variations in their actual teaching experience. Hence, the findings of this study are probably influenced by a higher percentage of EFL teachers with this categorical group (5-10) of teaching experience.

The results of this research question showed that there were no significant differences in the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation and the interactive whiteboard based on teaching experience.

The finding indicated that teaching experience has no influence upon the perceptions of EFL teachers of beginning readers in relation to the use of phonemic segmentation as well as the use of interactive whiteboard. This can be attributed to the fact that the majority of the teachers agreed with overall perceptions in relation to the use of phonemic segmentation as well as the use of interactive whiteboard in improving EFL beginning readers' word recognition. In addition, this implies that teachers mainly have awareness towards the significant use of phonemic segmentation and the interactive whiteboard.

A number of studies conducted by Al-Hazza et al. (2008), Dahmer (2010), Sekel (2003), Bos et al. (2001), Bakr (2011), and Oz (2014) supported this finding. These studies found no significant differences in the perceptions of EFL teachers towards the literacy skills and interactive whiteboard in terms of teaching experience. However, the result of this research question was not supported by Nachimuthu and

Vijayakumari (2012) and Bal et al. (2010) who found that there is significant difference based on teaching experience in the attitudes towards multimedia technology and interactive whiteboards. It is obvious that most of the above studies found that teaching experience has no influence on teachers' perceptions towards the use of literacy skills represented by phonics and phonological awareness as well as the use of interactive whiteboard.

In short, significant differences varied with respect to gender and teaching experience. In this study, there were no statistical differences in teachers' perception towards the use of phonemic segmentation and the use of interactive whiteboard of EFL Jordanian beginning readers in relation to gender and teaching experience. Thus, these variables have no influence upon the perception of teachers of beginning readers.

The next section discusses the results of the third and fourth questions. It addresses the cross-sectional questionnaire which is divided into two sections. The first section represented by the third research question deals with the first grade teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers. The other section represented by the fourth research question is concerned with the first grade teachers' perceptions towards the use of interactive whiteboard in improving word recognition among Jordanian EFL beginning readers.

5.4. Discussion of the Results of the Third Research Question

This section discusses the findings obtained to answer research question number three: *What are EFL teachers' perceptions towards the use of phonemic*

segmentation skill in improving word recognition among Jordanian EFL beginning readers? The third research question highlights EFL teachers' perceptions towards the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers.

The important use of phonemic segmentation skill to young learners' present and future reading success is well documented in literature related to early literacy development research. The role of a first grade teacher is to provide an effective reading program including the essential reading skills. This leads to acquire the skills needed by young learners to become better readers. Thus, phonemic segmentation skill helps in providing a bridge to gain reading success.

Regarding the perceptions towards phonemic segmentation skill, items pertaining to the use of phonemic segmentation skill in improving word recognition among Jordanian EFL beginning readers were introduced in this section. Given the items that supported the favourable use of phonemic segmentation skill towards improving EFL beginning readers' word recognition, the majority of respondents agreed to the items that supported the favourable use of phonemic segmentation skill towards improving EFL beginning readers' word recognition as documented in chapter four. In other words, the focus of the items 1, 2, 3, 4, 6, 7, 9, 12, 13, 14, 15, and16 was linked to the favourable use of phonemic segmentation skill.

In relation to the items that did not support the favourable use of phonemic segmentation skill towards improving EFL beginning readers' word recognition, the majority of respondents did not agree to the items that did not support the favourable use of phonemic segmentation skill towards improving EFL beginning readers' word

recognition as explained in chapter four. Instrument items 5, 8, 10 and 11 represented the items that did not support the favourable use of phonemic segmentation skill towards improving EFL beginning readers' word recognition.

Concerning items 1, 7 and 15, it is important to note that the high percentage of *agree* or *strongly agree* responses (item 1, 77.9%; item 7, 56.9%; item 15, 75.6%) suggested that Jordanian EFL teachers of first graders in this study recognize the important use of phonemic segmentation as an essential skill in developing EFL beginning readers' word recognition in the first grade. For example, high frequency of strongly agreeing or agreeing responses was reported for item 7(56.9%) in relation to the belief that teaching phonemic segmentation skill has the priority over other skills such as phonemic blending or manipulation. Furthermore, the respondents reported high percentages when agreeing with statements related to the use of phonemic segmentation instruction as a skill that is useful for predicting and preventing future reading difficulties in order to reduce reading difficulties (indicated by the results gained from items 2(52.3%), 3(41.8%) and 6(57%). However, in item 8, minority of the respondents (represented by 19.8%) agreed or strongly agreed that difficulties in word recognition cannot be inhibited in grade one.

A significant finding in the study was that the majority of the respondents agreed that difficulties in word recognition in grade one are the result of the lack of phonemic segmentation instructions (as indicated by item 4). This finding was compounded by the 66.3% of respondents who agreed or strongly agreed that the lack of phonemic segmentation instructions causes first graders' difficulties in word recognition.

192

In addition, the descriptive data shows a high frequency percentage of 69.8% (represented by item 14) of respondents who reported agreement or strong agreement for the use of explicit, formal phonemic segmentation instruction to improve students' word recognition. In contrast, a low frequency percentage of 18.6% (represented by item 5) of teachers responded with agree or strongly agree in relation to the use of incidental, informal phonemic segmentation instruction in the first grade. According to this higher frequency supporting explicit and formal instruction of phonemic segmentation, it appears that many EFL first graders' teachers do perceive explicit instruction as essential in a first grade program. This relevant finding was compounded with the data attained from item 14, whereby 76.7% of the respondents indicated that daily phonemic segmentation instruction helps young learners recognize words in print (as indicated by item 12). Unlike item 12, a low frequency percentage of 34.9% (represented by item 10) of teachers responded with agree or strongly agree in relation to the statement that phonemic segmentation instruction does not help learners recognize the printed words. Further, the respondents reported high percentage when agreeing or strongly agreeing with the statement related to the explicit instruction of phonemic segmentation in which this skill can decrease or eliminate early word recognition difficulties as indicated by the results gained from item 9 (66.3%).

Another significant finding in the current study was that the majority of the respondents agreed that phonemic segmentation instruction in grade one has an impact on word recognition in the later grades. This finding was combined by the 72.1% (represented by item 13) of respondents who agreed or strongly agreed that phonemic segmentation instruction in grade one can affect word recognition in later grades. Moreover, a high percentage of 60.5% (represented by item 16) of teachers

193

responded with agree or strongly agree in relation to the belief that phonemic segmentation skill is easier than phoneme blending skill in learning word recognition. Unlike item 13, a low frequency percentage of 22.0% (represented by item 11) of teachers responded with agree or strongly agree in relation to the statement that difficulties in word recognition ability cannot be identified until grade two or later grades.

Regarding the finding of the effective use of phonemic segmentation skill on reading abilities, this finding goes in line with the findings of the studies conducted by Castiglioni-Spalten and Ehri (2003), Ball and Blachman (1988, 1991) and Shaughnessy, Sanger, Matteucci, and Ritzman (2004). Thus, the use of phonemic segmentation skill as an essential early reading skill is evident within recent research. For example, concerning the findings from longitudinal studies, Mather, Bos and Babur (2001) found that 75% of the third graders, who have difficulty with reading, especially with the development of decoding and phonological awareness, will still have weakness in reading at the end of high school. The researchers also found that most teachers had the ability to count the number of syllables in words and to label a task that involves blending or segmentation.

Furthermore, Carson, Gillon, and Boustead (2013) concluded that their research findings convincingly show that phonological awareness is vital to reading and spelling success. In their research, children that participated in the study benefited from developing phonological awareness instruction such as phoneme segmentation, phoneme identity, and phoneme blending abilities. With respect to the importance of explicit and formal instruction, many respondents in the survey indicated that they support the belief that phonemic segmentation skills should be explicitly taught with

194

formal lessons to improve students' word recognition. This result is consistent with Ball and Blachman's (1991) findings in which most kindergarteners are able to learn how to segment spoken words into phonemes. Thus, through formal and explicit instruction, young learners become in line with the terminology and strategies related to various phonological awareness skills, including phonemic segmentation skill in order to reach an acceptable level in developing their word recognition. As for formal and explicit instruction in phonemic segmentation, this finding goes in line with the findings of Abshire's (2006) study. She suggested that explicit instruction in phonological awareness seems to offer major academic achievement. In her study, two sub-skill areas were the measure of phonological awareness component. They involved phonemic segmentation and initial sounds fluency.

Given the responses related to the teachers' perceptions towards the use of phonemic segmentation concerning the prevention of reading difficulty, Burke, Hagan-Burke, Kwok, and Parker (2009) contended that ―phonological awareness is the first essential element of a prevention based approach to reading failure and disability" (p. 209). The findings of the current study suggested that the teachers perceive phonemic segmentation skill to be useful for preventing future reading difficulty. In support of Snow et al. (1998) and Burke et al. (2009), the results of the descriptive data also suggested that the participant teachers do fully perceive the significance use of phonemic segmentation skill with regard to being a predictor of potential reading difficulties. Implementing effective foundational reading strategies can increase emerging treading instruction. For example, Al Otaiba, et al. (2008) argued that ―early and effective beginning reading instruction will increase reading abilities, decrease retention rates, and reduce the need for special education services due to reading difficulties" (p. 282). It is crucial to note that phonological awareness,

195

including phonemic segmentation, has two significant uses within a kindergarten and first grade program. These are preventive and predictive uses of reading difficulty. Each of these successfully helps young students move forward in the development of their reading skill. Hence, when teachers perceive both of these significant uses, reading difficulty is potentially to be decreased or eliminated in the present and the future.

With regards to this data, there were noticeable high frequency percentages of the respondents in relation to the statements that supported favourable use of the phonemic segmentation skill towards improving EFL beginning readers' word recognition. The following section deals with the discussion of the results of the fourth research question.

5.5 Discussion of the Results of the Fourth Research Question

This section discusses the findings aimed to answer the fourth research question: *What are EFL teachers' perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers?* The fourth research question highlights EFL teachers' perceptions towards the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers. Concerning the perceptions towards the use of interactive whiteboard, items pertaining to the use of the interactive whiteboard in improving word recognition among Jordanian EFL beginning readers were introduced in the second instrument section.

With respect to the items that supported the favourable use of the interactive whiteboard towards improving EFL beginning readers' word recognition, large

numbers of respondents agreed to the items that supported the favourable use of the interactive whiteboard towards improving EFL beginning readers' word recognition as documented in chapter four. In other words, the focus of the items 17, 19, 20, 22, 23, and 25 was linked to the favourable use of the interactive whiteboard. On the contrary, concerning items that did not support the favourable use of the interactive whiteboard towards improving EFL beginning readers' word recognition, the majority of respondents did not agree to the items that did not support the favourable use of the interactive whiteboard towards improving EFL beginning readers' word recognition as explained in chapter four. Instrument items 18, 21, 24, and 26 represented the items that did not support the favourable use of the interactive whiteboard towards improving EFL beginning readers' word recognition.

This finding is consistent with recent research that has largely reported favourable views of both teachers and students with respect to the interactive whiteboards (OZ, 2014; Hall & Higgins, 2005; Mathews-Aydinli, & Elaziz, 2010; Kennewell & Morgan, 2003; Wall, Higgins, & Smith, 2005; Xu & Moloney, 2011; Turel & Johnson, 2012). This finding of teachers' favorable and positive perceptions is also similar to several other researchers (Balta & Duran, 2015; Xu & Moloney, 2011).

To have a closer look at these items that describe teachers' favourable perceptions, similar previous studies that support this finding- supporting favourable use of the interactive whiteboard. With respect to item 17, it is important to indicate that the high percentage of agree or strongly agree responses (item 17, 76.7%) suggested that Jordanian EFL teachers of first graders recognize that using an interactive whiteboard enhances EFL beginning readers' motivation in word recognition in the first grade. In contrast, a low frequency percentage of 26.7% (represented by item

197

18) of teachers responded with agree or strongly agree in relation to the statement that using a traditional white board enhances EFL beginning readers' motivation in word recognition. Hence, using interactive whiteboards increases student motivation to learn the new technology. Thus, most teachers agreed that using the interactive whiteboard is engaging, enjoyable, and motivating for teachers and students alike. This result is parallel with other studies (Hall & Higgins, 2005; Becta, 2003; Smith et al., 2005; Mathews- Aydinli & Elaziz, 2010)

Furthermore, high frequency of strongly agreeing or agreeing responses was reported for item 19 (80.2%) in relation to the belief that word recognition will be more fun if an interactive whiteboard has been used. Given the results gained from items 20 (80.2%), the respondents reported high percentage when strongly agreeing or agreeing with the statement related to the belief that using an interactive whiteboard helps EFL beginning readers participate more in improving their word recognition. This is consistent with the findings of various studies such as Becta, 2003, Beauchamp and Parkinson, 2005, Hall and Higgins, 2005, and Turel and Johnson, 2012. For example, Hall and Higgins (2005) found that interactive whiteboards improve and motivate students' learning through establishing more fun and excitement towards enhancing their concentration span, engaging more students in participation, and learning in general. In their article, Hall and Higgins (2005) noted that interactive whiteboards help in making lessons ―more enjoyable and fun," which in turn can substantially boost motivation (p. 107).

Furthermore, it is important to note that frequency percentage of agree or strongly agree responses related to item 22 (44.2%) suggested that EFL beginning readers' word recognition should only be improved through an interactive white board

instead of a traditional whiteboard. However, in item 24, the minority of the respondents (represented by 28%) agreed or strongly agreed that improving EFL beginning readers' word recognition through using a traditional white board is easier than using an interactive whiteboard. This finding also goes in line with the finding of the study conducted by Turel and Johnson (2012). In their study, the 147 participant teachers were satisfied with the use of the interactive whiteboard. They accepted this form of technology as a powerful and practical tool that facilitates the instructions for teachers as well as students' motivation and learning.

For item 23 (65.1%), the respondents reported high percentage when strongly agreeing or agreeing with the statement related to the claim that improving EFL beginning readers' word recognition requires teachers to do ongoing training when using an interactive whiteboard. Unlike item 23, a low frequency percentage of 17.5% (represented by item 21) of teachers responded with agree or strongly agree in relation to the statement that teachers may waste time when using an interactive whiteboard to improve EFL beginning readers' word recognition. This finding is similar to other research findings (Hall & Higgins, 2005; Turel & Johnson, 2012; Becta, 2003; Smith et al., 2005; Glover et al., 2007). It is important to indicate that teachers need ongoing training sessions to enhance and maintain effective instructional strategies. This is consistent with Hall and Higgins' (2005) and Turel and Johnson' (2012) findings in relation to continuous training sessions.

A significant finding in the study was that the majority of the respondents agreed that using an interactive whiteboard reinforces EFL beginning readers' word recognition (as indicated by item 25). This finding was compounded by the 77.9% of respondents who agreed or strongly agreed that the use of the interactive whiteboard

reinforces the word recognition with respect to EFL beginning readers. Unlike items 19, 20 25, a low frequency percentage of 19.7% (represented by item 26) of teachers responded with agree or strongly agree in relation to the statement that using an interactive whiteboard may not suit the need of EFL beginning readers' word recognition. Once again, this result goes in line with the findings of the study conducted by Higgins, Beauchamp, and Miller (2007) and Digregorio and Sobel-Lojeski (2010).

Consequently, there were noticeable high frequency percentages of the respondents in relation to the statements that supported favourable use of the interactive whiteboard towards improving EFL beginning readers' word recognition. The next section addresses the strength of the study.

5.6 Strengths of the Study

The present study used a quasi-experimental design to examine the effect of phonemic segmentation skill and the use of the interactive whiteboard on EFL Jordanian beginning readers' word recognition. A pre-test was used to check the homogeneity of both groups (control and experimental) in word recognition test adopted from Clay (1979). After the intervention session, a post-test was used to find out the effect of instructional process on EFL beginning readers' word recognition through the use of interactive whiteboard. It is important to note that the findings of this study showed that there is significant difference in the word recognition test scores due to the use of the IWB. Up to the researcher s knowledge, there are no previous studies carried out to investigate such a relationship in general and in the Jordanian context in particular.

In addition, how Jordanian EFL teachers perceive the use of phonemic segmentation skill as well as the use of interactive whiteboard can affect the improvement of beginning readers' word recognition. In research, few studies have tackled the perceptions of kindergarten and first grade teachers in regard to the significance and use of phonological awareness. None of these studies, according to the researcher's best knowledge, tackles the perceptions of EFL teachers with respect to phonemic segmentation skill as well as the use of IWB. The descriptive data presented in Chapter Four of this study have revealed EFL teachers' favourable perceptions of the use of phonemic segmentation skill as well as the use of IWB.

It should be noted that different types of statistical methods were used in order to analyse the data obtained in this research study. These statistical methods encompass frequencies, descriptive analysis, dependent and independent samples t-test, and one-way ANOVA. Thus, the process of analysing the data of the current study can be helpful in a way that guides other researchers to apply such methods in order to analyse similar types of reported data.

