Using CALL–based supplementary program for developing basic English reading skills of primary stage pupils with academic learning difficulties

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Using CALL–Based Supplementary Program for Developing Some Basic English Language Reading Skills of Primary Stage Pupils with Academic learning Difficulties

Abstract

This research investigated the effectiveness of using CALL –based supplementary program for developing some basic English language reading skills of primary stage pupils with academic learning difficulties. The sample of the study consisted of (20) pupils of the 3rd year primary stage pupils with academic learning difficulties at Taha Hussein Primary School. It utilized the one group quasi-experimental design with its pre-post testing procedures. Instruments of the research included a reading skills test, a diagnostic assessment scale for reading difficulties (Fathy Al-Zayat), and a checklist of some Basic English language reading skills. Results showed that there were statistically significant differences between the mean scores of the participants in the pre-post testing of some basic reading skills favoring the post testing. Moreover, the study concluded that using CALL –based supplementary program proved to be effective and has considerable contributions in developing some basic English language reading skills of primary stage pupils with academic learning difficulties.

Keywords:

CALL, supplementary program, reading skills, pupils with learning difficulties

استخدام برنامج إلكترونى تكميلى قائم على تعلم اللغة بمساندة الحاسب الآلى لتنمية بعض مهارات القراءة الأساسية فى اللغة الإنجليزية لدى تلاميذ المرحلة الابتدائية ذوى صعوبات التعلم الاكاديمية

المستخلص

هدفت الدراسة الحالية إلى التعرف على فعالية استخدام برنامج إلكترونى تكميلى قائم على تعلم اللغة بمساندة الحاسب الآلى لتنمية بعض مهارات القراءة الأساسية فى اللغة الإنجليزية لدى تلاميذ المرحلة الابتدائية ذوى صعوبات التعلم الاكاديمية . وتم اختيار ٢٠ تلميذ من تلاميذ الصف الثالث الابتدائى ذوى صعوبات التعلم الإكاديمية بمدرسة طه حسين الإبتدائية كعينه لهذه الدراسه . اتبعت الدراسة التصميم شبه التجريبي ذو المجموعة الواحدة بقياسيها القبلي والبعدي. وتكونت أدوات الدراسة من قائمة لبعض مهارات القراءة الأساسية فى اللغة الإنجليزية واختبار لمهارات القراءة الاساسية و مقياس التقييم التشخيصى لصعوبات القراءة (فتحى الزيات) . وأشارت النتائج إلى وجود فروق ذات دلالة إحصائية بين متوسطات درجات التلاميذ فى القياسين القبلي والبعدي لاختبار مهارات القراءة الاساسية لصالح القياس البعدي، وبالتالى ثبت فعالية استخدام البرنامج الإلكترونى التكميلى القائم على تعلم اللغة بمساندة الحاسب الآلى لتنمية بعض مهارات القراءة الأساسية فى اللغة الإنجليزية لدى تلاميذ المرحلة الابتدائية ذوى صعوبات التعلم الاكاديمية.

الكلمات المفتاحية:

البرنامج التكميلى – تعلم اللغة بمساندة الحاسوب – مهارات القراءة – التلاميذ ذوي صعوبات التعلم الإكاديمية في اللغة الإنجليزية.

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1. Introduction

Learning disabilities are one of the most recent fields in special education and the fastest growing because of the interest of many researchers, specialists in education and psychology to identify their manifestations to present programs and plans to address them and mitigate their effects. A lot of parents of these pupils with learning disabilities asked for help from specialists to solve their children's problem, since these pupils were not provided with any educational and therapeutic services at first.

learning disability (LD) is a disorder in one or more of the basic psychological processes involved in the understanding or using language spoken or written, this disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations (Latham, 2005). This definition includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia (loss of power to use or understand speech. These disorders have a negative effect on academic achievement (Barkley, ٢٠٠٣; Mayes, Calhoun, & Crowell, ٢٠٠٠).

There are many different types of learning disabilities, some of the most common learning disabilities are dyslexia (difficulty with reading), dyscalculia (difficulty with math), dysgraphia (difficulty with writing), dyspraxia (difficulty with fine motor skills), dysphasia/aphasia (difficulty with language), auditory processing disorder (difficulty with hearing differences between sounds) and visual processing disorder (difficulty with interpreting visual information) learning disabilities association of America (٢٠١٧).

