“SEE & LEARN®” IN ARABIC,
AN EARLY INTERVENTION PROGRAM TO TEACH
LANGUAGE & READING TO CHILDREN WITH DOWN
SYNDROME

By

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To

My daughter Zeina,
who has been a source of enlightenment, inspiration, and learning, since
the day she was born with Down syndrome
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My late father whose guidance and believing in learning and seeking knowledge has had its strongest impact on my life.

My dear friends who were a source of perseverance.
Children with Down syndrome exhibit delays in their general development. One aspect that is particularly affected is language and communication skills. Being a vital element and a precursor towards successful inclusive learning and living in the community, language has been the focus of years of research. Unfortunately, little attention has been given to the Arabic language, especially with respect to children with Down syndrome. This study involved 16 subjects with Down syndrome, ages between 3 and 6 years, attending a school for students with special needs in Lebanon. An early intervention reading program called See and Learn® developed in the UK has been adopted and adapted to accommodate the specific characteristics of Arabic language. Although a limited scope of the program was applied, the results were promising. See and Learn® focuses on the concept of children with Down syndrome being strong visual learners who will conform well to a structured routine setting in learning. This concept and the teaching strategies applied in the English program could be applied successfully to the Arabic Language, and would most certainly enable us to continue developing better strategies to teach children with Down syndrome reading, writing and good communication skills.

Keywords: Down syndrome, Reading, Language, Communication, Early Intervention
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CHAPTER ONE
INTRODUCTION

1.1 Overview

People with Down syndrome have to deal with a continuous array of challenges in their community. One of the most compelling challenges is manifested in poor linguistic and communication skills. History and scientific research have shown that one of the most impaired domains of functioning in people who have Down syndrome is manifested in language. This creates a barrier to an independent meaningful inclusion in the community (Abbeduto, Warren, & Conners, 2007). Language and proper communication skills are some of the main ingredients of successful social integration, independence and career development.

Research into the reasons for the spoken language difficulties associated with Down syndrome has taken place in the past, (Buckley & Bird, 1993), yet, in the last couple of decades, many researchers worked with these children and tried to understand their difficulty and the reason for this handicap. In some of these studies, a relationship between reading and developing other cognitive skills that could also affect communication skills was suggested and proven viable (Buckley, 1999; Silverman, 2007; Rondal, 1995). This understanding was founded in the notion that people with Down syndrome have stronger visual-spatial skills as opposed to auditory processing skills which allows learning through reading to be one valid tool for better speaking (Abbeduto et al. 2007).

The Down syndrome Education International, a research organization, stationed in the United Kingdom, has been working on developing strategies to teach reading to children with Down syndrome for the past 25 years. They have developed
what they learned by research and practical experience. Their work can be summarized in the following:

“Reading is an essential activity for developing language and cognition for children, teenagers, and young adults. Daily involvement in literacy (making language visual) can close the gap between speech and language and non-verbal abilities. Daily involvement in reading activities and supported reading and writing will improve spoken language – both grammar and clarity – even for the children who do not achieve independent reading and writing skills. Reading accelerates speech, language and working memory development (as it does for all children)” (Bird, Hughes, & Buckley, slide 12).

The “See and Learn” program offers practical, targeted and evidence-based approaches to promote the development of language, reading, speech, memory and number skills. It is also a “reading to teach language” program that has been used for many years. By testing the validity of the principles and concepts of this program on the Arabic language, bridging the gap in communication and linguistic development for children in the Arab world can be attained. For the sake of this study, part of this program was adapted to conform to the specific characteristics of the Arabic language, its phonology, morphology, syntax and pragmatics.

1.2 - The Problem

For a long time, children with Down syndrome have been considered by professionals, as non-educable, unable to read and write (Bird, Cleave, & McConnell, 2000). Having to deal with complications in learning to read and write has become a factor that affects the struggle to becoming members of regular schools and an inclusive society, and causes them to have to deal with prevailing negative
attitudes (Alghazo & Gaad, 2004; Gaad, 2001). This in turn could have detrimental effects on the development of linguistic and language development.

Studies to understand the reasons behind the prevailing weakness in reading acquisition were followed by intervention strategies to enhance the development of reading ability. Questions as to why people who have Down syndrome face reading difficulties, and, how do their cognitive abilities affect their reading skills, were at the core of these research studies (Silverman, 2007; Bird et al. 2000). At the same time, the effect of teaching reading to children with Down syndrome on linguistic and language development has also been an area of research in the past few years (Buckley & Bird, 1993).