5.7 Implications of the Study

This study has two important implications. First, it is related to theoretical aspect proposing that phonological awareness can be taught and learnt; this supports the view advocated by some scholars (e.g. Ehri, 2005; Snow et al. 1998; Ball and Blachman 1991; Al-Tamimi & Rabab'ah, 2007). On the contrary, no support exists concerning the pure whole language approach in which phonological awareness is only truly naturally acquired (Foorman & Liberman, 1989). Consequently, the explicit phonemic segmentation intervention and whole language instruction seems

to be more beneficial and appealing for the reading ability development and the skill can be learnt.

Based on the aforementioned discussion, the other implication is pedagogical suggesting that explicit phonological awareness instruction, particularly phonemic segmentation, accompanied by the incorporation of the IWB can be integrated in Jordanian curricula with respect to Jordanian EFL children right from the first-grade since the experimental group has shown a remarkable progress in English word recognition ability of beginning readers. In other words, given the relevant and explicit instructions of phonemic segmentation skill with incorporating the use of interactive whiteboard to Jordanian EFL beginning readers, it is important to consider an important implication. This implication includes pedagogical suggestions regarding that explicit instruction of phonemic segmentation skill can be integrated in Jordanian EFL curricula from kindergarten till the initial primary school stages due to the fact that the Jordanian EFL curricula ignore such influential skill in Jordanian text books.

Jordanian EFL curricula need to explicitly consider the skill of phonemic segmentation skill through the use of the interactive whiteboard in a way that could be beneficial to teachers and learners. To attain this purpose, teachers need to modify their teaching strategies or styles that serve their students in acquiring the required skills such as the skill of phonemic segmentation. Teachers should have training on such skills to practice useful activities inside and outside the classroom before they teach their students how to use phonemic segmentation activities through the use of the IWB.

Consequently, this can provide substantial assistance to help young children improve their reading skills. Also, the expectations of the Jordanian Ministry of Education could have been met as established by the 2006 English Language National Team. It is also implied that a systematic incorporation of other phonological awareness programs by integrating IWB into the curricula of the basic school stages that begins from grade 1 until grade 6 will eventually constitute a powerful phonological background in a way that helps the young learners overcome their reading difficulties. For instance, Chard and Dickson (1999) recommended that considerable instructions for this integration should consider the required level of phonemic awareness at different school initial stages. These particular instructions should also consider the required degree and level of the explicit instructions (Smith, Simmons, & Kame'enui, 1998). Thus, EFL teachers should pay more attention to phonemic segmentation skill as a key point to facilitate and help young learners become better readers. In order to achieve this aim, the instructions in phonemic segmentation skill should be implemented into the English language curriculum through the incorporation of the interactive whiteboard.

5.8 Limitations of the Study

Since the current study related to the teachers' perceptions associated with phonemic segmentation and the use of IWB has unfolded, it has become apparent that some limitations have emerged and these limitations need to be acknowledged. Certain limitations have obviously appeared as follow:

1- This study was limited to the population from which the sample was drawn. It dealt with EFL teachers and beginning readers who are in the first grade in basic

203

state schools in Jerash, Jordan. The findings cannot be generalized to secondary teachers and their students.

2- One limitation that can be observed is that the use of one particular skill of phonological and phonemic awareness which is phonemic segmentation skill. Using other skills through the incorporation of IWB could offer substantial findings. In addition, this study used word recognition test (List C). However, the use of other lists (e.g. List A or List B) could provide new results.

3- Another limitation is that the study used quantitative research method. Deploying other research methods such as qualitative or mixed research method could provide more accurate data concerning observing the real action occurring inside the classroom.

4- The length of time for the study was an additional limiting factor. Though a duration of four weeks is an adequate time frame, a study starting in the first semester with word recognition pre-test, a mid-year assessment, and culminating with a word recognition post-test could provide more findings. In addition, in the intervention session, it is important to indicate that the duration of the single session represented by the lesson period was ten minutes. Longer session period of time than ten minutes could provide substantial results.

5.9 Recommendations for Further Studies

Based on the findings of the present study, a number of suggestions and recommendations can be made regarding the integration of phonemic segmentation instructions through the use of interactive whiteboard into the English curriculum in order to achieve young learner' development in reading skill. Several suggestions

204

can also be made concerning how to encourage the interested people representing the Ministry of Education to attend the scientific conferences and organize workshops to raise the professional level of the teachers of beginning readers. It is also recommended that teachers of beginning readers should contribute to the application of the interactive whiteboard within their school lessons and participate in educational training courses with respect to the skill of phonemic segmentation.

For example, the findings of the experimental design might trigger more research works to investigate the effectiveness of various training instructions on students' performance in other English phonological awareness skills on the word level such as rhyming, syllable segmentation and onset-rime, blending and segmentation (Chard & Dickson, 1999) through the incorporation of the IWB. Given the studies that attest the effectiveness of phonological awareness instructions, particularly phonemic segmentation, this may convince English learners, authors of school formal books, educator trainers, curriculum designers, and decision makers to pay more attention to the benefits and advantages of such instructions as well as incorporating these instructions with the integration of the IWB within their classes, school formal books, and curricula since this study found the significance difference of teaching the phonemic segmentation through the use of interactive whiteboard.

Furthermore, this research investigated the perceptions of EFL teachers of beginning readers towards the phonemic segmentation skill and the IWB based on two independent variables represented by gender and teaching experience. Nonetheless, there is a need to a more comprehensive research investigating teachers' behaviours associated with the instruction of phonemic segmentation, reading skill and classroom engagement.

Thus, the current study mainly used quantitative method. This method was found useful to probe the Jordanian EFL teachers' perceptions towards the use of both phonemic segmentation skill and IWB. However, future studies should be conducted to have more focus on the qualitative aspect or the mixed method. For example, using instruments such as interviews or classroom observation could get a clearer image in the educational field relating to other phonological awareness kills.

It is crucial to note that the current study tends to investigate the effectiveness of phonemic segmentation skill and the use of interactive whiteboard on EFL beginning readers' word recognition. Future studies should further investigate other skills of phonological ad phonemic awareness by deploying higher number of participants, longer period of time than four weeks, and longer session period of time than ten minutes in order to report more results of the process of the instructions.

5.10 Conclusion of the Study

The purpose of this study was to determine the effects of the phonemic segmentation skill and the use of interactive whiteboard on EFL beginning readers' word recognition. It has been found that phonemic segmentation skill is relevant to the development of word recognition of Jordanian EFL beginning readers. Research showed that phonemic segmentation has a significant use in predicting word recognition and future reading success development. Therefore, young learners can greatly benefit from such skill in order to decrease or eliminate their chances to become poor readers who suffer from reading difficulties. Thus, the explicit phonemic segmentation instruction is of paramount importance to this development.

Additionally, the present study investigated the teachers' perceptions towards the use of phonemic segmentation and the use of interactive whiteboard in relation to EFL beginning readers' word recognition. With respect to variables represented by gender and teaching experience, it has been found that the present study did not find any differences in the perceptions of EFL teachers of beginning readers towards the use of phonemic segmentation skill and the use of IWB based on gender and teaching experience. In addition, the results of questionnaires showed that Jordanian EFL teachers of beginning readers have overall positive perceptions towards phonemic segmentation skill and the use of IWB. Thus, the participants enjoyed the favourable uses of both phonemic segmentation skill and IWB.

The studies which prove the effectiveness of use of phonemic segmentation skill and the use of interactive whiteboard may convince English learners, textbooks authors, teacher trainers, and curriculum designers to pay more attention to the advantages and benefits of phonemic segmentation skill and the use of interactive whiteboard and in order to integrate such skill in their classes, English textbook curricula through the use of IWB.

This study has contributed to the growing body of knowledge in the field of phonology, represented by phonemic segmentation skill and technology, represented by the IWB in the Arab region in particular and the world in general.

REFERENCES

Aarnoutse, C., van Leeuwe, J., & Verhoeven, L. (2005). Early literacy from a longitudinal perspective. *Educational Research and Evaluation*, *11*(3), 253–275.

Abshire, S. A. (2006). *Exploring Implicit Versus Explicit Methods of Teaching Phonemic Awareness Instruction to Kindergarten Students* (Doctoral dissertation, Northwestern State University).

Abu-Rabia, S. (1997). Reading in Arabic orthography: The effect of vowels and context on reading accuracy of poor and skilled native Arabic readers. Reading and Writing: *An Interdisciplinary Journal* 9(1), 65-78.

Abu-Rabia, S. (1999).The effect of Arabic vowels on the reading comprehension of second-and sixth-grade native Arab children. *Journal of psycholinguistic research*, *28*(1), 93-101.

Abuhmaid, A. (2014). Teachers' perspectives on interactive whiteboards as instructional tools in four Jordanian schools. *Contemporary Educational Technology, 5*(1), 73-89.

Adams, M. J. (1994). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.

Alhumsi, M. H. & Shabdin, A. A. (2014). Beginning readers have no prior experience with sound segmentation. *Journal of Education and Practice, 5*(11), 32-41.

Alhumsi, M. H. & Shabdin, A. A. (2016). The relationship between phonemic segmentation skill and EFL word recognition- A review of literature. *International Journal of Linguistics, 8*(2), 31-46.

Al-Ghazo, A. & Smadi, O. M. (2013) A content analysis of the English reading text's authenticity in student's book of action pack eleven in Jordan. *European Scientific Journal October, 9*(29), 342-359.

Al-Hazza, T. C., Fleener, C., & Hager, J. (2008). Primary teachers' knowledge and knowledge calibration of early literacy practices. *Reading Matrix, 8*(1), 1-11

Al-Omari, T. A., Bataineh, R. F., & Smadi, O. M. (2015). Potential inclusion of multiple intelligences in Jordanian EFL textbooks. *Bellaterra journal of teaching and learning language and literature*, *8*(1), 60-80.

Al Otaiba, S., Connor, C., Lane, H., Kosanovich, M. L., Schatschneider, C., Dyrlund, A. K., ... & Wright, T. L. (2008). Reading First kindergarten classroom instruction and students' growth in phonological awareness and letter naming–decoding fluency. *Journal of School Psychology*, *46*(3), 281-314.

Al Otaiba, S., Kosanovich, M. L., & Torgesen, J. K. (2012). Assessment and instruction in phonemic awareness and word recognition skills. In A. G. Kamhi & H. W. Catts (Eds.), *Language and reading disabilities* (3rd ed., pp. 112-145). Upper Saddle River, NJ: Pearson Education Inc.

Alshaboul, Y., Asassfeh, S., Alshboul, S., & Alodwan, T. (2014). The contribution of L1 phonemic awareness into L2 reading: The case of Arab EFL readers. *International education studies, 7*(3), 99-111.

Al-Shaboul, Y. M., Assasfeh, S. M., Alshboul, S. S., & Almomani, H. S. (2013). Are Jordanian students phonemically aware? : A descriptive study. *Journal of Educational & Psychological Sciences*, *14*(2), 37-53.

Al-Shaboul, Y. M., Asassfeh, S. M., Alshboul, S. S., & Al Tamimi, Y. A. (2014). Arabic phonemic awareness (pa): The need for an assessment tool. *Asian social science, 10*(1), 200-208.

Al-Tamimi, Y. & Rababaah, G. (2007). The relationship between phonological awareness and word reading. *Poznan studies in contemporary linguistics, 43*(2), 5–21.

Anthony, J. L., & Lonigan, C. J. (2004). The nature of phonological awareness: converging evidence from four studies of preschool and early grade school children. *Journal of Educational Psychology, 96*(1), 43-55.

Archibald, L. M., & Gathercole, S. E. (2007). Nonword repetition in specific language impairment: More than a phonological short-term memory deficit. *Psychonomic Bulletin & Review, 14*(5), 919-924.

Ary, D., Jacobs, L. C., Sorenson, C., & Razaviah, A. (2010). *Introduction to research in education*, (8th ed.) CA: Belmont

Backman, J. (1983). The role of psycholinguistic skills in reading acquisition: A look at early readers. *Reading Research Quarterly, 18*(4), 466-479.

Baddeley, A. (2007). *Working memory, thought and action*. New York: Oxford University Press

Baddeley, A., Gathercole, S., & Papagno, C. (1998). The phonological loop as a language learning device. *Psychological Review*, 105(1), 158-173.

Bakr, S. (2011). Attitudes of Egyptian teachers towards computers. *Contemporary Educational Technology, 2*(4), 308-318.

Bal, G., Misirli, G., Orhan, N., Yucel, K., & Sahin, Y. G. (2010, June). Teachers' expectations from computer technology and interactive whiteboard: A survey. In *Education Technology and Computer (ICETC), 2010 2nd International Conference on* (Vol. 3, pp. V3-153). IEEE.

Ball, E. W., & Blachman, B. A. (1988). Phoneme segmentation training: Effect on reading readiness. *Annals of Dyslexia*, *38*(1), 208-225.

Ball, E. W., & Blachman, B. A. (1991). Does phoneme awareness training in kindergarten make a difference in early word recognition and developmental spelling? *Reading Research Quarterly, 26*(1), 49–66.

Balta, N., & Duran, M. (2015). Attitudes of students and teachers towards the use of interactive whiteboards in elementary and secondary school classrooms. *TOJET: The Turkish Online Journal of Educational Technology*, *14*(2), 15-21.

Barone, D. & Wright, T. E. (2008). Literacy instruction with digital and media technologies. *Reading Teacher, 62*(4), 292-302.

Beauchamp, G. & Kennewell, S. (2008). The influence of ICT on the interactivity of teaching. *Education and Information Technologies, 13*(4), 305-315.

Beauchamp, G. & Parkinson, J. (2005). Beyond the ‗wow' factor: developing interactivity with the interactive whiteboard. *School Science Review*, *86*(316), 97-103.

Becta (British Education Communication Technology Agency). (2003).What the research says about interactive whiteboards. Retrieved on 27 September 2015 from http://www.hpedsb.on.ca/ec/services/cst/elementary/math/documents/white boards research.pdf

Beecher, C. C. (2011). *A latent growth curve analysis of reading achievement for an at-risk population* (Doctoral dissertation, Washington State University, USA).

Beeland, W. D. (2002, July). *Student engagement, visual learning and technology: Can interactive whiteboards help?* In Annual Conference of the Association of Information Technology for Teaching Education, Trinity College, Dublin.

Below, J. L., Skinner, C. H., Fearrington, J. Y., & Sorrell, C. A. (2010). Gender differences in early literacy: Analysis of kindergarten through fifth-grade dynamic indicators of basic early literacy skills probes. *School Psychology Review*, *39*(2), 240-257.

Bennett, S & Lockyer, L (2008). A study of teachers‗ integration of interactive whiteboards into four Australian primary school classrooms. *Learning, Media and Technology*, *33*(4), 289-300.

Berg, M., & Stegelman, T. (2003). The critical role of phonological and phonemic awareness in reading success: A model for early literacy in rural schools. *Rural Special Education Quarterly, 22*(4), 47–51.

Berninger, V. W., Abbott, R. D., Vermeulen, K., & Fulton, C. M. (2006). Paths to reading comprehension in at-risk second-grade readers. *Journal of Learning Disabilities*, *39*(4), 334-351.

Bhattacharya, A., & Ehri, L. C. (2004). Graphosyllabic analysis helps adolescent struggling readers read and spell words. *Journal of Learning Disabilities, 37*(4), 331- 348.

Bialystok, E. (2007). Acquisition of literacy in bilingual children: A framework for research. *Language Learning, 57*(1), 45-77.

Bird, D. K. (2009). The use of questionnaires for acquiring information on public perception of natural hazards and risk mitigation–a review of current knowledge and practice. *Natural Hazards and Earth System Sciences*, *9*(4), 1307-1325.

Blackwell, R. & Laman, S. (2013). Strategies to teach sight words in an elementary classroom. *International Journal of Education*, *5*(4), 37- 47.

Block, M. K., & Duke, N. K. (2015). Letter names can cause confusion and other things to know about letter-sound relationships. *YC Young Children, 70*(1), 84-91.

Bodrova, E., & Leong, D. J. (1998). Scaffolding emergent writing in the zone of proximal development. *Literacy, Teaching and Learning*, *3*(2), 1-18.

Bos, C., Mather, N., Dickson, S., Podhajski, B., & Chard, D. (2001). Perceptions and knowledge of preservice and inservice educators about early reading instruction. *Annals of Dyslexia*, *51*(1), 97-120.

Boyer, N. E. (2010). *Phonemic awareness instruction: Effects of letter manipulation and articulation training on learning to read and spell* (Doctoral dissertation, The City University of New York). Retrieved from http://search.proquest.com/docview/762212913

Bradford, S., Shippen, M. E., Alberto, P., Houchins, D. E., Flores, M. (2006). Using systematic instruction to teach decoding skills to middle school Students with moderate intellectual disabilities. *Education and Training in Developmental Disabilities, 41*(4), 333–343

Bradley, L., & Bryant, P. E. (1983). Categorizing sounds and learning to read: A causal connection. *Nature, 301*(5899), 419–421.

Brantlinger, E., Jimenez, R., Klingner, J., Pugach, M., & Richardson, V. (2005). Qualitative studies in special education. *Exceptional children*, *71*(2), 195-207.