As reading is essential for pupils' success, this research concentrated on dyslexia and how the CALL based program

developed basic English language reading skills of primary stage pupils with academic learning difficulties.

Dyslexia occurs across the range of intellectual abilities. It is a learning difficulty that primarily affects the skills involved in accurate and fluent word reading and spelling. There are some characteristic features of dyslexia such as: difficulties in phonological awareness, verbal memory and verbal processing speed (Rose, ٢٠٠٩).

Distinguishably, there are some signs of learners with dyslexia: Tlustosova (2006) listed some items concerning this point. When a learner has a learning difficulty, he /she may:

- have trouble in connecting letters to their sounds;
- make many mistakes when reading aloud;
- can't understand what he or she reads;
- have real mistakes in spelling;
- have a limited vocabulary and learn language late;
- mispronounce words or use a wrong word that sounds similar;
- can't retell a story in order.

Reading is a highly complex skill that is a prerequisite to success in our society. It requires the ability to read and interpret meaning from varied text. It is a skill that must be explicitly taught (NRP, 2000).

Learning to read was one of the most important activities pupils should have mastered in school because it established foundation for their future academic endeavors. Pupils spend much of their time reading and learning information presented in text form. Reading was the primary source for learning about other people, history and social studies, science, mathematics and other content subjects taught in the classroom. To become successful readers, pupils must combine the main skills required for effective

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reading: phonological awareness, fluency, and reading comprehension (Vaughn, Chard, Byrant, & Coleman, 2000).

There are three important categories of skills are important when learning to read:
(1)   Vocabulary and comprehension
(2)   Decoding words
(3)   Reading fluently

(1) Vocabulary

It is fundamentally important for understanding the message and it is a basis of good comprehension. The reader can't construct a meaning unless he has experiences with the word meaning associated with a topic. So Vocabulary instruction is crucial (Duffy,2009).

(2) Decoding

According to Duffy (2009), decoding is the process of translating a printed word into a sound. When a pupil is first taught to read, the emphasis is usually on decoding skills. He is taught phonics and from learning the sounds of individual letters, he progresses to putting the sounds together to form words. Early-stage reading books usually contain a lot of repetition of these first simple words to encourage practice and the gradual building of a reading vocabulary. At this early stage, the pupil is in fact, learning the 'code' behind the written words. In a sense, decoding skills are the building blocks of successful reading. They are the bottom-up skills, which form part of the foundation for effective reading. It is at the level of decoding that reading speed and accuracy come into play. A pupil with good decoding skills is able to read with speed and accuracy, although not necessarily with good comprehension.

(3) Fluency

It is the ability to orally and silently read text smoothly and with appropriate phrasing and intonation. Being fluent in both oral and silent reading is a function of:

1- How fast or slow one reads.
2- Whether the phrase and intonation accurately reflects the meaning in the text.

Fluency bridges comprehension and word recognition. This is because fluency requires both recognizing most of the words on the page at sight (word recognition) and proper phrasing and intonation that reflects meaning (comprehension)(Grabe, 2009; Nation, 2008).

For the last 50 years, technology has been an integral tool in the teaching of foreign languages. From the primitive language labs of the (1960s) to student-generated Web (2.0) productions today, technology has been regarded as a way to enhance language learning and as a means for attaining achievement and proficiency standards (Sarieva & Zoran, 2008). In the early (1990s), computer-assisted language learning (CALL) programs began proliferating through high school language curricula because of the benefits they provided for pupils (Warschauer & Healy, 1998).

Computer-assisted language learning (CALL) is an approach for teaching and learning in which the computer and computer-based resources, such as internet are used to present, reinforce and assess. It also includes the search for and the investigation of applications in language teaching and learning. CALL has also been known by several other terms such as technology-enhanced language learning (Jani, ٢٠١١).