Studies have shown that people who have Down syndrome have the capability to use their strong visual skills to accommodate the weakness in auditory memory that being an important aspect of language development (Snowling, Nash, & Henderson, 2008). Many of these studies have given positive results and have proven to be strongly effective in this domain (Buckley & Bird, 1993). Most of these studies were done in English, French and Italian.

Teaching the English language has undergone continuous reform in methodology, structure, instructional strategies, as well as literature, specially children’s literature, whereas Arabic language has not shown substantial development in literature or in teaching methods. Most of the schools in the Arab region still follow the traditional approach of teaching the language. In teaching children with Down syndrome, mostly in special institutions, little if any consideration is being taken into account as to their ability to learn to read and write and eventually use these skills to improve their verbal communication.
1.3 - Purpose of the Study

The objective of this study was to investigate the relevance of their findings to Arabic language, thus contributing to the advancement in teaching strategies that may impact the learning profile of all students and in particular students who have Down syndrome.

An aspect that is common to all persons with Down syndrome is the cognitive phenotype. A phenotype is a combination of specific recognizable and observable characteristics or traits that define an individual’s characteristics. These can be described as morphology, development, physiological or biochemical properties, behavior, as well as products of behavior. This particular phenotype of people who have Down syndrome, is the result of the expression of the particular gene structure that is characterized by the trisomy of chromosome number 21. It is also the influence of the environmental factors and the interactions between the two. This aspect is not affected by the language differences; however, the structure of the language is by far different from one language to the other. Thus in applying the principles or methods of teaching that have proved successful in a certain language, major adaptations and modifications may be required in order to produce similar adequate results in other languages. The relevance of these studies to Arabic, the adaptations needed and their effect on the reading acquisition, language and literacy development were the reasons behind this study.

1.4 - Rationale

Since there is little interest in research on the development of morphology in Arabic language, this study aims to shed some light on teaching strategies, and aspects of the language that may help students with special needs and particularly with reading disabilities. Children with Down syndrome struggle with the traditional
methods whether in regular inclusive settings or special schools. In many institutions the purely phonics approach is the primary method of instruction used to teach reading. However, for children with Down syndrome, this approach demands skills that are not their forte namely short-term memory, and phonemic awareness. Addressing this issue is one key to helping students who are in inclusive settings overcome this problem. Students who are able to deal with these challenges and overcome them, will be able to learn in inclusive schools, and thus be able to benefit from an inclusive environment for short as well as the long term life achievements. These students will be able to find jobs and overcome a lot of difficulties that they are to face.

Living in an Arab bilingual society creates a hardship to people with Down syndrome. Ultimately and if we follow the hypothesis that teaching reading teaches speaking, we are enabling people with Down syndrome to enrich their lives with better tools for community involvement which is the focus of this research.

In the words of Benjamin Lee Whorf, “Language is a vital tool of communicating thoughts, ideas, feelings, relationships, friendships, cultural ties, and through which emotions are shaped and perceptions of reality are determined” (Kramsch, 2004, p.235).

1.5 - Hypothesis

The idea of reading can help speaking is a strategy that has revealed a capability that may allow children who have Down syndrome to overcome certain characteristic learning difficulties. Learning to read sight words focuses on attributes that could overcome auditory processing weakness, specific modality effect, as well as auditory short-term memory. In comparison, strong visual memory will be an assistive tool. This could also help downgrade the difficulty in speech production.
“See and Learn®” is a program based on the concept of teaching reading to teach speaking, developed in the United Kingdom, tested, and applied successfully in leading research and learning institutions around the world. By adopting and adapting it, similar results were expected. In the Arab countries, teaching native speakers who have Down syndrome to read Arabic should enhance their acquisition of vocabulary, build self-confidence, and establish a tool of communication that will facilitate linguistic development.

The development of an adapted program in Arabic as a tool towards teaching reading has provided us with critical information related to phonological awareness in a way that may shed light on the controversy over their phonological skills with the final aim of enabling them to read, and eventually speak better.

Will we be able to develop and adapt the See and Learn® program in Arabic into a valuable tool to enhance the development of language, communication and reading skills among children who have Down syndrome?
CHAPTER TWO  
LITERATURE REVIEW

2.1 - Overview

Empowering people who have Down syndrome and giving them the tools to improve the quality of their lives is the broad purpose of this study. Improving language development and communication skills allows us to find the tools that will help in breaking the barrier to proper inclusion in everyday life in the community.