Brink, H., Van der Walt, C., & Van Rensburg, G. (2006). *Fundamentals of research methodology for health care professionals*. Cape Town. JUTA and Company Ltd.

Bromley, K. (2007). Nine things every teacher should know about words and vocabulary instruction. *Journal of Adolescent and Adult Literacy, 50*(7), 528-537.

Brown, C. S. (2014). Language and literacy development in the early years: Foundational skills that support emergent readers. *Language and Literacy Spectrum, 24,* 35-49.

Brown, T. L. & Haynes, M. (1985). Literacy background and reading development in a second language. *New Directions for Child and Adolescent Development, 1985*(27), 19-34.

Bulmer, M. (2009). Survey research and sociology. *Sociologisk Forskning*, *46*(1), 90-95.

Burke, M. D., Hagan-Burke, S., Kwok, O., & Parker, R. (2009). Predictive validity of early literacy indicators from the middle of kindergarten to second grade. *The Journal of Special Education*, *42*(4), 209-226.

Bursuck, W. D., Smith, T., Munk, D., Damer, M., Mehlig, L., & Perry, J. (2004). Evaluating the impact of a prevention-based model of reading on children who are at risk. *Remedial and Special Education*, *25*(5), 303–313.

Buys, B. N. (1992). *Three instructional strategies for teaching phonemic segmentation to kindergarten children*. (Doctoral dissertation, University of Florida. USA)

Campregher, S. (2010). *Effects of the Interactive Whiteboard (IWB) in the Classroom, Experimental Research in Primary School*. In International Conference The Future of Education, University of Bolzano (Italy). Recuperado el (Vol. 12, No. 01, p. 2014). Retrieved June 2014 from http://conference.pixelline.net/edu_future/common/download/Paper_pdf/ENT34-Campregher.pdf.

Cardenas-Hagan, E., Carlson, C. D., & Pollard-Durodola, S. D. (2007). The cross-linguistic transfer of early literacy skills: The role of initial L1 and L2 skills and language of instruction. *Language, speech, and hearing services in schools*, *38*(3), 249-259.

Cardoso-Martins, C. (1995). Sensitivity to rhymes, syllables, and phonemes in literacy acquisition in Portuguese. *Reading research quarterly, 30*(4), 808-828.

Carson, K. L., Gillon, G. T., & Boustead, T. M. (2013). Classroom phonological awareness instruction and literacy outcomes in the first year of school. *Language, Speech, and Hearing Services in Schools*, *44*(2), 147-160.

Castiglioni-Spalten, M. L. & Ehri, L. C. (2003). Phonemic awareness instruction: Contribution of articulatory segmentation to novice beginners' reading and writing. *Scientific Studies of Reading, 7*(1), 25-52.

Chall, J. (1984, January). *New views on developing basic skills with adults*. Paper presented at the National Adult literacy Conference, Washington, D.C. Retrieved March 20, 2015 from http://files.eric.ed.gov/fulltext/ED240299.pdf

Chambers, B., Abrami, P., Slavin, R. & Madden, N. (2011). A three-tier model of reading instruction supported by technology. *International Journal of Innovation and Learning*, 9(3), 286–297.

Chambers, B., Slavin, R., Madden, N., Abrami, P., Karanzalis, M., & Gifford, R. (2011). Small-group, computer-assisted tutoring to improve reading outcomes for struggling first and second grades. *The Elementary School Journal, 111*(4), 625–640

Chapman, M. L. (2003). Phonemic awareness: Clarifying what we know. *Literacy Teaching and Learning, 7(*1 & 2), 91-114.

Chard, D. J., & Dickson, S. V. (1999). Phonological awareness: Instructional and assessment guidelines. *Intervention in School and Clinic*, *34*(5), 261-270.

Cheesman, E. A. (2004). *Teacher education in phonemic awareness instruction* (Doctoral dissertation, University of Connecticut U. S. A).

Cheung, A. C. & Slavin, R. E. (2011). The effectiveness of education technology for enhancing reading achievement: A meta-analysis. Best Evidence Encyclopedia. MD: Center for Research and Reform in Education. Retrieved April 8, 2014 from http://www.bestevidence.org/word/tech_read_Feb_24_2011.pdf

Cheung, H. (1996). Nonword span as a unique predictor of second-language vocabulary learning. *Developmental Psychology, 32*(5), 867–873.

Chiappe, P., Siegel, L. S., & Wade-Woolley, L. (2002). Linguistic diversity and the development of reading skills: A longitudinal study. *Scientific Studies of Reading*, *6*(4), 369-400.

Chou, C. P., Wang S., Ching, G. S. (2012). Balanced reading instructions: An action research on elementary cram school students. *International Journal of Research Studies in Language Learning, 1*(1), 3-20.

Cihon, T. M., Gardner, R., Morrison, D., & Paul, P. V. (2008). Using visual phonics as a strategic intervention to increase literacy behaviors for kindergarten participants at-risk for reading failure. *Journal of Early and Intensive Behavior Intervention, 5*(3), 138-155.

Cisero, C. A. & Royer, J. M. (1995). The development and cross-language transfer of phonological awareness. *Contemporary Educational Psychology, 20*(3), 275-303.

Clay, M. M. (1979). *The early detection of reading difficulties* (3rd ed.). Portsmouth, NH: Heinemann.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). Routledge. NY

Comeau, L., Cormier, P., Grandmaison, E., & Lacroix, D. (1999). A longitudinal study of phonological processing skills in children learning to read in a second language. *Journal of Educational Psychology, 91*(1), 29-43.

Cortese, M. J., & Simpson, G. B. (2000). Regularity effects in word naming: What are they? *Memory and Cognition*, *28*(8), 1269-1276.

Craig, S. A. (2006). The effects of an adapted interactive writing intervention on kindergarten children's phonological awareness, spelling, and early reading development: A contextualized approach to instruction. *Journal of Educational Psychology*, *98*(4), 714-731.

Creswell, J. (2003). *Research design: Qualitative, quantitative, and mixed method approaches*. Thousand Oaks, CA: Sage Publications.

Creswell, J. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. (3rd ed.). Thousand Oaks, CA: SAGE Publications

Creswell, J. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston, MA: Pearson.

Creswell, J. (2014).*Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.) Thousand Oaks, CA: Sage Publications.

Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research, 49*(2), 222-251.

Cunningham, A. E. (1990). Explicit vs. implicit instruction in phonemic awareness. *Journal of Experimental Child Psychology, 50*(3), 429-444.

Cunningham, A. E., Perry, K. E., Stanovich, K. E., & Stanovich, P. J. (2004). Disciplinary knowledge of K-3 teachers and their knowledge calibration in the domain of early literacy. *Annals of dyslexia*, *54*(1), 139-167.

Dahmer, M. (2010). *Phonological awareness in the kindergarten classroom: How do teachers perceive this essential link from oral communication to reading skill development* (Doctoral dissertation, Liberty University, U. S. A)

Davoudi, M. (2005). Inference generation skill and text comprehension. *The Reading Matrix, 5*(1), 106-123.

Dehaene, S. & Naccache, L. (2001). Towards a cognitive neuroscience of consciousness: basic evidence and a workspace framework. *Cognition, 79*(1), 1-37.

De Jong, P., & Leseman, P. (2001). Lasting effects of home literacy on reading achievement in school. *Journal of School Psychology, 39*(5), 389–414.

Denton, C., Ciancio, D., & Fletcher, J. (2006). Validity, reliability, and utility of the observation survey of early literacy. *Reading Research Quarterly, 4*(1), 8-34.

Diakidoy, I., Stylianou, P., Karefillidou, C., & Papageorgiou, P. (2005). The relationship between listening and reading comprehension on different types of texts at increasing grade levels. *Reading Psychology*, *26*(1), 55–80.

Digregorio, P. & Sobel-Lojeski, K. (2010). The Effects of Interactive Whiteboards (IWBs) on Student Performance and Learning: A Literature Review. *Journal of Educational Technology Systems, 38*(3), 255-312.

Dilorenzo, K., Rody, C., Bucholz, J., & Brady, M. (2011). Teaching letter-sound connections with picture mnemonics: Itchy's alphabet and early decoding. *Preventing School Failure, 55*(1), 28-34.

Dornyei, Z. & Taguchi, T. (2010). *Questionnaires in second language research: Construction, administration, and processing*. (2nd ed.). Routledge.NY

Drbseh, M. (2013). The spread of English language in Jordan. *International Journal of Scientific and Research Publications, 3*(9), 1-5.

Drudy, S. (2008). Gender balance/ gender bias: the teaching profession and the impact of feminisation. *Gender and Education , 20* (4), 309-323.

Durgunoglu, A. Y. (2002). Cross-linguistic transfer in literacy development and implications for language learners. *Annals of Dyslexia, 52*(1), 189 –204.

Durgunoglu, A. Y., & Oney, B. (2000). Literacy development in two languages: Cognitive and sociocultural dimensions of cross-language transfer. In *A research symposium on high standards in reading for students from diverse language groups: Research, practice and policy* (pp. 78-99).

Durgunoglu, A. Y., Nagy, W. E., & Hancin-Bhatt, B. J. (1993). Cross-Language transfer of phonological awareness. *Journal of Educational Psychology, 85*(3), 453-465.

Ebert, A. A. (2009). *Developmental spelling and word recognition: A validation of Ehri's model of word recognition development*. (Doctoral dissertation, The University of Virginia, U.S.A).

Edelen-Smith, P. J. (1997). How now brown cow: Phoneme awareness activities for collaborative classrooms. *Intervention in School and Clinic, 33*(2), 103-111.

Ehri, L. C. (2005a). Development of sight word reading: Phases and findings. In M. J. Snowling & C. Hulme (Eds.), *The science of reading: A handbook* (pp. 135–154). Malden, MA: Blackwell.

Ehri, L. C. (2005b). Learning to read words: Theory, findings, and issues. *Scientific Studies of Reading, 9*(2), 167–188.

Ehri, L. C. (2014) Orthographic mapping in the acquisition of sight word reading, spelling memory, and vocabulary learning. *Scientific Studies of Reading, 18*(1), 5-21.

Ehri, L. C. & McCormick, S. (1998) Phases of word learning: Implications for instruction with delayed and disabled readers. *Reading and Writing Quarterly, 14*(2), 135–163.

Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghoub-Zadeh, Z. & Shanahan, T. (2001). Phonemic awareness instruction helps children learn to read: Evidence from the national reading panel panel's meta -analysis. *Reading Research Quarterly*, *36*(3), 250-287.

Ehri, L. C. & Rosenthal, J. (2007). Spellings of words: A neglected facilitator of vocabulary learning. *Journal of literacy research, 39*(4), 389–409.

Ehri, L. C. & Snowling, M. J. (2004). Developmental variation in word recognition. In C. A. Stone, E.R. Silliman, B. J. Ehren, & K. Apel (Eds.), *Handbook of language and literacy: Development and disorders* (pp. 433–460). New York: Guilford.

Ehri, L. C. & Wilce, L. S. (1983). Development of word identification speed in skilled and less skilled beginning readers. *Journal of Educational Psychology, 75*(1), 3-18.

Ehri, L. C. & Wilce, L. S. (1987). Cipher versus cue reading: An experiment in decoding acquisition. *Journal of Educational Psychology, 79*(1), 3-13.

Englert, C. S., Zhao, Y., Collings, N., & Romig, N. (2005). Learning to read words: The effects of Internet-based software on the improvement of reading performance. *Remedial and Special Education, 26*(6), 357-371.

Farrokhi, F., & Hamidabad, A. (2012). Rethinking convenience sampling: Defining quality criteria. *Theory and practice in language studies*, *2*(4), 784-792.

Fender, M. (2003). English word recognition and word integration skills of native Arabic and Japanese- speaking learners of English as a second language. *Applied Psycholinguistics, 24*(2), 289-315.

Flanigan, K. (2007). A concept of word in text: A pivotal event in early reading acquisition. *Journal of Literacy Research, 39*(1), 37-70.

Fletcher, J. M., Lyon, G. R., Fuchs, L. S., & Barnes, M. A. (2007). *Learning disabilities: From identification to intervention*. New York: Guilford.

Foorman, B. R. & Liberman, D. (1989). Visual and phonological processing of words: A comparison of good and poor readers. *Journal of Learning Disabilities, 22*(6), 349–355.

Foorman, B. R., & Moats, L. C. (2004). Conditions for sustaining research-based practices in early reading instruction. *Remedial and Special Education, 25*(1), 51-60.

Foy, J. G., & Mann, V. (2006). Changes in letter sound knowledge are associated with development of phonological awareness in pre-school children. *Journal of Research in Reading*, *29*(2), 143–161.

Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education*, 7th ed. New York, NY: McGraw Hill.

Francis, B., Skelton, C., Carrington, B., Hutchings, M., Read, B., & Hall, I. (2008). A perfect match? Pupils' and teachers' views of the impact of matching educators and learners by gender. *Research Papers in Education*, *23*(1), 21-36.

Frith, U. (1985). Beneath the surface of developmental dyslexia. In K. E. Paterson, J. C. Marshall, & M. Coltheart (Eds.), *Surface dyslexia: Neuropsychological and cognitive studies of phonological reading* (pp. 301-330). London: Lawrence Erlbaum.

Frost, J., Madsbjerg, S., Niedersoe, J., Olofsson, A., & Sorensen, P. M. (2005). Semantic and phonological skills in predicting reading development: From 3-16 years of age. *Dyslexia, 11*(2), 79–92.

Frost, S., Landi, N., Mencl, W., Sandak, R., Fulbright, R., Tejada, E., … Pugh, K. (2009). Phonological awareness predicts activation patterns for print and speech. *Ann Dyslexia*, *59*(1), 78-97.

Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. *Scientific Studies of Reading*, 5(3), 239-56.

Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational research: An introduction.* (7th ed.) Pearson Education. Boston, U.S.A.

Ganske, K., Monroe, J. K., & Strickland, D. S. (2003). Questions teachers ask about struggling readers and writers. *The Reading Teacher, 57*(2), 118-128.

Gartrell, D. (2013). *A guidance approach for the encouraging classroom*. (5th ed.). Cengage Learning. Belmont, CA

Gathercole, S. E. & Baddeley, A. D. (1990). The role of phonological memory in vocabulary acquisition: A study of young-children learning new names. *British Journal of Psychology, 81*(4), 439–454.

Gathercole, S. E., Willis, C. S., Emslie, H., & Baddeley, A. D. (1992). Phonological memory and vocabulary development during the early school years: A longitudinal study. *Developmental Psychology, 28*(5), 887-898.

Geer, R. & Sweeney, T. A. (2012). Students' voices about learning with technology. *Journal of social sciences*, *8*(2), 294-303.

Gilakjani, A. P., Lai-Mei, L., & Ismail, H. N. (2013). Teachers' use of technology and constructivism. *International Journal of Modern Education and Computer Science*, *5*(4), 49-63.

Glenberg, A. M., Goldberg, A. B., & Zhu, X. (2011). Improving early reading comprehension using embodied CAI. *Instructional Science: An International Journal of the Learning Sciences, 39(*1), 27-39.

Glover, D., Miller, D., Averis, D., & Door, V. (2007). The evolution of an effective pedagogy for teachers using the interactive whiteboard in mathematics and modern languages: An empirical analysis from the secondary sector. *Learning, Media and Technology*, *32*(1), 5-20.

Good, R. H., Simmons, D. C., & Smith, S. B. (1998). Effective academic interventions in the United States: Evaluating and enhancing the acquisition of early reading skills. *School psychology review.* 27(1), 45-56.

Goswami, U. (2001). Rhymes are important: A comment on Savage. *Journal of Research in Reading, 24*(1), 19–29.

Gough, P. B. (1996). How children learn to read and why they fail. *Annals of Dyslexia, 46*(1), 1-20.

Gough, P. B., & Hillinger, M. L. (1980). Learning to read: An unnatural act. *Bulletin of the Orton Society, 30*(1), 179-196.

Gough, P. B. & Tunmer, W. E. (1986). Decoding, reading and reading disability. *Remedial and Special Education, 7*(1), 6–10.

Gove, A. & Cvelich, P. (2010). Early reading: Igniting education for All. A report by the early grade learning community of practice. Research Triangle Park, NC: Research Triangle Institute.

Gray, A., & McCutchen, D. (2006). Young readers' use of phonological information: phonological awareness, memory, and comprehension. *Journal of Learning Disabilities*, *39*(4), 325–333.

Gray, C., Hagger-Vaughan, L., Pilkington, R., & Tomkins, S. A. (2005). The pros and cons of interactive whiteboards in relation to the key stage 3 strategy and framework. *Language Learning Journal*, *32*(1), 38-44.

Griffith, P. L. & Olson, M. W. (1992). Phonemic awareness helps beginning readers break the code. *The Reading Teacher, 45*(7), 516-523.

Gyovai, L. K., Cartledge, G., Kourea, L., Yurick, A., & Gibson, L. (2009). Early reading intervention: Responding to the learning needs of young at-risk English language learners. *Learning Disability Quarterly, 32*(3), 143-162.