It has shown to be effective in improving English language learners' reading and vocabulary skills, as pupils are able to work independently to self-correct their work when they are unsuccessful. When CALL is used as an intervention, pupils receive additional time during the day to participate in CALL. Using this type of intervention, English language learners still receive classroom

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instruction but receive additional support via CALL. (Kyle, Kujala, Richardson, Lyytinen, & Goswami, 2013).

Shiwani (2009) assured that CALL works as an effective assistant in the classroom instruction of EFL in a way that helps in developing their EFL language skills of listening, speaking, reading and writing.

Bhatti, (2013) also stated that CALL can provide individualized instruction as it allows pupils to receive immediate feedback and work at their pace. Using CALL in the classroom allows pupils to be in control of their learning. Individualized instruction provides self-paced, independent practice in vocabulary and reading skills (Lee, Waxman, Wu, Michko, & Lin, 2013).

James (2014) also stated that a supplemental CALL program increased literacy skills better than instruction utilizing worksheets. It also enhanced reading skills and improved literacy skills among English language learners while allowing pupils to work at their pace.

As a result, CALL programs have become highly interactive. They are now capable of providing pupils with customized learning paths, individualized feedback, and other support for practice in the four skills of listening, reading, writing, and speaking.

2. The problem of the research

2.1 .Context of the problem

The researcher observed that some pupils in primary stage face difficulties in learning the Basic English language reading skills which lead them to low academic performance. some studies such as : Abd-almohsen (2010); Mohy(2019); Mahmoud(2007); Salah(2018); seham(2010); Ali(2018); Lyon, Shaywitz & Shaywitz (2003) ; IDA (2002); NICHD (2000); Barkley, (2003); Mayes., Calhoun., & Crowell., (2000) ; Yalçinkaya & Keith (2008)) proved that pupils

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with dyslexia have difficulties with linking letters with sounds, rhyming, recognizing simple words, hearing individual sounds, word reversals, letter reversals, issues with articulation, pronunciation problems, issues with word-retrieval and difficulty at text, sentence & word level which reflects on low academic performance.

In order to verify that, there are some difficulties encountered in the 3rd year primary stage pupils, the researcher applied neurological screening test and Stanford bench intelligence scale (v.5) on the pupils and diagnostic assessment scale for reading difficulties on the teachers of those pupils, the results showed that some pupils lack some basic English reading skills. In addition, the use of Computer Assisted Language Learning (CALL) in the field of education has increased remarkably in recent years due to the swift and modern changes in language software and the number of computers in schools has grown dramatically, so the use of computers seems to be necessary or sometimes required part of teaching methods regardless of teachers' pedagogical beliefs and technological knowledge (Bagheri, 2012).

2.2. Statement of the problem

The problem of the research can be stated as follows:

Some pupils with specific learning difficulties (dyslexia) in primary stage cannot follow with their peers in the class and lack some English reading skills which reflect on their academic language performance.

Thus, the current research attempted to verify the effectiveness of using CALL Based supplementary program for developing some Basic English language reading skills of primary stage pupils with academic learning difficulties.

3. Questions of the research

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1. What are the basic reading skills needed to develop pupils with dyslexia in the primary stage?

2. What are the features of the CALL –based supplementary program?

3. What is the effectiveness of using a CALL –Based supplementary program for developing some Basic English Language reading skills of Primary stage pupils with dyslexia?

4. Significance of the research

The research thought to be important for:

1. The pupils with dyslexia: to develop their basic English Language reading skills.

2. The teacher: to create and facilitate more opportunities to get parents involved in their children's education, and explore the pupils with dyslexia early.

3. Course designers: may benefit in integrating language learning with technology through using CALL based supplementary programs.

4. Decision makers in the education field: as it may pay their attention to design valuable CALL based supplementary program which can provide educational process with positive perceptions and attitudes towards EFL learning.

5. Purpose of the research

The research aimed at:

1. Identifying the effectiveness of using a CALL based supplementary program for developing letter knowledge of 3rd year pupils with dyslexia.

2. Approving the effectiveness of using a CALL based supplementary program for developing word recognition of 3rd year pupils with dyslexia.

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3. Investigating the effectiveness of using a CALL based supplementary program for developing sentence comprehension of 3rd year pupils with dyslexia.