The topic Down syndrome has gained an increasing attention among educators and researchers in the past few years. One of the reasons is that Down syndrome is one of the most common chromosomal abnormality causing intellectual disability (Strauss, Heer, Spelsberg, & Strauss, 2013). Although the incidence relates directly to maternal age, yet, Down syndrome is not a factor of race, color, socio-economic status, religion, geography or family history. Few people became leaders in research; many hypotheses related to abilities, learning and achievements were disputed. Medical, educational and clinical research helped shed light on characteristics of children and adults with Down syndrome and were the reason behind improving their lives and allowing them to play an effective role in their community.

This study focuses on a specific aspect of language development and communication skills. The following is a quick overview of what has been learned from research that has taken place in order to investigate the tools needed. Information and resources that were dedicated to learning about the phenotype and learning characteristics of people who have Down syndrome were adequate to learn also about development of language, communication and literacy. Most of the researched material, however, was done in other languages specially English. This in itself posed the challenge this study was set to meet. Thus the focus of this study was
to prove the validity of the work and intervention done in other languages when adapted and applied to the Arabic language.

Accordingly, the literature search concentrated on finding the leaders in the field who have done a large share of investigation and were able to test their investigation and publish valid results. The larger part of the resources and research findings were taken from the more recent investigations, yet some of the older studies were able to produce results that are still valid until our days.

Mixed results were found to be common in even recent works. This can be attributed to the time span and the changes that have taken place in society and the attitudes towards disability. Children and adults with Down syndrome were outcast for a long time; they were placed in special care homes away from their families and normal environment. The choice of subjects and their living environment & conditions, as well as the educational programs and instructional methods and strategies had a considerable effect on results. That created validity issues for the older studies.

Since the focus of this study was on the Arabic language development and communication skills for children with Down syndrome, a good deal of this review was directed to learning about the most recent advances in Arabic. Unfortunately, very few studies that had to do with teaching language to children with disabilities were found. Most of the material that was investigated was related to the mechanics and structure of the Arabic language and its specificity which can be very beneficial for research on intervention and teaching programs in Arabic. However, research using these results to investigate teaching the language to people who have reading disabilities is almost non-existent. Only a few programs have been identified and will be discussed later in the chapter. Observations from daily life experiences have
shown that children who are exposed to languages other than Arabic tend to pick the second one (Usually English or French) for their daily communication skills. In the past few decades in the Arab World, Arabic became on the sidelines and deemed as ‘non-useful’ (Ahmed, 2010). Children with language problems, when given equal chances and a choice, will probably choose a language other than Arabic. Diglossia is an additional challenge that accompanies learning Arabic and that is the fact that spoken Arabic is different from the written and read Arabic. According to Abu-Rabia (2006), there is a predominance of phonological errors in Arabic spelling. This in turn creates one of the biggest challenges to students developing reading and spelling skills in Arabic (Abu-Rabia & Taha, 2006).

The connection between reading and the advancement of the spoken language has been confirmed by research in other languages (Aparicio & Balana, 2002; Buckley, 1999). There has been considerable focus on reading skills of children who have intellectual disabilities and Down syndrome and on developing reading strategies. These have also been investigated and applied in many situations that have produced results backing up the notion that reading can strengthen and enhance the spoken language and communication skills.

2.2 - Leaders in the Field

There are many researchers who have contributed to research on Down syndrome and the characteristics of people who have this condition. One of the principal researchers on reading and other aspects of Down syndrome is Sue Buckley. Buckley is a principal lecturer at the department of psychology in the University of Portsmouth in UK. She is also the director of the Research and Science at the Down syndrome Educational trust and has been at the forefront of international research into the education and development of children with Down syndrome for
nearly 30 years. This center has published a lot of researched scientific papers in prominent journals as well as their own publication, a scientific journal called *Down syndrome Research and Practice*, dealing with different issues related to population of people with Down syndrome.

Buckley and the research trust have been working in cooperation with some of the top and leading scientists in this field. On their website one finds some of the most prominent names on their board of advisors such as Jean Rondal who is well known for his publications and his description of the “major dimensions of language intervention with Down syndrome persons” in Principles of language development in his book, “Exceptional Speech & Language development in Down syndrome” (Rondal J. A., 1995).

Leonard Abbeduto, and Robin Chapman are two other leading research scientists at Vanderbilt university who have been leading research in language development for children with intellectual disabilities. Ella Hutt has focused a lot on the relationship between language and reading and has a specific approach to language through reading.