Haddad, N. A. & Fakhoury, L. A. (2012, April). *Formal educational curricula and cultural heritage: The case of the Jordanian national curricula*. Proceedings of the 1st International Conference on Best Practices in World Heritage: Archaeology Menorca, Spain.

Hall, I. & Higgins, S. (2005). Primary school students' perceptions of interactive whiteboards. *Journal of Computer Assisted Learning, 21*(2), 102-117.

Halpern, D.F. (1997). Sex differences in intelligence: Implications for education. *American Psychologist, 52*(1), 1091-1102.

Hammer, C. S & Miccio, A. W. (2006). Early language and reading development of bilingual preschoolers from low-income families. *Topics in Language Disorders*, *26*(4), 322-337.

Hatcher, P. J. & Hulme, C. (1999). Phonemes, rhymes, and intelligence as predictors of children's responsiveness to remedial reading instruction: Evidence from a longitudinal intervention study. *Journal of experimental child psychology*, *72*(2), 130-153.

Hecht, S. A., & Close, L. (2002). Emergent literacy skills and training time uniquely predict variability in responses to phonemic awareness training in disadvantaged kindergarteners. *Journal of Experimental Child Psychology, 82*(2), 93-115.

Higgins, S., Beauchamp, G., & Miller, D. (2007). Reviewing the literature on interactive whiteboards. *Learning, Media and technology*, *32*(3), 213-225.

Hogan, T. P., Catts, H. W., & Little, T. D. (2005). The relationship between phonological awareness and reading: Implications for the assessment of phonological awareness. *Language, Speech, and Hearing Services in Schools, 36*(4), 285–293.

Hong, K., & Koh, C. (2002). Computer anxiety and attitudes toward computers among rural secondary school teachers: A Malaysian perspective. *Journal of Research on Technology in Education, 35*(1), 27-46.

Hook, P. E., & Jones, S. D. (2002). The importance of automaticity and fluency for efficient reading comprehension. Perspectives. *The International Dyslexia Association, 28*(1), 9-14.

Hoover, W. A. (2002). The importance of phonemic awareness in learning to read. *SEDL Letter, 14*(3)*, 9-12.

Howitt, D. & Cramer, D. (2005). *First steps in research and statistics: A practical workbook for psychology students*. LONDON. Routledge.

Hulme, C., Bowyer-Crane, C., Carroll, J. M., Duff, F. J., & Snowling, M. J. (2012). The Causal role of phoneme awareness and letter-sound knowledge in learning to read: Combining intervention studies with mediation analyses. *Psychological Science, 23*(6), 572–577.

Hulme, C., Muter, V. & Snowling, M. (1998). Segmentation does predict early progress in learning to read better than rhyme: A reply to Bryant. *Journal of Experimental Child Psychology, 71*(1), 39-44.

Hulme, C., Nash, H. M., Gooch, D., Lervag, A., & Snowling, M. J. (2015) The foundations of literacy development in children at familial risk of dyslexia. *Psychological Science 26*(12) 1877–1886.

International Reading Association. (1999). Using multiple methods of beginning reading instruction: A position statement of the International Reading Association. Newark, Delaware.

International Reading Association Leadership Academy. (2014). Using multiple methods of beginning reading instruction: A position statement of the International Reading Association. Newark. *Query, 44*(1), 1-33.

Ishtaiwa, F. F. & Shana, Z. (2011). The use of interactive whiteboard (IWB) by pre-service teachers to enhance Arabic language teaching and learning. *Learning and Teaching in Higher Education: Gulf Perspectives, 8*(2), 1-18.

Jafar, F. (2008). The use of English in internet communication by Jordanian students. *Al Basaer Journal, 12*(2), 9-34.

Jaradat, F., Akrabawi, S., & Al-Kharoof, R. (2002). An evaluation of English teaching for the first and second primary grades in public schools. *Risalat AL-Mu'allim, 41*(1), 46-51.

Jenkins, J. R., Fuchs, L. S., Van Den Broek, P., Espin, C., & Deno, S. L. (2003). Accuracy and fluency in list and context reading of skilled and RD groups: Absolute and relative performance levels. *Learning Disabilities Research & Practice*, *18*(4), 237-245.

Johnson, S D. (2012). *The effect of integrating interactive whiteboards on reading achievement.* (Doctoral dissertation, Walden University, USA). Retrieved April 6, 2014 from http://search.proquest.com/docview/1220486293

Jordan Education Initiative (JEI) (2010). SMART Interactive White Board Utilization in Al-Shifaa Bint Ouf School: A Case Study. Retrieved April, 2015 from http://downloads01.smarttech.com/media/research/international_research/middleeast/al_shifaa_school.pdf

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology, 80*(4), 437–447.

Juel, C. (1991). Beginning reading. In R. Barr, M. L. Kamil, P. B. Mosenthal, & P. D. Pearson (Eds.), Handbook of reading research (Vol. 2, pp. 759–788). New York: Longman.

Juel, C., Griffith, P. L., & Gough, P. B. (1986). Acquisition of literacy: A longitudinal study of children in first and second grade. *Journal of Educational Psychology, 78*(4), 243-253.

Jwaifell, M. & Gasaymeh, A. M. (2013). Using the diffusion of innovation theory to explain the degree of English teachers' adoption of interactive whiteboards in the modern systems school in Jordan: A case study. *Contemporary Educational Technology, 4(*2), 138-149.

Kelley, K., Clark, B., Brown, V., & Sitzia, J. (2003). Good practice in the conduct and reporting of survey research. *International Journal for Quality in Health Care*, *15*(3), 261-266.

Kendeou, P., van den Broek, P., White, M. J., & Lynch, J. S. (2009). Predicting reading comprehension in early elementary school: The independent contributions of oral language and decoding skills. *Journal of Educational Psychology, 101*(4), 765-778.

Kennedy, M. J. & Deshler, D. D. (2010). Literacy instruction, technology, and students with learning disabilities: Research we have, research we need. *Learning Disability Quarterly 33*(4), 289-298.

Kennewell, S. & Morgan, A. (2003, July). Student teachers' experiences and attitudes towards using interactive whiteboards in the teaching and learning of young children. In *Proceedings of the international federation for information processing working group 3.5 open conference on Young children and learning technologies-Volume 34* (pp. 65-69). Australian Computer Society, Inc.

Kern, M. L., & Friedman, H. S. (2008). Early educational milestones as predictors of lifelong academic achievement, midlife adjustment, and longevity. *Journal of Applied Developmental Psychology, 30*(4), 419-430.

Keung, Y. C. & Ho, C. S. H. (2009). Transfer of reading-related cognitive skills in learning to read Chinese (L1) and English (L2) among Chinese elementary school children. *Contemporary Educational Psychology*, *34*(2), 103-112.

Kim, Y. S. (2009). Crosslinguistic influence on phonological awareness for Korean–English bilingual children. *Reading and Writing*, *22*(7), 843-861.

Kim, D., Kim, W., & Lee, K. (2007). The relationship between phonological awareness and early reading for first grade Korean language learners with reading difficulties. *Asia Pacific Education Review*, *8*(3), 426-434.

Kindervater, T. M. (2012). *A Case Study of Teaching Phonemic Awareness to Parents and Children: Scaffolded Preschool Tutoring with Kinesthetic Motions for Phonemes* (Doctoral dissertation, Kent State University).

Konza, D. (2014). Teaching reading: Why the ―Fab Five‖ should be the ―Big Six‖. *Australian Journal of Teacher Education, 39* (12), 153-169.

Krejcie, R. V. & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*, 607-610.

Kucukoglu, H. (2013). Improving reading skills through effective reading strategies. *Procedia- Social and Behavioral Sciences, 70*, 709 – 714.

Kuhn, M. R. & Stahl, S. A. (2003). Fluency: A review of developmental and remedial practices. *Journal of educational psychology*, *95*(1), 3-21

Landauer, T. K., & Dumais, S. T. (1997). A solution to Plato‘s problem: The Latent Semantic Analysis theory of acquisition, induction, and representation of knowledge. *Psychological Review, 104* (2), 211–240.

Lane, H. B., Pullen, P. C., Eisele, M. R., & Jordan, L. (2002). Preventing reading failure: Phonological awareness assessment and instruction. *Preventing School Failure, 46*(3), 101-110.

Larson-Hall, J. (2008). Weighing the benefits of studying a foreign language at a younger starting age in a minimal input situation. *Second Language Research, 24*(1), 35-63.

Leafstedt, J. M., & Gerber, M. M. (2005). Crossover of Phonological Processing Skills. A Study of Spanish-Speaking Students in Two Instructional Settings. *Remedial and Special Education*, *26*(4), 226-235.

Leafstedt, J. M., Richards, C. R., & Gerber, M. M. (2004). Effectiveness of Explicit Phonological-Awareness Instruction for At-Risk English Learners. *Learning Disabilities Research & Practice*, *19*(4), 252-261.

Lee, J. H. (2012). Experimental methodology in English teaching and learning: Method features, validity issues, and embedded experimental design. *English Teaching*, *11*(2), 25-43.

Lenhard, W., Baier, H., Endlich, D., Schneider, W., & Hoffmann, J. (2011). Rethinking strategy instruction: direct reading strategy instruction versus computer-based guided practice. *Journal of Research in Reading, 00*(00), 1–18.

Liberman, I. Y. (1971). Basic research in speech and lateralization of language: Some implications for reading disability. *Bulletin of the Orton Society, 21*(1), 71–87.

Liberman, I. Y. (1973). Segmentation of the spoken word and reading acquisition. *Bulletin of the Orton Society, 23*(1), 65-76.

Liberman, I. Y., Shankweiler, D., Fischer, F. W., & Carter, B. (1974). Explicit syllable and phoneme segmentation in the young child. *Journal of Experimental Child Psychology, 18*(2), 201-212.

Linan-Thompson, S., & Vaughn, S. (2007). *Research-based methods of reading instruction for English language learners, Grades K-4*. ASCD. Alexandria, VA.

Littleton, K., Wood, C., & Chera, P. (2006). Interactions with talking books: Phonological awareness affects boys' use of talking books. *Journal of Computer Assisted Learning*, *22*(5), 382-390.

Lonigan, C., Schatschneider, C., & Westberg, L. (2008). Results of the national early literacy panel research synthesis: Identification of children's skills and abilities linked to later outcomes in reading, writing, and spelling. In *Developing early literacy: Report of the National Early Literacy Panel* (pp. 55-106). Washington, DC: National Institute for Literacy.

Lundberg, I., Olofsson, A., & Wall, S. (1980). Reading and spelling skills in the first school year predicted from phonemic awareness skills in kindergarten. *The Scandinavian Journal of Psychology, 21*(1), 159-173.

Lundberg, I., Frost, J., & Petersen, O. P. (1988). Effects of an extensive program for stimulating phonological awareness in preschool children. *Reading Research Quarterly, 23*(3), 263–284.

Manning, M. (2005). Phonemic awareness: As kids learn how to read and write, their phonemic awareness will gradually develop. *Teaching K-8*, *36*(3), 68-69.

Manyak, P. C. (2008). Phonemes in use: multiple activities for a critical process. *The Reading Teacher, 61*(8), 659-662.

Map of Jordan (2016) Department of Foreign Affairs and Trade, Australian Government. Retrieved April 30, 2016 from https://smartraveller.gov.au/countries/jordan#modal-country

Mason, J. (1980). When do children begin to read: An exploration of four year old children's letter and word reading competencies. *Reading Research Quarterly, 15,* 203-227.

Masonheimer, P. E., Drum, P. A., & Ehri, L. C. (1984). Does environmental print identification lead children into word reading? *Journal of Reading Behavior, 16*(4), 257-271.

Masoura, E. V., & Gathercole, S. E. (1999). Phonological short-term memory and foreign language learning. *International Journal of Psychology*, *34*(5/6), 383-388.

Mather, N., Bos, C., & Babur, N. (2001). Perceptions and knowledge of preservice and inservice teachers about early literacy instruction. *Journal of learning disabilities*, *34*(5), 472-482.

Mathes, P. G., & Torgesen, J. K. (1998). All children can learn to read: Critical care for students with special needs. *Peabody Journal of Education, 73*(3&4), 317-340.

Mathews-Aydinli, J., & Elaziz, F. (2010). Turkish students' and teachers' attitudes toward the use of interactive whiteboards in EFL classrooms.*Computer Assisted Language Learning*, *23*(3), 235-252.

Mayer, R. E. (1997). Multimedia learning: Are we asking the right questions? *Educational Psychologist, 32*(1), 1-19.

Mayer, R. E. (2003). The promise of multimedia learning: Using the same instructional design methods across different media. *Learning and Instruction, 13*(2), 125-139.

McCarthy, P. A. (2008). Using sound boxes systematically to develop phonemic awareness. *The Reading Teacher*, *62*(4), 346-349.

McKay, S. L. (2006). *Researching second language classrooms*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

McInnis, A. (2008) *Phonemic awareness and sight word reading in toddlers.* (Doctoral dissertation, Louisiana State University, U.S.A).

McIntyre-Brown, C. (2011). Understanding the next wave of technology innovation in education: Futuresource Consulting Ltd. UK. Retrieved February 6, 2015 from https://classtechnology.files.wordpress.com/2011/02/2011-01_futuresource-uk_understandingnext_wavetechnology.pdf

McTigue, E. M. (2009). Does 1nultimedia learning theory extend to middle school students? *Contemporary Educational Psychology, 34*(2), 143-153.

Miller, E. M., Lederberg, A. R., & Easterbrooks, S. R. (2013). Phonological awareness: Explicit instruction for young deaf and hard-of-hearing children. *Journal of Deaf Studies and Deaf Education, 18*(2), 206-227.

Ministry of Education (MOE). (2004). The development of education: National report of the Hashemite Kingdom of Jordan. 47th Session of the International Conference on Education. Geneva, Switzerland. Retrieved April 29, 2016 from: http://www.ibe.unesco.org/International/ICE47/English/Natreps/reports/jordan.pdf

Ministry of Education. (2010). Educational system. (Online) Retrieved April 6, 2014 from http://www.moe.gov.jo.

Mizza, D. (2014). The First Language (L1) or Mother Tongue Model Vs. The Second Language (L2) Model of Literacy Instruction. *Journal of Education and Human Development*, *3*(3), 101-109.

Moats, L. C. (1999). Teaching reading is rocket science: What expert teachers of reading should know and be able to do. Washington, DC: American Federation of Teachers. Retrieved April 20, 2015 from http://files.eric.ed.gov/fulltext/ED445323.pdf

Moats, L. C. (2000). *Whole language lives on: The illusion of "balanced" reading instruction*. Washington, DC. Thomas, B. Fordham Foundation

Moats, L. C. (2001). When older students can't read. *Educational Leadership, 58*(6), 36-40. Retrieved April 20, 2015 from http://www.ldonline.org/article/8025/

Montgomery, J. (2008). What exactly is visual phonics? *Communication Disorders Quarterly, 29*(3), 177-182.

Morris, D. (1993). The relationship between children's concept of word in text and phoneme awareness in learning to read: A longitudinal study. *Research in the Teaching of English, 27*(2), 133-154.

Morris, D., Bloodgood, J. W., Lomax, R. G., & Perney, J. (2003). Developmental steps in learning to read: A longitudinal study in kindergarten and first grade. *Reading Research Quarterly, 38*(3), 302-328.

Nachimuthu K., Vijayakumari G. (2012). Perceptions on Multimedia technology by College of Education Teachers. *Journal of Education and Learning* 6 (3), 167-176.

NAEYC. (2012). Technology and interactive media as tools in early childhood programs serving children from birth through age 8. Washington, DC: NAEYC. Retrieved March 20, 2015 from http://www.naeyc.org/files/naeyc/PS_technology_WEB.pdf

Nag S., Chiat S., Torgerson C., Snowling M. J. (2014) Literacy, foundation learning and assessment in developing countries: Final Report. Education rigorous literature review. Department for International Development.

National Reading Panel. (2000). Report of the National Reading Panel: Teaching children to read. An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. Retrieved May 20, 2015 from https://www.nichd.nih.gov/publications/pubs/nrp/pages/smallbook.aspx

Nation, K. & Hulme, C. (1997). Phonemic segmentation, not onset-rime segmentation, predicts early reading and spelling skills. *Reading Research Quarterly, 32*(2), 154-167.

Neuman, S. B. (1996). Children engaging in storybook reading: The influence of access to print resources, opportunity, and parental interaction. *Early Childhood Research Quarterly*, *11*(4), 495-513.

Northcote, M., Mildenhall, P., Marshall, L. & Swan, P. (2010). Interactive whiteboards: Interactive or just whiteboards? *Australasian Journal of Educational Technology, 26*(4), 494-510.

Nutbrown, C. (1997). *Recognising early literacy development: Assessing children's achievements*. Sage Publications.London

Oakhill, J. V., Cain, K., & Bryant, P. E. (2003). The dissociation of word reading and text comprehension: Evidence from component skills. *Language and Cognitive Processes, 18*(4), 443–468.