6. Hypothesis of the research

The research hypothesized the following:

There would be a statistically significant difference at (0.01) level between the mean scores of the participants in the pre-post testing of basic reading skills favoring the post testing

7. Delimitations of the research

This research was delimited to**:**

1. A sample of (20) pupils with dyslexia from the 3rd year primary stage in "Taha Hussein" primary school. They would be chosen according to the result of administering quick neurological screening test, Stanford bench intelligence scale (v.5), and diagnostic assessment scale for reading difficulties. The researcher selected pupils from primary stage as it is an important stage in a pupil's development because it is the introduction to many academic skills.

2. Some of the Basic English language reading skills that needed to pupils with dyslexia in the 3rd primary stage.
   2.1. Recognizing the initial sound of a word.
   2.2. Associating sound of letters with written symbol.
   2.3. Distinguishing between sounds of letters.
   2.4. Linking letters with sounds.
   2.5. Finding relationship between the sound of words and their Witten shape.
   2.6. Recognizing the meaning of the words.
   2.7. Understanding grammar.
   2.8. Recognizing the meaning of the sentence.

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2.9. Recalling the sequence of sentences.

2.10. Identifying the meaning of a conversation.

2.11. Being aware of punctuation marks.

3. A period of a school semester for teaching the program, second semester of the academic year 2019-2020.

8. Definition of terms

8.1. Computer assisted language learning (CALL)

- It represents a side of e-learning where computer technology is used in the context of language learning. (Yuan, 2007: 416)

- It can be defined operationally as an approach for teaching and learning in which the computer and computer-based resources, such as internet, are used to present, reinforce and assess.

8.2. Supplementary program

- It is a program which applied on the pupils who need extra support, extra practice, or extension participate during the school year. (Taylor, 2005).

- It can be defined operationally as a program which offer tutoring opportunities for pupils with learning difficulties according to their needs to develop their academic performance.

8.3. Reading Skills

- Those are skills which lead a person to interact and gain meaning from written language. The components which lead to independently comprehending the intended message being relayed in the written content are Phonemic awareness, Phonics, Oral reading fluency, Vocabulary and Comprehension (Whalon, 2009, p3).

- It can be defined operationally as the skills which help LD pupils to understand written text. Vocabulary and comprehension, Decoding words, and Reading fluently are the most important categories of skills when learning to read.

8.4. Pupils with learning difficulties:

- They are the pupils who have difficulties in one or more of basic processes involving language, using language (spoken& written), and ability to listen with comprehension. This type of difficulties is primarily not related to visual, hearing, and emotional, environmental, cultural, or the economic disadvantage (Exceptional Children, 2011).

- It can be defined operationally as the pupils who are underachieve academically for a wide range of reasons, including factors such as: sensory impairment, several behavioral or psychological issues, also they have a suitable IQ.

9. Review of literature

Learning Disability is an important topic today in the field of special education, which has received great attention from those interested in different specialties, such as doctors, psychologists, education scientists, and sociologists, and this interest is a natural matter, as this category forms a large segment that exceeds all special education groups, in addition to this the development in the processes of detection, diagnosis, and evaluation. Translated from (Abd-almohsen, 2010).

It is a disorder that results in substantial difficulties in listening, speaking, reading, written expression, or calculating mathematical problems. Individuals with learning disabilities encounter different types of problems in learning. One pupil's obstacle may be in the acquisition of speech and oral language;

another's may be in reading, arithmetic, handwriting, thinking, or nonverbal learning (Csoli, 2013).

One of the key problems facing public education today is the need for early and accurate identification of pupils with dyslexia. Pupils with dyslexia in public schools have historically been largely ignored or under identified. Unfortunately, many educators and administrators are not fully prepared or trained to accurately identify pupils with presenting symptoms of dyslexia. Today's educators, administrators, and school psychologists need to know how to accurately identify pupils with dyslexia so that proper remediation and educational services can be provided (Elliott & Grigorenko, 2014).

Dyslexia is a neurological learning disability characterized by poor word recognition, decoding abilities, and spelling, which may lead to problems in reading comprehension (Cameron & Nunkoosing, 2012, p. 341). The word dyslexia is derived from the Greek "dys" (meaning poor or inadequate) and "lexis" (words or language). It is a language acquisition developmental disorder (Ridley, 2011; Yildiz, Yildirim, Ates, & Rasinski, 2012).