Patricia Oelwein published a book in 1995 on teaching reading to children with Down syndrome. The teaching methods in this book followed strategies that were proven adequate in teaching reading for children with Down syndrome. The book was literally translated to Arabic without much adaptation. The methodology in the book has been practiced in schools in Saudi Arabia but I could not find any publications describing the experience or the results (Oelwein, 1995). Other researchers like Bird (2000), Conners, Atwell, Rosenquist, and Sligh, (2001), as well as Verucci (2006) focused on specific decoding skills and phonological awareness.
The work and research done by the following; Margaret Snowling from the University of York; Robin Chapman, Professor Emerita, Dept. of Communicative Disorders, & Principal Investigator, Waisman Center at the University of Wisconsin-Madison; Libby Kumin, professor of Speech-Language Pathology Loyola College in Maryland, left a remarkable impact on the development of reading intervention and have contributed to the understanding of the characteristics that govern developing literacy skills, reading, communication and comprehension among people who have Down syndrome.

Most of these authors had contributed to literature that was published in books or in scientific journals such as Cognition, Journal of Intellectual Disability Research, Down syndrome Research and Practice, Mental Retardation and Developmental Disabilities Research Reviews, American Journal of Speech-Language Pathology, Journal of Intellectual Disability Research. I was able to get a lot of information from associations like the American Association on Intellectual and Developmental disabilities that publish two of these prominent journals as well as many Down syndrome related websites.

On the other hand, finding resources focusing on the Arabic language, communication skills as well as reading strategies for children and people with Down syndrome was not as easy. I was able to finally trace some research work published by Abu-Rabia (2001, 2002, 2003, 2004, 2006, 2007, 2012) who has several publications in journals like the *Journal of Psycholinguistic Research*, *Reading and Writing: An Interdisciplinary Journal* as well as the *Journal of research in Reading*. The investigator found an interesting book: *Arabic Phonetics, in comparison with Contemporary Phonetics* written by Al Brayssim (2005). He shed light on the basics and origin of studies in Arabic Phonetics done by Sibaweih and
Ibn Jana (سيبويه و ابن جني). Dr. Mahmoud Shreih from the American University of Beirut pointed some references such as: Dr. Anis Freyha, Dr. Jawdat Al Rakabbi, and Dr. Fouad Tarazi and others who were prominent figures in universities in the Arab World. Finally, somehow it seems inquiries were circulated and travelled also to Egypt, as the investigator received a message from Ms. Maha Salah Hamed a professor at the German University of Cairo, who was forwarded an e-mail by a professor at the American University of Cairo. Hamed later sent her MA thesis entitled: “Exploring Phonological Awareness Skills in Egyptian Children with Down syndrome” in which other references could be found and be beneficial (Hamed, 2005).

In general, although a lot of research has taken place around the world with respect to Down syndrome, development profile and various aspects of learning, it became evident that the research in the Arab countries related to linguistics, communication skills, reading and writing and other aspects of the development of Arab children with Down syndrome was almost nonexistent. In a UNESCO report in 2005, entitled, The Arab States, the Arab region is described as the least research and development intensive area in the world (Badran, 2005). This is also due to the lack of well-equipped institutions or qualified teachers or researchers equipped with the right tools and knowledge needed (Ahmed, 2010). Prevailing stereotyped understanding of the overall inabilities and difficulties pertaining to children and people who have Down syndrome has overshadowed achievements and successful experiences that did not get a chance to be highlighted. Accordingly, realizing the importance of this aspect compels us to address these issues in Arabic as soon as possible.
The “See and Learn®” program uses the whole word approach and the use of sight words to develop early reading skills (Buckley, 2013). In Arabic, however, the whole concept of sight words is different from English since in Arabic, words are written attached and they keep changing in form according to syntax structure such as tense, gender and number. Arabic, on the other hand, may show a lot of easier manifestation of phonics since letters are read as they are. There are very few silent sounds, and short and long vowels are visually different.

2.3 - Competing Theories

Reading is known to be directly related to the cognitive development of a person. This assumption left people with Down syndrome for a long time with a notion that they cannot read or write and accordingly their communication skills were very weak. Findings of research on the Phonological awareness of children with Down syndrome are still contradictory. Whereas some research findings support the ability of children with Down syndrome to use and improve their phonological awareness skills in relation to learning to read, other research findings not only claim that these skills are limited but also unnecessary skills for learning to read by children with Down syndrome (Cossu & Marshall, 1990).