Oney, B., & Durgunoğlu, A. Y. (1997). Beginning to read in Turkish: A phonologically transparent orthography. *Applied psycholinguistics*, *18*(01), 1-15.

Ouellette, G., & Senechal, M. (2008). Pathways to literacy: A study of invented spelling and the role in learning to read. *Child Development, 79*(4), 899-913.

OZ, H. (2014). Teachers' and Students' Perceptions of Interactive Whiteboards in the English as a Foreign Language Classroom. *TOJET: The Turkish Online Journal of Educational Technology*, *13*(3), 156-177.

Paris, S. G. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly, 40*(2), 184-202.

Paris, A. H., & Paris, S. G. (2003). Assessing narrative comprehension in young children. *Reading Research Quarterly*, *38*(1), 36–76.

Parr, J. M., & Ward, L. (2011). The teacher's laptop as a hub for learning in the classroom. *Journal of Research on Technology in Education, 44*(1), 53–73.

Perfetti, C. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading, 11*(4), 357-383.

Perfetti, C. A., & Marron, M. A. (1998). Learning to read: Literacy acquisition by children and adults. In D.A. Wagner (Ed.). *Advances in adult literacy research and development*. Hampton Press.

Pikulski, J. J., & Chard, D. J. (2005). Fluency: Bridge between decoding and comprehension. *The Reading Teacher, 58*(6), 510-519.

Powers, S. & Price-Johnson, C. (2006). Evaluation of the Waterford Early Reading Program in Kindergarten 2005-2006. Tucson, AZ: Creative Research Associates. Retrieved from: http://www.eric.ed.gov/PDFS/ED501576.pdf

Rangel, E. S. (2013) *Implementing and evaluating a professional development program on phonemic awareness instruction for teachers of k-2 English language learners* (Doctoral dissertation, University of Pittsburgh, U S A). Retrieved October 18, 2015 from http://d-scholarship.pitt.edu/18755/1/Rangel_Dissertation_May2013.pdf

Rapp, D. N., & van den Broek, P. (2005). Dynamic text comprehension: An integrative view of reading. *Current Directions in Psychological Science*, *14*(5), 276–279.

Rasinski, T. V. (1990). Effects of repeated reading and listening while reading on reading fluency. *Journal of Educational Research, 83*(3), 147–150.

Rasinski, T. V., & Padak, N. D. (1998). How elementary students referred for compensatory reading instruction perform on school-based measures of word recognition, fluency, and comprehension. Reading Psychology: *An International Quarterly, 19*(2), 185–216.

Rasinski, T. V., & Hoffman, J. V. (2003). Theory and research into practice: Oral reading in the school literacy curriculum. *Reading Research Quarterly, 38*(4), 510-522.

Rasinski, T., Homan, S., & Biggs, M. (2009).Teaching reading fluency to struggling readers: Method, materials, and evidence. *Reading and Writing Quarterly, 25*(2-3), 192-204.

227

Rayner, K., Foorman, B. R., Perfetti, C. A., Pesetsky, D., & Seidenberg, M. S. (2001). How psychological science informs the teaching of reading. *Psychological Science in the Public Interest, 2*(2), 31-74.

Read, C., Yun-Fei, Z., Hong-Yin, N., & Bao-Qing, D. (1986). The ability to manipulate speech sounds depends on knowing alphabetic writing. *Cognition*, *24*(1-2), 31-44.

Reading, S. & van Deuren, D. (2007). Phonemic awareness: When and how much to teach? *Reading Research and Instruction, 46(3)*, 267-285.

Reedy, G. B. (2008). Powerpoint, interactive whiteboards, and the visual culture of technology in schools. *Technology, Pedagogy and Education, 17*(2), 143-162.

Rocco, T. S., & Plakhotnik, M. S. (2009). Literature reviews, conceptual frameworks, and theoretical frameworks: Terms, functions, and distinctions. *Human Resource Development Review, 8*(1), 120-130.

Rose, J. (2009). *Men among boys: The characteristics, qualifications and academic impact of male kindergarten teachers in America* (Doctoral dissertation, University of North Carolina at Chapel Hill).

Roth, F. P., Speece, D. L., & Cooper, D. H. (2002). A longitudinal analysis of the connection between oral language and early reading. *Journal of Educational Research, 95*(5), 259-272.

Runge, T. J. & Watkins, M. W. (2006). The structure of phonological awareness among kindergarten students. *School Psychology Review, 35*(3), 370-386.

Ryan, A. & Meara, P. (1991). The case of the invisible vowels: Arabic speakers reading English words. *Reading in a foreign language, 7*(2), 531-540.

Samuel, R. J. & Zaitun, A. B. (2007). Do Teachers have Adequate ICT Resources and the Right ICT Skills in Integrating ICT Tools in the Teaching and Learning of English Language in Malaysian Schools? *The Electronic Journal of Information Systems in Developing Countries*, *29*(2), 1-15

Savage, R., & Carless, S. (2005). Phoneme manipulation not onset-rime manipulation ability is a unique predictor of early reading. *Journal of Child Psychology and Psychiatry, 46*(12), 1297–1308.

Schuele, C. M., & Boudreau, D. (2008). Phonological awareness intervention: Beyond the basics. *Language, Speech, and Hearing Services in Schools, 39*(1), 3–20.

Sekaran, U. (2003). *Research methods for business: A skill building approach* (4th ed.).NY. John Wiley & Sons.

Sekel, P. P. (2003) *The phonemic awareness knowledge and skills of first-grade teachers: A Sound investment?* (Doctoral dissertation, The University of Texas, U S A).

Senechal, M. & LeFevre, J. (2002). Parental involvement in the development of children's reading skills: A five year longitudinal study. *Child Development, 73*(2), 445–460.

Shankweiler, D. (1999). Words to meanings. *Scientific Studies of Reading*, *3*(2), 113-127.

Shankweiler, D. & Fowler, A. E. (2004). Questions people ask about the role of phonological processes in learning to read. *Reading and Writing: An Interdisciplinary Journal 17*(5), 483–515.

Shankweiler, D., Lundquist, E., Katz, L., Stuebing, K. K., Fletcher, J. M., Brady, S., … Shaywitz, B. A. (1999). Comprehension and decoding: Patterns of association in children with reading difficulties. *Scientific Studies of Reading, 3*(1), 69-94.

Share, D. L. & Gur, T. (1999). How reading begins: A study of preschoolers' print identification strategies. *Cognition and Instruction, 17*(2), 177-213.

Shaughnessy, A., Sanger, D., Matteucci, C., & Ritzman, M. (2004). Early childhood language and literacy: Survey explores kindergarten teacher's perceptions. *The American Speech-Language-Hearing Association (ASHA) Leader*, 9(2), *2*-18.

Shenton, A. & Pagett, L. (2007). From ‗bored' to screen: the use of the interactive whiteboard for literacy in six primary classrooms in England. *Literacy*, *41*(3), 129-136.

Siedenberg, M. S. (1992). *Beyond orthographic depth in reading: Equitable division of labor.* In R. Frost & L. Katz (Eds.), Orthography, phonology, morphology and meaning. Amsterdam: North-Holland.

Singh, T. & Mohammed, A. (2012). Secondary students' perspectives on the use of the Interactive. Whiteboard for teaching and learning of Science in Malaysia. *Journal of education and Practice*, *3*(7), 9-15.

Slavin, R. E, Lake, C., Chambers, B., Cheung, A., & Davis, S. (2009) Effective reading programs for the elementary grades: A best-evidence synthesis. *Review of Educational Research, 79*(4), 1391-1466.

Smith, F., Hardman, F., & Higgins, S. (2006). The impact of interactive whiteboards on teacher–pupil interaction in the National Literacy and Numeracy Strategies. *British educational research journal*, *32*(3), 443-457.

Smith, H. J., Higgins, S., Wall, K., & Miller, J. (2005). Interactive whiteboards: Boon or bandwagon? A critical review of the literature. *Journal of Computer Assisted Learning, 21*(2)*,* 91-101.

Smith, S., Simmons, D., & Kame'enui, E. (1998). Phonological awareness: Instructional and curricular basics and implications. In D. C. Simmons & E. J. Kame'enui (Eds.), What reading research tells us about children with diverse learning needs: Bases and basics (pp. 129-140). Mahwah, NJ: Lawrence Erlbaum.

Snow, C. E. (1991). The theoretical basis for relationships between language and literacy in development. *Journal of Research in Childhood Education, 6*(1), 5–10.

Snow, C. E., Burns, M. S., & Griffin, P (Eds.). (1998). *Preventing reading difficulties in young children.* Washington, DC: National Academy Press.

Solvie, P. A. (2004). The digital whiteboard: A tool in early literacy instruction. *The Reading Teacher, 57*(5), 484-487.

Stahl, S. A., & Fairbanks, M. M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research, 56*(1), 72-110.

Stahl, S. A., & Kuhn, M. R. (2002). Making it sound like language: Developing fluency. *The Reading Teacher, 55*(6), 582-584.

Stainthorp, R. & Hughes, D. (2004). What happens to precocious readers' performance by the age eleven? *Journal of Research in Reading, 27*(4), 357–372.

Stanovich, K. E. (1986). Matthew effects in reading: some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*(4), 360-407.

Stanovich, K. E., Nathan, R. G., & Zolman, J. E. (1988). The developmental lag hypothesis in reading: Longitudinal and matched reading-level comparisons. *Child Development, 59*(1), 71-86.

Stuart, M. (1995). Prediction and qualitative assessment of five- and six-year old children's reading: A longitudinal study. *British Journal of Educational Psychology, 65*(3), 287-296.

Stuart, M., & Coltheart, M. (1988). Does reading develop in a sequence of stages? *Cognition, 30*(2), 139-181.

Stuart, M., Stainthorp, R., & Snowling, M. (2008). Literacy as a complex activity: Deconstructing the simple view of reading. *Literacy*, *42*(2), 59-66.

Suggate, S. P., Schaughency, E. A., & Reese, E. (2013). Children learning to read later catch up to children reading earlier. *Early Childhood Research Quarterly, 28*(1), 33– 48.

Sylva, K., & Hurry, J. (1996). Early intervention in children with reading difficulties: An evaluation of Reading Recovery and a phonological training. *Literacy, Teaching and Learning*, *2*(2), 49-68.

Tahaineh, Y & Daana, H. (2013). Jordanian undergraduates' motivations and attitudes towards learning English in EFL context. *International Review of Social Sciences and Humanities, 4*(2), 159-180.

Tajuddin, E. D., & Shah, P. B. (2015). Teachers; knowledge of phonemic awareness and its instruction in ESL learning. *International Journal of Technical Research and Applications,* Special issue 22, 72-79.

Tellier, A., & Roehr-Brackin, K. (2013). The development of language learning aptitude and metalinguistic awareness in primary-school children: A classroom study. *Essex Research Reports in Linguistics, 62*(1), 1-28.

Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., ... & Goldsmith, C. H. (2010). A tutorial on pilot studies: the what, why and how. *BMC medical research methodology*, *10*(1), 1-10.

Thajakan, N. & Sucaromana, U. (2014). Enhancing English phonemic awareness of Thai grade one students through multimedia computer-assisted language learning. *Theory and Practice in Language Studies*, *4*(11), 2294-2300.

The National Report on Adult Education in Jordan (NRAEJ). (2006). *The Sixth International Conference on Adult Education,* Retrieved March 19, 2014 from
http://www.unesco.org/fileadmin/MULTIMEDIA/INSTITUTES/UIL/confi n tea/pdf/National_Reports/Arab States/Jordan.pdf.

Therrien, W. J. (2004). Fluency and comprehension gains as a result of repeated reading a meta-analysis. *Remedial and special education*, *25*(4), 252-261.

Therrien, W. J., & Kubina, R. M. (2006). Developing reading fluency with repeated reading. *Intervention in school and clinic*, *41*(3), 156-160.

Torgesen, J. K. (2002). The prevention of reading difficulties. *Journal of School Psychology, 40*(1), 7-26.

Torgesen, J. K. (2004). Avoiding the devastating downward spiral: The evidence that early intervention prevents reading failure. *American Educator, 28*(3), 6-19. Retrieved October 10, 2014 from
http://www.aft.org/periodical/american-educator/fall-2004/avoiding-devastating-downward-spiral

Torgesen, J. K., Alexander, A. W., Wagner, R. K., Rashotte, C. A., Voeller, K. K., & Conway, T. (2001). Intensive remedial instruction for children with severe reading disabilities: Immediate and long-term outcomes from two instructional approaches. *Journal of Learning Disabilities, 34*(1), 33-58, 78.

Torgesen, J. K., & Hudson, R. F. (2006). Reading fluency: critical issues for struggling readers. In S.J. Samuels and A. Farstrup (Eds.). *Reading fluency: The forgotten dimension of reading success*. Newark, DE: International Reading Association.

Treiman, R., & Bourassa, D. C. (2000). The development of spelling skill. *Topics in language disorders*, *20*(3), 1-18.

Troia, G. A., Roth, F. P., & Yeni-Komshian, G. H. (1996). Word frequency and age effects in normally developing children's phonological processing. *Journal of Speech, Language, and Hearing Research, 39*(5), 1099-1108.

Tunmer, W. E., & Nesdale, A. R. (1985). Phonemic segmentation skill and beginning reading. *Journal of educational Psychology*, *77*(4), 417-427.

Turel, Y. K., & Johnson, T. E. (2012). Teachers' belief and use of interactive whiteboards for teaching and learning. *Educational Technology & Society*, *15*(1), 381-394.

Turley, S., Powers, K., & Nakai, K. (2006). Beginning teachers' confidence before and after induction. *Action in Teacher Education*, *28*(1), 27-39.

Uhry, J. K., & Shepherd, M. J. (1993). Segmentation/spelling instruction as part of a first-grade reading program: Effects on several measures of reading. *Reading Research Quarterly, 28*(3), 219-233.

van Bysterveldt, A. K. (2009). *Speech, phonological awareness and literacy in New Zealand children with down syndrome* (Doctoral dissertation, University of Canterbury , New Zealand)

van den Broek, P., Kendeou, P., Kremer, K., Lynch, J. S., Butler, J., White, M. J., & Lorch, E. P. (2005). Assessment of comprehension abilities in young children. In S. Stahl & S. Paris (eds.), *Children's Reading Comprehension and Assessment,* (pp.107-130). Mahwah, NJ: Erlbaum.

Vaughn, S., Hughes, M. T., Moody, S. W., & Elbaum, B. (2001). Instructional Grouping for Reading for Students with LD Implications for Practice. *Intervention in School and Clinic*, *36*(3), 131-137.

Vaughn, S., & Linan-Thompson, S. (2004). *Research-based methods of reading instruction: Grades K–3*. Alexandria, VA: Association for Supervision and Curriculum Development.

Vellutino, F. R., & Scanlon, D. M. (1987). Phonological coding, phonological awareness, and reading ability: evidence from a longitudinal and experimental study. *Merrill-Palmer Quarterly, 33*(3), 321-363.

Vellutino, F. R., & Scanlon, D. M. (1998, April) *Research in the Study of Reading Disability: What Have We Learned in the Past Four Decades?* Paper presented at the annual conference of the American Educational Research Association Meeting, San Diego, CA. Retrieved May 20, 2014 from http://files.eric.ed.gov/fulltext/ED419347.pdf

Villaume, S. K., & Brabham, E. G. (2003). Phonics instruction: Beyond the debate. *The Reading Teacher, 56*(5), 478-482.

Wang, A. H. (2008). A pre-kindergarten achievement gap? Scope and implications. *Online Submission, 5*(9), 23-31.

Wagner, R. K., & Torgesen, J. K. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin, 101*(2), 192–212.

Wagner, R. K., Torgesen, J. K., Rashotte, C. A, Hecht, S. A., Barker, T. A., Burgess, S. R., … Garon, T. (1997). Changing relations between phonological processing abilities and word-level reading as children develop from beginning to skilled readers: A 5-year longitudinal study. *Developmental Psychology, 33*(3), 468-479.

Wall, K., Higgins, S., & Smith, H. (2005). The visual helps me understand the complicated things: Pupil views of teaching and learning with interactive whiteboards. *British Journal of Educational Technology, 36*(5), 851-867.

Walliman, N. (2011). *Research methods: The basics*. NY. Routledge.

Walsh, R. (2009). Word games: the importance of defining phonemic awareness for professional discourse. *Australian Journal of Language and Literacy*, *32*(3) 211-225.

Warrington, S. D. (2006). Building automaticity of word recognition for less proficient readers. *The Reading Matrix, 6*(1), 52-65.

Westwood, P. (2001). *Reading and Learning Difficulties: approaches to teaching and assessment*. Victoria, Australia, ACER Press.

Williams, J. S. (2012). *Teachers' perceptions and pedagogical content knowledge of phonological awareness, phonics, and dyslexia* (Doctoral dissertation.) Walden University, U. S. A.

Wilson, J. & Colmar, S. (2008). Re-evaluating the significance of phonemic awareness and phonics in literacy teaching: The shared role of school counsellors and teachers. *Australian Journal of Guidance and Counselling, 18* (2), 89-105.