There are three types of dyslexia. These are namely, Dysphonic, Dyseiditic and   Mixed Dyslexics:

1. Dysphonic dyslexics referred to as "auditory dyslexia" relates to those for whom issues arise due to the way in which they hear and mentally process sounds, dysphonic dyslexics prove resistant to traditional phonetic approaches and require small group interventions, for an extended period of time.

2. Dyseiditic dyslexia also called "surface dyslexia" or "visual dyslexia" relates to how an individual sees and mentally processes the symbols, letters and word concepts of their language into connecting written formats. Whilst individuals with dyseiditic dyslexia have an understanding of phonetic

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structures, of their given language, they struggle with word recognition and spelling, often having difficulty in memorizing the visual shape of letters and words. As a result, reversal of letters such as d/b, p/b are common errors.

3. Mixed dyslexics have a combination of the two previous types of dyslexia detailed above. Sometimes called "dysphoneiditic" dyslexia, it is arguably, the severest form of the condition and often the most difficult to support (Snowling, 2013).

Pupils with dyslexia experience difficulties with precise word recognition, poor spelling, and poor deciphering abilities. These complications are a result of unexpected deficits in the auditory, visual, and phonological component of language relative to other cognitive abilities. As a consequence, pupils with dyslexia experience difficulties in reading and text comprehension, which inhibit the growth of vocabulary and contextual information (Getchell, Liang, Golden, & Logan, 2014).

Stanovich (2003) concluded that pupils with reading difficulties are low academic performers. In the same vein, Bohlrmann and Pretorius (2002) in their research concluded that pupils with reading difficulties have low academic achievements not only because they cannot read, but because they do not understand properly and this disturbs their academic performance. Houghton (2014) opined that pupils with reading difficulties are pupils having learning disorders that interfere with a person's ability to recognize and understand written words, they have learning disorders associated with impairment, the ability to interpret spatial relationships or to integrate auditory and visual information

In a study done by Schulte-Korne (2006) it was found that pupils with dyslexia tended to be slower at spelling and recognizing words. This then interfered with their reading, and comprehension. Vaessen, Gerretsen, & Blomert (2009) also found that pupils with reading difficulties tended to be slow at rapid automatic naming of objects. This slow speed interfered with phoneme-grapheme

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association (word-sound segmentation) consequently delaying reading.

Tests of Mental Abilities

The purpose of general intelligence tests is to assess the global aspects of intellectual ability. Certain intelligence tests are usually administered by psychologists; others may be given by teachers with appropriate training. Commonly used individual intelligence tests that are typically administered by psychologists are the WISC-III (Wechsler Intelligence Scale for Children), the Stanford- Binet Intelligence Scale (v.5), and the Kaufman Assessment Battery for Children, and Slosson Intelligence test. The researcher used the Stanford- Binet Intelligence Scale.

The Stanford – Binet (v.5) is a battery of integrated and independent tests at the same time. It consists of two symmetrical categories of scales. Each category measures five areas: verbal reasoning, knowledge, quantitative reasoning, abstract/ visual reasoning, and working memory. A score is obtained for each area as well as an overall intelligence score. The fifth image is given approximately eight intelligence factors: Total Intelligence, Verbal Intelligence, and Non Verbal Intelligence, and five other independent estimates of indicators factor (verbal reasoning, knowledge, quantitative reasoning, abstract/ visual reasoning and working memory). Test criteria from the age of two to over 85 years. The mean overall IQ score is 100, and the stander deviation is 15.

Definitions of reading

The meaning of reading varies from one scholar to another as well as from one context to another. Pang (2003) stated that reading is the process of constructing meaning from written text. Reading involves word recognition and comprehension (ibid). It is also the process of constructing meaning through the dynamic interaction among the readers existing knowledge, the information suggested by the text being read, and the context of the reading situation (Kalanje, 2011; Yambi, 2010). Reading further refers to any activity characterized by the translation of symbols, or letters into words and sentence that have meaning to the individual (Microsoft Encarta, 2007).