Most of the studies that have taken place until recently were focusing on subjects in residential homes and institutions for what was known as the handicapped society. In the last three or four decades many assumed hypothesis and notions have been challenged. Researchers are proving the fallacies of these notions that attributed negatively to the potentials of children who have intellectual disabilities and those who have Down syndrome. In the present there is a lot of research that is focusing on trying to understand the cognitive phenotype of people who have Down syndrome. Many studies show a consistency in weaknesses associated with expressive language,
syntactic/morphosyntactic processing and verbal working memory. There are
different opinions on this that are founded in a stronger visual memory as opposed to
auditory memory which allows learning through reading to be one valid tool for
better speaking. The relationship between reading and language development is one
of the main controversial issues that have been addressed in many of these
researches. While some research advocates following the same strategies that are
used with typically developing children to teach children with Down syndrome to
read, some others insist on the weakness in auditory skills and auditory memory and
the benefits of using visuals since the visual memory is stronger than the auditory
memory. This will help the child learn more words and vocabulary and eventually
this will help the child to form sentences and improve his or her expressive language
or at least the communication skills.

2.4 - Methodological Concerns

Until recently, most of the subjects of research were in residential facilities
and hospitals that did not offer them many venues for development and intervention
in educational aspect. This is why most of these findings lack the credibility and
validity since they were based on a particular conditions that do not represent a
typical development of a child with Down syndrome. Recently studies were done on
children and students who were raised in their homes with the appropriate care and
attention. Other studies focused on inclusive schools in longitudinal studies. Cross-
sectional studies on reading are limited in their ability to adequately illuminate the
process of reading development. However, longitudinal studies permit the
exploration of growth in reading and phonological skills over time. This will have
greater potential for investigating underlying instrumental and causal relationships
(Snowling 2008). Yet there is a lot to be learned and understood. This is why all the
existing methodologies are more like action research that is done over a period of
time rendering them as longitudinal studies. The normative tests are being used to
measure achievement and abilities as well as cognitive skills, these may not be
adequate for the children who have Down syndrome which again poses a threat to
their validity and the information provided. It will take time and a lot still needs to be
understood and many methods needs to be administered to provide for the true
findings.

2.5 - Research Findings

Down syndrome is a genetic anomaly. It is known as a trisomy of chromosome 21. It has been known as the most prevalent cause of intellectual impairment associated with a genetic anomaly. Individuals with trisomy 21 or Down syndrome are as unique as all the people around them. Although, the physical and cognitive development is to a large extent characterized by a particular phenotype, yet its effect can vary from one person to another. It can vary in terms of severity and certain specific impairments (Silverman, 2007). The severity of the overall intellectual disability is one major factor that influences individual profiles of performance. Age is another factor as well (Gibson, 1978). Other key characteristics include fair weakness in expressive language, syntactic, and verbal working memory. Although, significant effort has been devoted in studies that aim to discover the routes responsible for this profile, further investigation is needed. The execution in any task involves many component processes. Considerable demands are placed on the overall system. Any performance is widely influenced by configuration of the task and realizing the structure of the processing system. There are also sub processes and interactions that build the capacities among all these factors (Silverman, 2007).
In 1979 children with Down’s syndrome were thought incapable of learning to read even by most professionals. At that time insignificant research to learn the reasons for their spoken language difficulties was taking place. With the advent of a later interest in this phenomenon, positive results began to indicate that pre-school children with Down’s syndrome could learn to read. In addition a strong indication that reading may be a way to learn language for these children was observed (Buckley & Bird, 1993). An obvious strong link was being perceived between spoken language and reading skills. Even limited reading instruction can show advantages for developing good spoken language. In one of his earlier studies Rondal (1995) describes language related deficiencies in Down syndrome to be the result of two series of problems, one related to organic malformations and difficulties affecting speech (i.e. anatomy of the mouth and tongue, as well as related health issues) and the other is related to central processes of a cognitive nature (such as, processing information efficiently, weakness in attention faculty, diminished reaction time, auditory-vocal processing that functions with deficiency, a short-term memory that has limitations, learned information from long-term memory is slower to retrieve, reduced perceptual discrimination as well as generalization capability are diminished, symbolization capacity may be deficient) (Rondal J. A., 1995). Rondal (2003) relates the development of the language skills to the surrounding conditions and environment that a person with Down syndrome is affected by (Rondal & Buckley, 2003).

Understanding language development in people who have Down syndrome has been a topic of research for over 40 years. Many earlier theories that had ordained people with Down syndrome as uneducable and unable have been revoked.
as a clearer understanding of their abilities and how to overcome the deficiencies are being exposed and better understood.