Wolter, I., Braun, E., & Hannover, B. (2015). Reading is for girls!? The negative impact of preschool teachers' traditional gender role attitudes on boys' reading related motivation and skills. *Frontiers in psychology*, *6*. 1-11.

Woods, C. S. (2003). Phonemic awareness: A crucial bridge to reading. *Montessori Life, 15*(2), 37-39.

Wood, C. L., Mustian, A. L., & Lo, Y. Y. (2013). Effects of supplemental computer-assisted reciprocal peer tutoring on kindergarteners' phoneme segmentation fluency. *Education and Treatment of Children*, *36*(1), 33-48.

Wood, R. & Ashfield, J. (2008). The use of the interactive whiteboard for creative teaching and learning in literacy and mathematics: A case study. *British Journal of Educational Technology, 39*(1), 84-96.

Wright, C., Conlon, E. G., Wright, M., & Dyck, M. H. (2011). An open, pilot study of the understanding words reading intervention program. *SAGE Open*, 1–11.

Xu, H. L., & Moloney, R. (2011). It makes the whole learning experience better: Student feedback on the use of the interactive whiteboard in learning Chinese at tertiary level. *Asian Social Science, 7*(11), 20-34.

Yaworski, J. (2000). Using computer-based technology to support the college reading classroom. *Journal of College Reading and Learning, 31*(1), 19-41.

Yeh, S. S. (2003). An evaluation of two approaches for teaching phonemic awareness to children in head start. *Early Childhood Research Quarterly, 18*(4), 513-529.

Yeh, S. S., & Connell, D. B. (2008). Effects of rhyming, vocabulary, and phonemic awareness instruction on phonemic awareness. *Journal of Research in Reading, 31*(2), 243-256.

Yeung, S. S., Siegel, L. S., & Chan, C. K. (2013) Effects of a phonological awareness program on English reading and spelling among Hong Kong Chinese ESL children. *Reading and Writing, 26*(5), 681-704.

Yilmaz-Soylu, M. & Akkoyunlu, B. (2009). The effect of learning styles on achievement in different learning environments. *The Turkish Online Journal of Educational Technology, 8*(4), 43-50. Retrieved April 2, 2014 from http://www.tojet.net/articles/v8i4/844.pdf

Yopp, H. K. (1988). The validity and reliability of phonemic awareness tests. *Reading Research Quarterly, 23*(2), 159–177.

Yopp, H. K. (1992). Developing phonemic awareness in young children. *The Reading Teacher, 45*(9), 696-703.

Yopp, H. K. (1995). A test for assessing phonemic awareness in young children. *The Reading Teacher, 49*(1)*,* 20–30.

Yopp, H. K. & Stapleton, L. (2008). Conciencia Fonemica en Espanol (Phonemic awareness in Spanish). *The Reading Teacher*, *61*(5), 374-82.

Yopp, H. K. & Yopp, R. H. (2000). Supporting phonemic awareness development in the classroom. *The Reading Teacher, 54*(2), 130-143.

Yopp, H. K & Yopp, R. H. (2009). Phonological awareness is child's play! *YC Young Children*, *64*(1), 12-21.

Zhang, L. J., & Anual, S. B. (2008). The role of vocabulary in reading Comprehension: The case of secondary school students learning English in Singapore. *RELC Journal, 39*(1), 52-77.

Ziegler, J. C., & Goswami, U. (2005) Reading acquisition, developmental dyslexia, and skilled reading across languages: A psycholinguistic grain size theory. *Psychological Bulletin, 131*(1), 3–29.

Zughoul, M. R. (2003). Globalization and EFL/ESL pedagogy in the Arab World. *Journal of Language and Learning, 1*(2), 106-146.
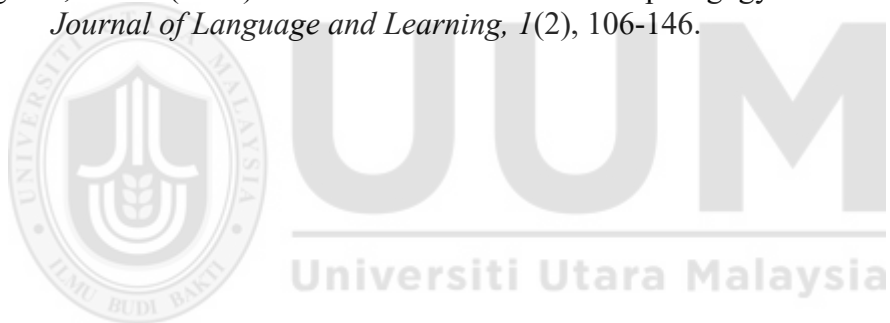
APPENDIX A

LETTER TO THE SCHOOL SUPERINTENDENT

Mohammad Husam. A. Alhumsi

College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah-MALAYSIA

February 2, 2015

Dear Superintendent,

I am a full-time Ph.D. candidate in the School of Education and Modern Languages Department at Universiti Utara Malaysia. I have completed my coursework and am continuing my dissertation research for a doctorate in applied linguistics. My major field of study is in working with students who are beginning readers.

I am requesting permission to conduct research for my study. The research involves students who are in the first grade. This investigation will commence in February 2015, second semester, at Jarash Primary School in the city of Jarash. This study will run for 4 weeks and will involve two intact first grade groups. I have already received approval from the school principal and the participating teacher.

I welcome the opportunity to discuss my research with you and answer any questions that you may have.

Respectfully yours,

Mohammad Husam. A. Alhumsi

Husam_1001@yahoo.com

APPENDIX B

LETTER TO THE SCHOOL PRINCIPAL

Mohammad Husam. A. Alhumsi

College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah-MALAYSIA

February 2, 2015

Dear Principal,

I am a full-time Ph.D. candidate in the School of Education and Modern Languages Department at Universiti Utara Malaysia. I have completed my coursework and am continuing my dissertation research for a doctorate in applied linguistics. My major field of study is in working with students who are beginning readers.

I am requesting permission to conduct research for my study. The research involves students who are in the first grade. This investigation will commence in February 2015 second semester at Jarash Primary School in the city of Jarash. This study will run for 4 weeks and will involve two intact first grade groups. I have already received approval from the participating teacher.

I welcome the opportunity to discuss my research with you and answer any questions that you may have.

Respectfully yours,

Mohammad Husam. A. Alhumsi

Husam_1001@yahoo.com

APPENDIX C

LETTER TO THE SCHOOL PARTICIPATING TEACHER

Mohammad Husam. A. Alhumsi

College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah-MALAYSIA

February 2, 2015

Dear Teacher,

I am a full-time Ph.D. candidate in the School of Education and Modern Languages Department at Universiti Utara Malaysia. I have completed my coursework and am continuing my dissertation research for a doctorate in applied linguistics. My major field of study is in working with students who are beginning readers.

I am requesting permission to conduct research for my study. This investigation will commence in February 2015, second semester, at Jarash Primary School in the city of Jarash. This study will run for 4 weeks and will involve two intact first grade groups. I have already received approval from your principal.

I welcome the opportunity to discuss my research with you and answer any questions that you may have.

Respectfully yours,

Mohammad Husam. A. Alhumsi

Husam_1001@yahoo.com

APPENDIX D

CONSENT FORM – PARENTS

Mohammad Husam. A. Alhumsi

College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok
Kedah-MALAYSIA

February 12, 2015

Dear Parents,
I am a full-time Ph.D. candidate in the School of Education and Modern Languages Department at Universiti Utara Malaysia. I have completed my coursework and am continuing my dissertation research for a doctorate in applied linguistics. My major field of study is in working with students who are beginning readers.

I am requesting permission to conduct research for my study. This investigation will commence in February 2015, second semester, at Jarash Primary School in the city of Jarash. This study will run for 4 weeks and will involve two intact first grade groups. I have already received approval from the superintendent, the school principal and a participating teacher.

Your child' class will be involved in an educational experiment over a four-week period. During this time, there will be a pretest and posttest of beginning readers' word recognition. In an effort to protect your child's confidentiality and anonymity, groups will be identified as either Group A or Group B.

I welcome the opportunity to discuss my research with you and answer any questions that you may have.

Respectfully yours,
Mohammad Husam. A. Alhumsi

Husam_1001@yahoo.com

LETTER OF CONSENT – STUDENTS (ARABIC SCRIPT)

Group#: _____   Date: February 8, 2015

I _____   agree to participate in this dissertation project.

Student Name

الوفــق فيىالمشاركـفـيمشروع اطروحةلالكتوراة

APPENDIX F
LETTER TO THE REFEREES

Dear Sir,

I am a full-time Ph.D. candidate in the School of Education and Modern Languages Department at Universiti Utara Malaysia. I am conducting a research entitled **THE EFFECT OF PHONEMIC SEGMENTATION SKILL ON JORDANIAN EFL BEGINNING READERS' WORD RECOGNITION.** I would be more grateful if you could provide me with your valuable suggestions or modifications you think they could be appropriate regarding the questionnaire and the lesson plans in order to achieve the current goal of the study. With regard to the questionnaire, it should be noted that the answer alternatives paragraphs are (Strongly Disagree, Disagree /Undecided/Agree / Strongly Agree). Finally, lesson plans involve 12 sessions for experimental group and the same number of sessions is for control group.

 Your kind cooperation and assistance are appreciated

Thank you

Best Regards

Mohammad Husam A. Alhumsi

Comments:

APPENDIX G
ARBITRATION COMMISSION

No.	Name	Specialization	University / Directorate of Education
1.	Abdulla Sawalha	Applied Linguistics	Jerash Private University musa2000ca@yahoo.co.uk
2.	Mohammad Bataineh	Applied Linguistics	Jerash Private University
3.	Salem Shirah	Applied Linguistics	Jerash Private University
4.	Manar Almomani	Linguistics	Irbid National University Manar.almomani@gmail.com
5.	Basma Momani	Supervisor of English Language	Jerash Directorate of Education Md.Jerash@moe.gov.jo
6.	Asma Almomani	Supervisor of English Language	Md.Jerash@moe.gov.jo

APPENDIX H

RECOMMENDATIONS OF ARBITRATION COMMISSION

Appendix H shows the recommendations of the judges in relation to the questionnaire and lesson plan before and after reviewing.

Research Instrument	Recommendations and suggestions
1-Questionnaire	Add a definition to interactive whiteboard in the cover page.
	Strongly Disagree should be changed into Strongly Agree as a reference to No.5.
	Add item 22-25 in the beginning in relation to Age.
	―A ticking one" changes to a tick in one.
2- Lesson Plan	Change experimental group to control group with respect to the introduction of the lesson No. 9 in the control group session.
	Change first session to second session in the introduction of the lesson No.9 in the control group session.

APPENDIX I

WORD TEST SCORE SHEET

WORD READING SCORE SHEET Use any one list of words		
Name:_____ Date:_____		
Age:_____ Date of birth:_____ TEST SCORE: /15		
Recorder:_____ STANINE GROUP:		
Record incorrect responses beside word		
LIST A	**LIST B**	**LIST C**
I	and	father
mother	to	come
are	will	for
here	look	a
me	he	you
shouted	up	at
am	like	school
with	in	went
car	where	get
children	Mr	we
help	going	they
not	big	ready
too	go	this
meet	let	boys
away	on	please

COMMENT:

APPENDIX J

QUESTIONNAIRE BEFORE REVIEWING

Investigating the significant use of phonemic segmentation skill and the interactive whiteboard as an instructional tool in improving Jordanian EFL beginning readers' word recognition

Dear EFL beginning reader's teacher,
You are invited to participate in this research about the effect of the use of phonemic segmentation skill on Jordanian EFL beginning readers' word recognition through the use of the interactive whiteboard. You have been selected as you are a teacher of EFL beginning readers.

The purpose of this research is to examine the significant use of phonemic segmentation skill and the interactive whiteboard as an instructional tool in improving EFL beginning readers' word recognition. Three terms should be clarified in this survey. First, *phonemic segmentation skill* is the ability to divide words into its individual sounds. Second, ―*Beginning readers*" is a term used to refer to students who enroll in the first grade to which this research is involved. Finally, *word recognition* refers to the ability to recognize printed words.

Your contribution to this research is valuable and appreciated. There is no ―right" or ―wrong" answers to any of these items. Please note that your response will be private, anonymous and confidential. Individual respondents will not be identified in any data or reports and there will be no risk or discomfort if you agree to take part in this research and the returned questionnaire will be kept confidential. Once the research submitted and approved, all the questionnaires will be destroyed.

You may ask the researcher any question you are interested in. The researcher's name is Mohammad Husam Alhumsi. You may contact the researcher himself by phone: 0786904298 or via e-mail: husam_1001@yahoo.com. You can contact his advisor, Dr. Ahmad Affendi in the School of Education & Modern Languages at University Utara Malaysia by-email: affendi@uum.edu.my, if you have any further concern and have the will to contact someone rather than the researcher.

Thank you for your assistance in completing this survey. Your prompt response is appreciated.
Best Regards,
Mohammad Husam Alhumsi
PhD Candidate, School of Education & Modern Languages, College of Arts and Sciences, University Utara Malaysia.

First Grade Teacher Survey

Reading is a necessary skill that influences learning in the future. As a first grade teacher, you have an important role in affecting the beginning reading of a child. Thank you for helping our children enter the realm of literacy and become literate citizens. Kindly answer this questionnaire survey as accurately as possible. Once have completed, return it to the principal's office, please.

I. Demographic Information:

Name (Optional)	
Degree	☐ Bachelor ☐ Diploma ☐ Master ☐ PhD ☐ Other
Years of Experience	☐ Less than 5 ☐ 5-10 ☐ 11-15 ☐ 16-20 ☐ More than 20
Age	☐ 25-34 ☐ 35-44 ☐ 45-55 ☐ over 55
Gender	☐ Male ☐ Female

II. Perceptions of the significant use of phonemic segmentation skill

In this section, please indicate your response to the following statements by putting a ticking one of the boxes or by circling the number which rates your level of agreement from 1 to 5. Number1 means you strongly disagree and number 5 means you strongly agree.

	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5
1. Phonemic segmentation skill is essential in developing EFL beginning readers' word recognition in the first grade.	1	2	3	4	5
2. Daily phonemic segmentation instruction is useful for predicting future reading difficulties.	1	2	3	4	5
3. Phonemic segmentation instruction can be used to prevent future reading difficulties.	1	2	3	4	5
4. Difficulties in word recognition in grade one are often the result of the lack of phonemic segmentation instructions.	1	2	3	4	5
5. EFL beginning readers should informally and incidentally learn phonemic segmentation skill in the first grade.	1	2	3	4	5
6. EFL beginning readers who experience difficulties in word recognition would benefit from phonemic segmentation instructions.	1	2	3	4	5
7. Teaching phonemic segmentation skill should come first before phonemic blending or manipulation skills.	1	2	3	4	5
8. Difficulties in word recognition cannot be inhibited in grade one.	1	2	3	4	5

9. Explicit phonemic segmentation instruction can decrease or eliminate early word recognition difficulties.	1	2	3	4	5
10. Phonemic segmentation instruction does not help learners recognize the printed words.	1	2	3	4	5
11. Difficulties in word recognition ability cannot be identified until grade two or later grades.	1	2	3	4	5
12. Daily phonemic segmentation instruction help young learners recognize words in print.	1	2	3	4	5
13. Phonemic segmentation instruction in grade one has an impact on word recognition in the later grades.	1	2	3	4	5
14. Phonemic segmentation skills should be explicitly taught with formal lessons to improve students' word recognition.	1	2	3	4	5
15. Word recognition involves segmenting sounds to say words.	1	2	3	4	5
16. Phonemic segmentation skill is easier than phoneme blending skill in learning word recognition.	1	2	3	4	5

III. Perceptions of the significant use of the interactive whiteboard

For the following section, please indicate the extent to which you agree with the following statements by putting a tick in one of the boxes or by circling the number which rates your level of agreement from 1 to 5.

	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Disagree 5
17. Using an interactive whiteboard enhances EFL beginning readers' motivation in word recognition.	1	2	3	4	5
18. Using a traditional white board enhances EFL beginning readers' motivation in word recognition.	1	2	3	4	5
19. Word recognition will be more fun if an interactive whiteboard is used.	1	2	3	4	5
20. Using an interactive whiteboard helps EFL beginning readers participate more in improving their word recognition.	1	2	3	4	5
21. Teachers may waste time when using an interactive whiteboard to improve EFL beginning readers' word recognition.	1	2	3	4	5
22. EFL beginning readers' word recognition should only be improved through an interactive white board instead of a traditional whiteboard.	1	2	3	4	5

23. Improving EFL beginning readers' word recognition requires teachers to do ongoing training when using an interactive whiteboard.	1	2	3	4	5
24. Improving EFL beginning readers' word recognition through using a traditional white board is easier than using an interactive whiteboard.	1	2	3	4	5
25. Using an interactive whiteboard reinforces EFL beginning readers' word recognition.	1	2	3	4	5
26. Using an interactive whiteboard may not suit the need of EFL beginning readers' word recognition.	1	2	3	4	5

THANK YOU

APPENDIX K

Questionnaire after Reviewing

APRIL 2015

Investigating the significant use of phonemic segmentation skill and the interactive whiteboard as an instructional tool in improving Jordanian EFL beginning readers' word recognition

Dear EFL beginning reader's teacher,
You are invited to participate in this research about the effect of the use of phonemic segmentation skill on Jordanian EFL beginning readers' word recognition through the use of the interactive whiteboard. You have been selected as you are a teacher of EFL beginning readers.