Reading material

Reading material is an important factor of motivation in EFL reading. It is well acknowledged that reading materials play a pivotal role in supporting learning, inputting linguistic knowledge and delivering information for readers in the reading process. The quality and type of reading materials are crucial to children's reading development (Nassaji, 2011).

Technology has become an inseparable part of people's lives over recent decades. It also underlies the wide variety forms of communication among people all around the world in a way that makes it become a global village. It also increases language contact, and consequently most people feel the need to improve communications. One of the features of the improvement portrays itself as language education.

Many learners have been involved in starting a new relationship and having a communication with people from different cultural backgrounds. They also follow up their academic goals in terms of using communication technology. From those goals, language learning has always been the main concern between the groups of people who academically pursue this aim. There are many different types of technologies that can lead to language learning of

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which computer-assisted language learning (CALL) is the most significant.

Features of CALL Program

Computer Assisted Language Learning (CALL) is one of the many tools and techniques that can help improve the pupils' language competencies. This new technology in language education has increased learner autonomy, creativity, productivity and team work.

The benefits of Using CALL program

CALL program accelerated language skills and developed language growth using supplemental instruction along with teacher instruction (Sorenson, 2015). English language learners using CALL benefited from using visual and voice inputs that enhanced their learning and helped develop listening and reading skills (Nomass, 2013).

James (2014) stated that a supplemental CALL program increased literacy skills better than instruction utilizing worksheets. It also enhanced reading skills and improved literacy skills among English language learners while allowing pupils to work at their pace.

Pupils participating in CALL became motivated and engaged in their learning as they worked on various activities (Wang & Liao, 2017). With national standards and expectations for English language learners to become academically successful, the CALL approach has provided a measure of success for English language learners in academic achievement (Sorenson, 2015). With language and state standards being a focus in the Texas schools, CALL programs also offer resources that may contribute to student success.

Bhatti, (2013) also stated that CALL can provide individualized instruction as it allows pupils to receive immediate feedback and work at their pace. Using CALL in the classroom allows pupils to be in control of their learning. Individualized instruction provides self-paced, independent practice in vocabulary and reading skills (Lee, Waxman, Wu, Michko, & Lin, 2013).

CALL Drawbacks

Even though there are many advantages of using computer technology in learning a language, it has its own limitations and weaknesses. The very first debatable thing is to have the technology knowledge before applying computer technology to practice second language learning. Not all teachers have enough technological training to guide their pupils exploring computer and searching internet. So it does not seem to be a perfect training method (Roblyer, as cited in Lai &Kritsonis (2006)).

10. Design of the research

This research adopted the quasi experimental design of one-group pre-posttest. This group exposed to the CALL based supplementary program.

11. Materials & instruments of the research

The researcher designed and used the following:

1. Quick neurological screening test (QNST).

2. Stanford bench intelligence scale (v.5).

3. Diagnostic assessment scale for reading difficulties (Fathy Al-Zayat).

4. Checklist of Basic English language reading skills.

5. A basic reading skills test.

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6. A CALL based supplementary program.

12. Procedures of the research

To answer the questions of the research, the following procedures were followed:

12.1.   Reviewing the literature and related studies.

12.2.   Selecting and equalizing the members of the sample on the following variables:

12.2.1. Grade: 3rdyear primary stage.

12.2.2. Age: 10 years old

12.2.3. Level: homogenous; M = 38.12

12.3.   Administering quick neurological screening test to verify the sample.

12.4.   Administering Stanford bench intelligence scale (v.5) to select the participants (IQ: 85: Above).

12.5.   Administering diagnostic assessment scale for reading difficulties (Fathy Al-Zayat) to select pupils with reading difficulties.

12.6.   Designing the CALL based supplementary program following these steps:

12.6.1. The analysis stage:
12.6.1.1. Identifying the reading skills needed for 3rd primary stage.
12.6.1.2. Stating the general and behavioral objectives of the program.
12.6.1.3. Determining the most appropriate teaching activities and tasks according to the behavioral objectives of the program.

12.6.2. The design stage:

12.6.2.1. Designing the framework, including general and behavioral objectives, content, methods of presentation, activities.

12.6.2.2. Validating the framework, by submitting it to a jury of TEFL specialist.

12.6.2.3. Building up the whole program: Home page, a teacher's guide, a student's book and a website on the internet.

12.6.2.4. Judging the content and the general form of the whole program and the comments of the panel is taken into consideration when writing the last version of the program, for the final form of the program.

12.6.3. The development stage

12.6.3.1. Developing the program units and lessons.

12.6.3.2. Uploading the website of the program on the internet.

12.6.3.3. Piloting the program to make the last modifications.

12.7.   Administering the pre-testing of basic reading skills.

12.8.   Teaching the program.

12.9.   Administering the post-testing of Basic Reading skills.

12.10.   Analyzing the scores statistically using SPSS program.

12.11.   Reporting and discussing the results.

12.12.   Writing the conclusions, recommendations and suggestions for further research.

13. Findings

This research investigated the effectiveness of using CALL – Based Supplementary program for developing some Basic English language reading skills of primary stage pupils with academic learning difficulties.

After teaching the present CALL –Based Supplementary program to participants, data were obtained by administering the English language reading skills test to the participants. Since the sample was less than thirty, the researcher entered the obtained data into 'Z' test formula. The 'Z' test was utilized to analyze the data collected from the administration of the instruments to the subjects. 'Z' value is used to help researchers decide about the rejection or acceptance of a hypothesis. The effectiveness of a program or any independent variable is decided by entering 'Z' value into an effect size formula.

Testing the hypothesis

There is a statistically significant difference between the mean scores of the participants in the pre-post testing of basic reading skills test favoring the post testing.

Analysis of the obtained data using the Z-test showed that the treatment group achieved a higher level of improvement in the post testing of basic reading skills test.

Results confirmed the hypothesis. A close inspection of table below shows 'Z' value was significant as for the overall test. It is also clear from the table that all the four parts of the test were found significant; vocabulary (8.73), phonics (8.63), reading comprehension (8.71), fluency (8.57), and the overall test (8.63). Thus, is also apparent that all effect size values were high, According to Fritz, Morris & J. Richler (2012). The effect size is reported considering the following values: (0.2 = small, 0.5 = medium, 0.8 = large).

Taken individually or together, those findings refer to the effectiveness of the CALL–based supplementary program in developing the target dependent variable.

Table (1)   Z score, Mean, SD, and P value of English Language Reading Skills Test.

Sub-tests	Pre-testing		Post-testing		Z	P Value	Effect Size
	M	SD	M	SD			
Vocabulary	5.18	1.07	9.10	.99	-8.73-	0.01	.88
Phonics	18.77	3.29	36.29	2.68	-8.63-	0.01	.95
Reading Comprehension	9.84	2.44	17.67	1.83	-8.71-	0.01	.88
Fluency	4.20	1.36	8.49	1.19	-8.57-	0.01	.86
Total	38.12	4.49	71.55	4.86	-8.63-	0.01	.96

N=20

The above table shows that there is an improvement in the level of the treatment group due to the use of CALL–based supplementary program because the mean of the pre- testing is (38.12) and the mean of the post- testing is (71.55). It is clear that the mean of the post- testing is higher than that of the pre one.

Thus, using CALL–based supplementary program is considered with high effect on developing some Basic English language reading skills of primary stage pupils with academic learning difficulties since the effect size was (0.96).

14. Discussions

The present research investigated the effectiveness of using CALL–based supplementary program on developing some Basic English language reading skills of primary stage pupils with academic learning difficulties.

Findings of the research were encouraging as they showed that there were statistically significant between the mean of the pre-post test of basic reading skills test in favor of the post applications. This indicated that the treatment group included in the program has been developed.

The pupils' scores on the pre-tests were unsatisfactory. Before implementing the program, they had not got any training in the previously specified reading skills. Therefore, when they studied the program, they had an opportunity to practice these basic reading skills. That helped them to get higher scores on the posttest.

The results obtained on the posttest indicated that the treatment group achieved significant improvements in the basic reading skills test after being instructed through the CALL–based supplementary program. That could be due to many reasons. One of these reasons was that the program was based on several major aspects:

The CALL–based supplementary program helped in creating an appropriate and attractive environment for learning some basic reading skills. CALL program shifted the focus from teachers to pupils and encourages them to engage with the material. This program changed the environment of learning to be more attractive and meaningful to pupils.