The purpose of this research is to examine the significant use of phonemic segmentation skill and the interactive whiteboard as an instructional tool in improving EFL beginning readers' word recognition. Three terms should be clarified in this survey. First, *phonemic segmentation skill* is the ability to divide words into its individual sounds. Second, ―*Beginning readers*" is a term used to refer to students who enroll in the first grade to which this research is involved. Third, *word recognition* refers to the ability to recognize printed words. Finally, ―*Interactive whiteboard*" is a large touch-sensitive board which is linked to a computer and a digital projector.

Your contribution to this research is valuable and appreciated. There is no ―right" or ―wrong" answers to any of these items. Please note that your response will be private, anonymous and confidential. Individual respondents will not be identified in any data or reports and there will be no risk or discomfort if you agree to take part in this research and the returned questionnaire will be kept confidential. Once the research submitted and approved, all the questionnaires will be destroyed.

You may ask the researcher any question you are interested in. The researcher's name is Mohammad Husam Alhumsi. You may contact the researcher himself by phone: 0786904298 or via e-mail: husam_1001@yahoo.com. You can contact his advisor, Dr. Ahmad Affendi in the School of Education & Modern Languages at University Utara Malaysia by-email: affendi@uum.edu.my, if you have any further concern and have the will to contact someone rather than the researcher.

Thank you for your assistance in completing this survey. Your prompt response is appreciated.
Best Regards,
Mohammad Husam Alhumsi
PhD Candidate, School of Education & Modern Languages, College of Arts and Sciences, University Utara Malaysia.

First Grade Teacher Survey

Reading is a necessary skill that influences learning in the future. As a first grade teacher, you have an important role in affecting the beginning reading of a child. Thank you for helping our children enter the realm of literacy and become literate citizens. Kindly answer this questionnaire survey as accurately as possible. Once have completed, return it to the principal's office, please.

I. Demographic Information:

Name (Optional)	
Degree	☐ Bachelor ☐ Diploma ☐ Master ☐ PhD ☐ Others
Years of Experience	☐ Less than 5 ☐ 5-10 ☐ 11-15 ☐ 16-20 ☐ More than 20
Age	☐ 22-24 ☐ 25-34 ☐ 35-44 ☐ 45-55 ☐ over 55
Gender	☐ Male ☐ Female

II. Perceptions of the significant use of phonemic segmentation skill

In this section, please indicate your response to the following statements by putting a tick in one of the boxes or by circling the number which rates your level of agreement from 1 to 5. Number1 means you Strongly Disagree and number 5 means you Strongly Agree.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
	1	2	3	4	5
1. Phonemic segmentation skill is essential in developing EFL beginning readers' word recognition in the first grade.	1	2	3	4	5
2. Daily phonemic segmentation instruction is useful for predicting future reading difficulties.	1	2	3	4	5
3. Phonemic segmentation instruction can be used to prevent future reading difficulties.	1	2	3	4	5
4. Difficulties in word recognition in grade one are often the result of the lack of phonemic segmentation instructions.	1	2	3	4	5
5. EFL beginning readers should informally and incidentally learn phonemic segmentation skill in the first grade.	1	2	3	4	5
6. EFL beginning readers who experience difficulties in word recognition would benefit from phonemic segmentation instructions.	1	2	3	4	5

7. Teaching phonemic segmentation skill should come first before phonemic blending or manipulation skills.	1	2	3	4	5
8. Difficulties in word recognition cannot be inhibited in grade one.	1	2	3	4	5
9. Explicit phonemic segmentation instruction can decrease or eliminate early word recognition difficulties.	1	2	3	4	5
10. Phonemic segmentation instruction does not help learners recognize the printed words.	1	2	3	4	5
11. Difficulties in word recognition ability cannot be identified until grade two or later grades.	1	2	3	4	5
12. Daily phonemic segmentation instruction help young learners recognize words in print.	1	2	3	4	5
13. Phonemic segmentation instruction in grade one has an impact on word recognition in the later grades.	1	2	3	4	5
14. Phonemic segmentation skills should be explicitly taught with formal lessons to improve students' word recognition.	1	2	3	4	5
15. Word recognition involves segmenting sounds to say words.	1	2	3	4	5

16. Phonemic segmentation skill is easier than phoneme blending skill in learning word recognition.	1	2	3	4	5

III. Perceptions of the significant use of the interactive whiteboard

For the following section, please indicate the extent to which you agree with the following statements by putting a tick in one of the boxes or by circling the number which rates your level of agreement from 1 to 5.

	Strongly Disagree 1	Disagree 2	Undecided 3	Agree 4	Strongly Agree 5
17. Using an interactive whiteboard enhances EFL beginning readers' motivation in word recognition.	1	2	3	4	5
18. Using a traditional white board enhances EFL beginning readers' motivation in word recognition.	1	2	3	4	5
19. Word recognition will be more fun if an interactive whiteboard is used.	1	2	3	4	5
20. Using an interactive whiteboard helps EFL beginning readers participate more in improving their word recognition.	1	2	3	4	5

21. Teachers may waste time when using an interactive whiteboard to improve EFL beginning readers' word recognition.

1	2	3	4	5

22. EFL beginning readers' word recognition should only be improved through an interactive white board instead of a traditional whiteboard.

1	2	3	4	5

23. Improving EFL beginning readers' word recognition requires teachers to do ongoing training when using an interactive whiteboard.

1	2	3	4	5

24. Improving EFL beginning readers' word recognition through using a traditional white board is easier than using an interactive whiteboard.

1	2	3	4	5

25. Using an interactive whiteboard reinforces EFL beginning readers' word recognition.

1	2	3	4	5

26. Using an interactive whiteboard may not suit the need of EFL beginning readers' word recognition.

1	2	3	4	5

THANK YOU

APPENDIX L

Results of the Questionnaire in the Pilot Study

Descriptive Statistics

Items	N	Minimum	Maximum	Mean	Std. Deviation
1-Phonemic segmentation skill is essential in developing EFL beginning readers' word recognition in the first grade.	30	2	5	3.97	.809
2-Daily phonemic segmentation instruction is useful for predicting future reading difficulties.	30	2	5	4.20	.761
3-Phonemic segmentation instruction can be used to prevent future reading difficulties.	30	3	5	4.10	.759
4-Difficulties in word recognition in grade one are often the result of the lack of phonemic segmentation instructions.	30	2	5	3.93	.785
5-EFL beginning readers should informally and incidentally learn phonemic segmentation skill in the first grade.	30	1	4	2.57	.935

6-EFL beginning readers who experience difficulties in word recognition would benefit from phonemic segmentation instructions.	30	2	5	4.20	.847
7-Teaching phonemic segmentation skill should come first before phonemic blending or manipulation skills.	30	3	5	4.20	.551
8-Difficulties in word recognition cannot be inhibited in grade one.	30	1	5	2.63	.928
9-Explicit phonemic segmentation instruction can decrease or eliminate early word recognition difficulties.	30	2	5	3.97	.890
10-Phonemic segmentation instruction does not help learners recognize the printed words.	30	2	4	2.70	.837
11-Difficulties in word recognition ability cannot be identified until grade two or later grades.	30	2	4	2.50	.820
12-Daily phonemic segmentation instruction helps young learners recognize words in print.	30	2	5	4.10	.803

261

13-Phonemic segmentation instruction in grade one has an impact on word recognition in the later grades.	30	2	5	3.80	.997
14-Phonemic segmentation skills should be explicitly taught with formal lessons to improve students' word recognition.	30	2	5	4.00	.871
15-Word recognition involves segmenting sounds to say words.	30	3	5	4.27	.691
16-Phonemic segmentation skill is easier than phoneme blending skill in learning word recognition.	30	2	5	4.00	.910
17-Using an interactive whiteboard enhances EFL beginning readers' motivation in word recognition.	30	2	5	4.07	.980
18-Using a traditional white board enhances EFL beginning readers' motivation in word recognition.	30	1	5	2.27	.785
19-Word recognition will be more fun if an interactive whiteboard is used.	30	3	5	4.33	.606

|					
20-Using an interactive whiteboard helps EFL beginning readers participate more in improving their word recognition.	30	2	5	4.33	.711
21-Teachers may waste time when using an interactive whiteboard to improve EFL beginning readers' word recognition.	30	1	5	2.63	.999
22-EFL beginning readers' word recognition should only be improved through an interactive white board instead of a traditional whiteboard.	30	2	5	3.47	.900
23-Improving EFL beginning readers' word recognition requires teachers to do ongoing training when using an interactive whiteboard.	30	3	5	4.23	.728
24-Improving EFL beginning readers' word recognition through using a traditional white board is easier than using an interactive whiteboard.	30	2	5	3.53	.937
25-Using an interactive whiteboard reinforces EFL beginning readers' word recognition.	30	2	5	4.07	.944

263

26-Using an interactive whiteboard may not suit the need of EFL beginning readers' word recognition.	30	1	5	2.90	.960
Valid N	30				

APPENDIX M

Lesson Plans of the Experimental Group

Topic: Phonemic segmentation training	Lesson No. 1	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 21	Age: 7 years old
Date: February 17th, 2015	(Experimental Group)	Grade: 1st Grade
		First Session

The objectives of the lesson:

1-Students will be able to identify the initial, middle and final sounds of the given words.
2-To encourage students to recognize the concept of phonemic segmentation

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	
Time: 10 min	Procedures of the lesson:	-Elkonin boxes -Interactive whiteboard -Laptop -Data Show -List of words: Bed-horse-clock-lorry-desk-doll-deer-duck-fan-ball-sun
	a-Introduce the lesson: identifying the initial, middle and final sound in the provided words 1- The teacher explains the sound parts in words. 2- The teacher explains that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- The teacher introduces the concept of phonemic segmentation and illustrates how it will help us learn to read. 4- The teacher lets the students listen carefully to hear the initial, middle and final sounds in words. For example, /d/, /u/and /k/ sounds represent the word *"duck"*. b- The teacher uses the interactive whiteboard to illustrate the activity of identifying initial, middle and final sounds in given words illustrated by the Elkonin boxes.	
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, some activities will be given in which the students have to identify the initial, middle and final sound of the given word.	

Topic: Phonemic segmentation training	Lesson No. 2	Duration: 10 minutes
Lesson Title: segmenting individual sounds Date: February 18th , 2015	Number of students: 21 (Experimental Group)	Age: 7 years old Grade: 1st Grade First Session

The objective of the lesson:

1- Students will be able to identify the sounds of the given words.

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	
	Procedures of the lesson:	
Time: 10 min	a-Introduce the lesson: identifying sound parts in words 1- The teacher lets the students begin learning about sound parts in words. 2- The teacher lets them learn that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- The teacher lets the students listen carefully to hear the sound parts in words. For example, ff aa nn –*fan*" b- The teacher uses the interactive whiteboard to illustrate the activity of identifying sounds parts in given words by the help of Elkonin boxes. 4- The teacher shows them how to do the activities.	-Elkonin boxes -Interactive whiteboard -Laptop -Data Show -List of words: Bed-horse-clock-lorry-desk-duck-fan-ball-bat
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, some activities will be given in which the students have to identify the right sound from the given picture.	

Topic: Phonemic segmentation training	Lesson No. 3	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 21 (Experimental Group)	Age: 7 years old Grade: 1st Grade
Date: February 19th , 2015		First Session

The objective of the lesson:

1- Students will be able to pronounce a target word slowly, stretching it out by sound.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -List of words: bed-man-pin -Laptop -Data Show
	Procedures of the lesson:	
	1- The teacher begins: Today we are going to do this on your own. I am going to give you a word and I want you to say the word slowly, so that you hear all the sounds. Some words will be easy and some may be a little tricky, but I know you can do it. It's going to be just like we did together just now. 2- The students click on one box then draw one box for each sound. After that, they insert the letter(s) for each sound. 3-There are lists of words. When I'm reading I want to be able to sound out the words and be able to break the word down into different sounds. I am going to say a word such as "pin." I am going to use these three boxes right here to segment the word into the different sounds. When I sound out the word I notice there are three sounds, /p/ /i/ /n/. As I'm slowly sounding out the word I click on the given three boxes.	
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, I will then have a little activity in which the students have to pick out a word in a picture to stretch out the word slowly. Then I will have the students say different words on the interactive whiteboard.	

Topic: Phonemic segmentation training	Lesson No. 4	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 21 (Experimental Group)	Age: 7 years old Grade: 1st Grade First Session
Date: February 24th , 2015		

The objective of the lesson:

1- Students will be able to segment the individual sounds in each word.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -List of words: fish-man-cat -Laptop -Data Show
	Procedures of the lesson:	
	1- The teacher uses the interactive whiteboard to introduce the phoneme segmentation to some words. He shows some pictures. He also has some activities for the students to go to the interactive board and do these activities by giving them the right directions. E.g. *cat* kkk aaa ttt 2- The teacher gives a student a word and then he segments the phonemes while stretching out the word aloud and then he gives others a few more words. The amount of words given will depend on the timing and how well they are doing. 3- The teacher explains to the student that he does very well and he is very proud of all of his smart thinking. 4- The teacher tells the student that he can use this strategy when he is in class, doing homework, or reading independently. 5- The teacher repeats the whole steps with other students. 6- The teacher shows them how to do the exercise.	
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, I will then have some activities in which the students have to pick out a word in a picture to stretch out the word slowly using the interactive whiteboard.	

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: February 25th , 2015	Lesson No. 5 Number of students: 21 (Experimental Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade First Session

The objective of the lesson:

1-Students will be able to recognize individual sounds in different words.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	- Greet the students. -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -Laptop -Data Show -List of words: pearl-cow-car-sheep-bee-banana-moon-horse-duck-zebra
	Procedures of the lesson:	
	1- The teacher lets the students see some pictures given on the interactive whiteboard. 2-The teacher lets them guess what these pictures are by saying the words they represent. 3-The teacher lets them listen to these sounds and see if they can figure out the word I'm saying: e.g. horse 4-The teacher asks them to identify the first sound. 5- The teacher shows his students how to do the exercise	
	Closure (Assessment):	
	The students will do the given exercise on the interactive whiteboard.	

Topic: Phonemic segmentation training	Lesson No. 6	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 21 (Experimental Group)	Age: 7 years old Grade: 1st Grade
Date: February 26th , 2015		First Session

The objective of the lesson:

1-Students will be able to count the sounds in a word.

The structure of the lesson:

<table>
<tr><td rowspan="5">Time:

10 min</td><td>Introduction:</td><td rowspan="5">-Elkonin boxes
-Interactive whiteboard
-Laptop
-Data Show
-List of words: horse-van-water-cat-bed-fun-sat-sister—bike-clock</td></tr>
<tr><td>Teaching Materials:</td></tr>
<tr><td>-Warm up – Greet students

-The teacher uses the Elkonin boxes provided on the interactive whiteboard.</td></tr>
<tr><td>Procedures of the lesson:</td></tr>
<tr><td>1-The teacher pronounces a target word slowly, stretching it out by sound.
2-The teacher asks the student to repeat the word.
3-The teacher drags "boxes" on the interactive whiteboard to match each particular box for each phoneme.
4-The teacher lets the student count the number of phonemes in the word, not necessarily the number of letters. For example, <i>van</i> has three phonemes and will use three boxes. /v/, /a/, /n/
5-The teacher directs the student to drag one colored circle or corresponding letter in each cell of the   Elkonin box as he repeats the word.
6-The teacher shows them how to do the exercise.</td></tr>
<tr><td></td><td>Closure (Assessment):</td><td></td></tr>
<tr><td></td><td>At the end of the Power Point Presentation on the interactive whiteboard, the students can correctly segment words into the appropriate boxes illustrated in the interactive whiteboard.</td><td></td></tr>
</table>

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 3rd , 2015	Lesson No. 7 Number of students: 21 (Experimental Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade First Session

The objectives of the lesson:

1-Students will be able to identify the initial, middle and final sounds of the given words. 2- Students will be able to segment the individual sounds in each word using Elkonin boxes given on the interactive white board.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -Laptop -Data Show -List of words:cat-horse-dog-lock
	Procedures of the lesson:	
	1-The teacher revises the previous lessons by having students saying the sounds parts in words. 2- The teacher lets students learn that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- The teacher lets students learn that segment parts of words will help us learn to read as well as helping us figure out new words. e.g. *cat* kkk aaa ttt 4- The teacher lets students listen carefully to hear the sound parts in words. 5- The teacher shows them how to do the exercise.	
	Closure (Assessment):	
	The students will practice doing the appropriate exercises given on the interactive board using Elkonin boxes.	