The program incorporated a rich range of vocabulary, phonics, grammar and activities that enhance their learning. The pupils practice the basic reading skills in an amusing context. Further, the CALL–based supplementary program provides pupils

with experiences that not found in the regular classroom setting. Additionally, it includes critical thinking activities and life skills.

The CALL–based supplementary program includes attractive features such as images, animation, sound, music, text in addition to interactive procedures. Using these tools which were different from the traditional teaching tools may pay their interest and attraction to learning.

The CALL program is alteration and addition to the regular curriculum and EFL in order to meet the language needs for the pupils with dyslexia. As this program included activities, tasks and assignments that focused mainly in helping pupils develop their basic reading skills. It also gives pupils opportunity to practice reading more than one time at home.

Regular feedback is vital for assuring life- long learning and avoiding repetitive mistakes. It monitors the pupils' performance and promotes professional development. Since the program is allowed for learners online, they can reach the learning content and receive feedback at any time without any constraints.

The program integrated various types of assessment (i.e. formative, summative, peer and self- assessment) to ensure successful instruction. Consequently, this provides the students with appropriate feedback and helps teachers track the students' performance from a comprehensive perspective.

The procedures adopted throughout the implementation of the CALL program were effective. While teaching the program several procedures were used. Those procedures gave pupils the opportunities to share responsibility in their learning. That entailed a necessary change in the teacher's role. The teacher has become a guide, an organizer, and a facilitator, who does not impose his viewpoints on the pupils and who is ready to offer help when necessary.

The present research agreed with the results of the studies of (James, 2014), (Wang & Liao, 2017), (Sorenson, 2015), Bhatti, (2013), (Lee, Waxman, Wu, Michko, & Lin, 2013), (Ciampa, 2014; Yeh, 2010), (Ma, Adesope, Nesbit, & Liu, 2014), (Schechter., 2015), (Schechter, Macaruso, Kazakoff, & Brooke, 2015), (Pey, Min, & Wah, 2014), (Kyle, Kujala, Richardson, Lyytinen, & Goswami, 2013) ,and (Al-Awidi & Ismail ,2014).

15. Suggestions for further researches

In the light of the study results, the researcher suggested the following:

1- Investigating the effectiveness of using a CALL based supplementary program on developing other basic reading skills of pupils with learning difficulties.
2- Investigating the effectiveness of using a CALL based supplementary program on developing achievement and attitudes of pupils with learning difficulties towards learning English.
3- Investigating the effectiveness of using a CALL based supplementary program on developing pupils with dysgraphia.
4- Investigating the effectiveness of using a CALL based supplementary program on developing reading skills of students with learning difficulties in other stages (preparatory or secondary).
5- Investigating using supplementary program based on other electronic tools for developing pupils with learning difficulties.
6- Investigating using supplementary program based on multi-sensory activities for developing students with learning difficulties.
7- Investigating the effectiveness of using a CALL based supplementary program on developing communication skills of students with learning difficulties.

8- Investigating the effectiveness of using mobile learning on developing communication skills of students with learning difficulties.

16. Recommendations

In the light of the obtained results, the following recommendations can be stated:

1- Early diagnosis of pupils with learning difficulties via applying various diagnostic instruments.

2- Participation from both teachers and parents has been shown to have substantial positive effects on these pupils' educational progress.

3- Holding training programs for teachers on the importance of using technology in the classroom and the latest technological methods in the field of learning.

4- Providing all schools with adequate and sufficient technological support for applying modern instructional tools.

5- Encouraging teachers to use electronic assessment tools because of its ability to save the time and effort of the teachers and prepare pupils to indulge in technological reality.

6- Implementing educational programs that take into account the individual differences between pupils.

7- Designing curricula that change the teacher's role from teleprompter to a mentor and guide to the educational process.

8- Providing curricula with educational CDs to enhance self-learning and the use of modern technologies.

Using CALL–based supplementary program for developing basic English
reading skills of primary stage pupils with academic learning difficulties
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