	Topic: Phonemic segmentation training	Lesson No. 8	Duration: 10 minutes
	Lesson Title: segmenting individual sounds	Number of students: 21 (Experimental Group)	Age: 7 years old Grade: 1st Grade
	Date: March 4th , 2015		First Session

The objective of the lesson:

1-The students will be able to build the concept of phonemic segmentation.

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	
	Procedures of the lesson:	
Time: 10 min	1- The teacher lets students say the sound parts in words by repeating after the teacher. 2- The teacher lets students practice some words. For example, medal-wet-pet-bed 3- The teacher introduces other words that have few sounds such as these words, e.g. —carnest- cat- egg-dog" 4- The teacher lets the students put sounds together to make words. For example, mmmaaannn: man 5- The teacher lets the students use the Elkonin boxes that contain one sound per box on the interactive board.	-Elkonin boxes -Interactive whiteboard -Laptop -Data Show -List of words: man-fish-dog-bed-egg-cat-wet-pet-red-ten-pen-nest-medal
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, The students will go to the interactive whiteboard and click on the right picture	

273

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 5th , 2015	Lesson No. 9 Number of students: 21 (Experimental Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade First Session

The objective of the lesson:

1-The students will be able to listen to sound parts in words.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -List of words: pin-cat-man-cap -Laptop -Data Show
	Procedures of the lesson:	
	1- The teacher reminds students that words are made of sounds. 2- The teacher lets them listen to sound parts in words. For example, pppiiinnn by using slow stretched pronunciation. 3- The teacher lets the students practice other words such as kkk aaatttt, mmm aaa nnn, kkk aaa rrr, kkk aaa ppp 4- The teacher shows them how to do the exercise.	
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, some activities will have been given in which the students click to the right pictures and say the words orally.	

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 10th , 2015	Lesson No. 10 Number of students: 21 (Experimental Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade First Session

The objective of the lesson:

1-The students will be able to listen to more sound parts in words.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -List of words: sheep-bag-cat-man-dog-cap-car -Laptop -Data Show
	Procedures of the lesson:	
	1- The teacher lets his students listen to more sound parts in words. For example, the word bag /bbb aaa ggg/. The teacher uses slow stretched pronunciation and then students repeat after him. 2- The teacher lets them practice other words such as sh sh sh ee ppp, kkk aaa tttt, mmm aaa nnn, kkk aaa rrr, kkk aaa ppp, ddd ooo ggg. 3- The teacher lets them repeat after him slow movement in saying words.	
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, The students match the right pictures with right word. Then they say the words orally.	

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 11th , 2015	Lesson No. 11 Number of students: 21 (Experimental Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade First Session

The objective of the lesson:

1-The students will be able to figure out the oral and printed word.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	-Elkonin boxes -Interactive whiteboard -List of words: can-dog-horse-lorry-desk-doll-deer-sun-man -Laptop -Data Show
	Procedures of the lesson:	
	1-The teacher lets the students use the Elkonin boxes that contain one sound per box illustrated in the interactive whiteboard 2-The teacher lets them practice using the different sounds in words. 3-The teacher lets them figure out the new sound parts in words. For example, kkk aaa nnn /k/a/n/ 4-The teacher lets them to use the slow stretched pronunciation for the given words. 5-The teacher shows them how to do the exercise.	
	Closure (Assessment):	
	The students do the given exercises illustrated in the interactive whiteboard to expand the word orally to hear all the separate phonemes by using the Elkonin boxes.	

Topic: Phonemic segmentation training	Lesson No. 12	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 21 (Experimental Group)	Age: 7 years old Grade: 1st Grade
Date: March 12th, 2015		First Session

The objective of the lesson:

1-The students will be able to figure out the oral and printed word. Revision

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the interactive whiteboard.	
	Procedures of the lesson:	-Elkonin boxes
Time: 10 min	1-The teacher reminds the students that words are made of sounds. 2- The teacher lets them the Elkonin boxes that contain one sound per box illustrated in the interactive whiteboard 3- The teacher lets them practice using the different sounds in words. 4- The teacher lets them figure out the new sound parts in words. For example, /b/ /ee/, /k/ /a/ /n/ 5- The teacher shows them how to do the exercise.	-Interactive whiteboard -List of words: bee-can-sheep-horse-doll-dog-duck-fan-bus-fish -Laptop -Data Show
	Closure (Assessment):	
	At the end of the Power Point Presentation on the interactive whiteboard, The students do the given exercises illustrated in the interactive whiteboard to say the word orally.	

APPENDIX N

Lesson Plans of the Control Group

Topic: Phonemic segmentation training	Lesson No. 1	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 20 (Control Group)	Age: 7 years old Grade: 1st Grade
Date: February 17th , 2015		Second Session

The objectives of the lesson:

1-Students will be able to identify the initial, middle and final sounds of the given words. 2-To encourage students to recognize the concept of phonemic segmentation

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	
	Procedures of the lesson:	
Time: 10 min	a-Introduce the lesson: identifying the initial, middle and final sound in the provided words 1- The teacher explains the sound parts in words. 2- The teacher explains that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- The teacher introduces the concept of phonemic segmentation and illustrates how it will help us learn to read. 4- Let the students listen carefully to hear the initial, middle and final sounds in words. For example, /k/, /a/and /t/ sounds represent the word *"cat"*. b- The teacher will use the traditional board to illustrate the activity of identifying initial, middle and final sounds in given words illustrated by the Elkonin boxes.	-Elkonin boxes -Traditional board -List of words: cat-bed-ball-bat- Bed-clock-lorry-desk-fan-ball-sun
	Closure (Assessment):	
	At the end of the lesson, some activities will be given in which the students have to identify the initial, middle and final sound of the given word.	

Topic: Phonemic segmentation training	Lesson No. 2	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 20 (Control Group)	Age: 7 years old
Date: February 18ᵗʰ , 2015		Grade: 1ˢᵗ Grade Second Session

The objective of the lesson:

1- Students will be able to identify the sounds of the given words.

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	
	Procedures of the lesson:	
Time: 10 min	a-Introduce the lesson: identifying sound parts in words 1- Let the students begin learning about sound parts in words. 2- Let them learn that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- Let the students listen carefully to hear the sound parts in words. For example, man /mmm aaa nnn/ b- The teacher uses the traditional board to illustrate the activity of identifying sounds parts in given words by the help of Elkonin boxes. 4- Show them how to do the activities.	Elkonin boxes -Traditional board -List of words: cat-bed-ball-bat- Bed-clock-lorry-desk-fan-ball-sun-man
	Closure (Assessment):	
	The students have to identify the right sound from the given word on the traditional board.	

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: February 19th , 2015	Lesson No. 3 Number of students: 20 (Control Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade Second Session

The objective of the lesson:

1- Students will be able to pronounce a target word slowly, stretching it out by sound.

The structure of the lesson:

<table>
<tr><td rowspan="5">Time:

10 min</td><td>Introduction:</td><td>Teaching Materials:</td></tr>
<tr><td>-Warm up – Greet students

-The teacher uses the Elkonin boxes provided on the traditional board.</td><td rowspan="4">Elkonin boxes
-Traditional board
-List of words :cat-cup-cow-dog-doll-ball</td></tr>
<tr><td>Procedures of the lesson:</td></tr>
<tr><td>1- The teacher begins: Today we are going to do this on your own. I am going to give you a word and I want you to say the word slowly, so that you hear all the sounds. Some words will be easy and some may be a little tricky, but I know you can do it. It's going to be just like we did together just now.
2- The students point at one box that represents the sound. After that, they say each sound.
     3-There are lists of words. When I'm reading I want to be able to sound out the words and able to break the word down into different sounds. I am going to say a word such as —dog‖ I am going to use these three boxes right here to segment the word into the different sounds. When I sound out the word I notice there are three sounds, /d/ /o/ /g/.</td></tr>
<tr><td>Closure (Assessment):
The students have to stretch out the word slowly. Then the teacher will have the students say different words on the traditional board.</td></tr>
</table>

Topic: Phonemic segmentation training	Lesson No. 4	Duration: 10 minutes
Lesson Title: segmenting individual sounds Date: February 24th , 2015	Number of students: 20 (Control Group)	Age: 7 years old Grade: 1st Grade Second Session

The objective of the lesson:

1- Students will be able to segment the individual sounds in each word.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	Elkonin boxes -Traditional board -List of words: dog-doll-duck-feet-cat-cow-corn-cup
	Procedures of the lesson:	
	1- The teacher uses the traditional board to introduce the phonemic segmentation to some words. He draws the boxes. He also has some activities for the students to go to the board and do these activities by giving them the right directions. E.g. *cat* kkk aaa ttt	
	2- The teacher gives a student a word and then he segments the phonemes while stretching out the word aloud and then he gives others a few more words. The amount of words given will depend on the timing and how well they are doing.	
	3- The teacher explains to the student that he does very well and he is very proud of all of his smart thinking.	
	4- The teacher tells the student that he can use this strategy when he is in class, doing homework, or reading independently.	
	5- The teacher repeats the whole steps with other students.	
	6- The teacher shows them how to do the exercise.	
	Closure (Assessment):	
	The students have to stretch out the word slowly by doing some activities.	

Topic: Phonemic segmentation training	Lesson No. 5	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 20 (Control Group)	Age: 7 years old
Date: February 25ᵗʰ , 2015		Grade: 1ˢᵗ Grade Second Session

The objective of the lesson:

1-Students will be able to recognize individual sounds in different words.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	- Greet the students. -The teacher uses the Elkonin boxes provided on the traditional board.	Elkonin boxes -Traditional board -List of words: dog-doll-duck-feet-cat-cow-corn-cup-dog
	Procedures of the lesson: 1- The teacher let the students see some words given on the traditional board. 2-The teacher lets them guess the sounds of the given words. 3-The teacher lets them listen to these sounds and see if they can figure out the word I'm saying: e.g. duck 4-The teacher asks them to repeat the words orally. 5- The teacher shows his students how to do the exercise	
	Closure (Assessment):	
	The students will do the given exercise on the traditional board.	

283

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: February 26th , 2015	Lesson No. 6 Number of students: 20 (Control Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade Second Session

The objective of the lesson:

1-Students will be able to count the sounds in a word.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	Elkonin boxes -Traditional board -List of words: dog-doll-duck-feet-pen-nut-ring-sun-tent-bed-bat-ant-ball
	Procedures of the lesson:	
	1-The teacher pronounces a target word slowly, stretching it out by sound. 2-The teacher asks the student to repeat the word. 3-The teacher draws the circles that represent each single sound to match each particular box for each phoneme (sound). 4-The teacher lets the student count the number of phonemes in the word, not necessarily the number of letters. For example, ball has three phonemes (sounds) and will use three boxes. /b/, /a/, /l/ 5-The teacher directs the student to draw one circle or corresponding letter in each cell of the Elkonin box as he repeats the word.(circle the first sound. 6-The teacher shows them how to do the exercise.	
	Closure (Assessment):	
	The students are able to correctly segment words into the appropriate boxes illustrated in the traditional board.	

	Introduction:	Teaching Materials:
Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 3rd , 2015	Lesson No. 7 Number of students: 20 (Control Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade Second Session

The objectives of the lesson:

1-Students will be able to identify the initial, middle and final sounds of the given words. 2- Students will be able to segment the individual sounds in each word using Elkonin boxes given on the traditional board.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	Elkonin boxes -Traditional board -List of words: bed-ball-moon-ball
	Procedures of the lesson:	
	1-The teacher revises the previous lessons by having students saying the sounds parts in words. 2- Let students learn that words are made up of sounds and it is important to learn to hear the sound parts in words. 3- Let students learn that segment parts of words will help us learn to read as well as helping us figure out new words. e.g. *bed* bbb eee ddd 4-Let students listen carefully to hear the sound parts in words. 5- Show them how to do the exercise.	
	Closure (Assessment):	
	The students will practice doing the appropriate exercises given on the traditional board using Elkonin boxes.	

285

Topic: Phonemic segmentation training	Lesson No. 8	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 20 (Control Group)	Age: 7 years old
Date: March 4th , 2015		Grade: 1st Grade Second Session

The objective of the lesson:

1-The students will be able to build the concept of phonemic segmentation.

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	
Time: 10 min	Procedures of the lesson:	-Elkonin boxes -Traditional board -List of words: dog-doll-duck-feet-pen-nut-ring-sun-tent-bed-bat-ant-ball-red
	1- The teacher lets students say the sound parts in words by repeating after the teacher. 2- The teacher lets students practice some words 3- The teacher introduces other words that have few sounds such as these words, e.g. "doll bed- ball-red" 4- The teacher lets the students put sounds together to make words. For example, mmmaaannn: man 5- The teacher lets the students use the Elkonin boxes that contain one sound per box on the traditional board.	
	Closure (Assessment):	
	At the end the lesson, the students will go to the traditional board and point to the right sound of the given word.	

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 5th , 2015	Lesson No. 9 Number of students: 20 (Control Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade Second Session

The objective of the lesson:

1-The students will be able to listen to sound parts in words.

The structure of the lesson:

<table>
<tr>
<td rowspan="6">Time:

10 min</td>
<td>Introduction:</td>
<td rowspan="6">Teaching Materials:</td>
</tr>
<tr>
<td>-Warm up – Greet students

-The teacher uses the Elkonin boxes provided on the traditional board.</td>
<td rowspan="5">-Elkonin boxes
-Traditional board
-List of words: goat-cow-cup-pen-pot-fish-cat-frog</td>
</tr>
<tr>
<td>Procedures of the lesson:</td>
</tr>
<tr>
<td>1- The teacher reminds students that words are made of sounds.
2- The teacher lets them listen to sound parts in words. For example, pppiiinnn by using slow stretched pronunciation.
3- The teacher lets the students practice other words such as kkk aaatttt, fff iii sh, kkk aaa ttt, ppp eee nnn
4- The teacher shows them how to do the exercise.</td>
</tr>
<tr>
<td>Closure (Assessment):</td>
</tr>
<tr>
<td>The students say the words orally.</td>
</tr>
</table>

Topic: Phonemic segmentation training Lesson Title: segmenting individual sounds Date: March 10th , 2015	Lesson No. 10 Number of students: 20 (Control Group)	Duration: 10 minutes Age: 7 years old Grade: 1st Grade Second Session

The objective of the lesson:

1-The students will be able to listen to more sound parts in words.

The structure of the lesson:

	Introduction:	Teaching Materials:
Time: 10 min	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	-Elkonin boxes -Traditional board -List of words: nut-pen-pot-dog-doll-duck-feet
	Procedures of the lesson:	
	1- The teacher lets his students listen to more sound parts in words. For example, the word dog /ddd ooo ggg/. The teacher uses slow stretched pronunciation and then students repeat after him. 2- The teacher lets them practice other words such as ddd ooo ggg, ppp ooo ttt, ppp eee nnn, ddd ooo lll, nnn uuu ttt. 3- The teacher lets them repeat after him slow movement in saying words.	
	Closure (Assessment):	
	The students match the right sounds with the right word. Then they say the words orally.	

Topic: Phonemic segmentation training	Lesson No. 11	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 20 (Control Group)	Age: 7 years old Grade: 1st Grade
Date: March 11th, 2015		Second Session

The objective of the lesson:

1-The students will be able to figure out the oral and printed word.

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	
	Procedures of the lesson:	
Time: 10 min	1-The teacher lets the students use the Elkonin boxes that contain one sound per box illustrated in the traditional board. 2-The teacher lets them practice using the different sounds in words. 3-The teacher lets them figure out the new sound parts in words. For example, bbb ooo kkk /b/o/k/ 4-The teacher lets them to use the slow stretched pronunciation for the given words. 5-The teacher shows them how to do the exercise.	-Elkonin boxes -Traditional board -List of words: bee-boat-book-bell-bus-box-sun-can-hat-bake
	Closure (Assessment):	
	The students do the given exercises illustrated in the traditional board to hear all the separate phonemes by using the Elkonin boxes.	

Topic: Phonemic segmentation training	Lesson No. 12	Duration: 10 minutes
Lesson Title: segmenting individual sounds	Number of students: 20 (Control Group)	Age: 7 years old Grade: 1st Grade
Date: March 12th , 2015		Second Session

The objective of the lesson:

1-The students will be able to figure out the oral and printed word. Revision

The structure of the lesson:

	Introduction:	Teaching Materials:
	-Warm up – Greet students -The teacher uses the Elkonin boxes provided on the traditional board.	
	Procedures of the lesson:	
Time: 10 min	1-The teacher reminds the students that words are made of sounds. 2- The teacher lets them the Elkonin boxes that contain one sound per box illustrated in the traditional board. 3- The teacher lets them practice using the different sounds in words. 4- The teacher lets them figure out the new sound parts in words. For example, /p/ /o/ /t/: pot 5- The teacher shows them how to do the exercise.	-Elkonin boxes -Traditional board -List of words: cat-corn-cow-pot
	Closure (Assessment):	
	The students do the given exercises illustrated in the traditional board to say the word orally given on a sheet of paper.	

APPENDIX O
INTERACTIVE WHITEBOARD (IWB)

APPENDIX P
A LESSON ON IWB

APPENDIX Q
COVER PAGE OF ACTION PACK 1