An overview of language development from the pre-linguistic period to the acquisition of literacy by Abbeduto et al. (2007) concentrates on the pre-linguistic fundamentals of language and the major constituents of language such as vocabulary, syntax and the pragmatics. Communication development is frequently both impaired and hindered. Strengths can be found in imitation and gesture use while producing intelligible speech sounds is a weakness. Difficulties in expressive language as well as phonological short-term memory, is one major cause why it may be essential to teach young children with Down syndrome a repertoire of signs during early development (Abbeduto et al. 2007). Learning first words using vocabulary is delayed. However, repeated exposure can help the children learn concrete vocabulary at least in the receptive form of the language. Cognitive proficiency and hearing are factors that contribute to the complications individuals with Down syndrome encounter in syntactic learning (Abbeduto et al. 2007). For most individuals with Down syndrome literacy development is limited. On the other hand, individuals with Down syndrome do well with word recognition, despite their poor phonological skills. This could be attributed to an ability to rely strongly on learning through visual processing or the whole word process as a mechanism to read words. This capability can become a dependable tool in augmenting reading through the whole word or analytical reading instruction (Abbeduto et al., 2007). In the management, Abbeduto (2007) discusses the significance of paralinguistic communication involvement and the attainment of literacy skills. An area of particular challenge is the short term memory for auditorally performed sequences of
speech sounds (phonological memory) in comparison to visual-spatial short-term memory (Abbeduto et al., 2007).

There is solid evidence in the literature that instruction in phonological awareness can advance reading skills and help remediate decoding complications. However, the impact of training in phonological awareness ability, on the decoding skills of the children with Down syndrome should undergo further studies and be examined (Bird et al., 2000). To build a sight vocabulary, it seems that children with Down syndrome tend to use a logographic strategy to memorize the gestalt visual form of words. Verification is provided that phonological awareness and word attack skills lack behind in trying to keep pace with word recognition abilities (Bird et al., 2000). When reading non-words, correct decoding is only partially influenced by lexical access or semantic context. People with Down syndrome show particular failure in this task. To achieve correct non-word reading, the use of the grapheme-phoneme conversion process is required. This process is based on competence in phonological awareness faculties, which are somewhat compromised in people with Down syndrome. The inferences of these findings necessitate rehabilitative measures that can be further discussed and analyzed (Verucci, Menghini, & Vicari, 2006). The difficulty in reading non-words of children with Down syndrome can be attributed to their lower mental ability; this is why much of the research findings are catered to focus on strategies to overcome this difficulty. The main benefits reported to back up the *why reading may help speaking* idea are attributed to some learning difficulties that may be overcome by this strategy. This focuses on hearing loss, specific modality effect, auditory short term memory and strength in visual memory and finally difficulty in speech production. One published paper discusses the laryngeal muscle tension and the energy level needed to activate the vocal
mechanism to the voicing level in people with Down syndrome and how this has implications on linguistic and language development (Pryce, 1994). Poor cognitive abilities contribute to a weakness in decoding skills. Children with intellectual disabilities have difficulty represented in a combination of poor phonological representation and poor phonological output assembly that makes decoding difficult (Conners, Atwell, Rosenquist, & Sligh, 2001). Stronger and weaker decoders differ in their ability to refresh phonological codes in their working memory. The known strategy to sound out words for young readers is to hold the beginning sounds active in the working memory. This is done as the focus moves to the subsequent letters and their sounds. The reader should finally be able to refresh all phonological codes in sequence so the word can be decoded and then sound out (Conners et al., 2001).

Over the past 10 years, changes regarding the potentials of children with Intellectual disabilities to learn to read and the literature have become more optimistic. Teachers are using phonetic approaches along with functional reading methods and are fashioning literacy-rich environments in classrooms (Conners et al. 2001). Most individuals with Down syndrome experience limitations in literacy development. Skills related to emergent literacy, word recognition, as well as non-verbal development tend to all lag behind typical profiles of development. Advanced reading skills are a category that is still not fully investigated.

Recent findings has supported several notions such as emphasizing that integrating elements of overt, methodical reading training into interventions for children with Down syndrome may be advantageous for many. This has established statistically substantial growth on letter sounds, taught sight words, and decodable words (Lemons & Fuchs, 2010). Significant advancements in word reading skill and alphabet knowledge were the outcomes of a literacy program that aimed for
phonological skills within the context of reading books. This was targeted at the onset–rime level, the alphabet work, word analysis and whole word reading. Certain children are able to develop decoding strategies for the reading of unfamiliar words (Baylis & Snowling, 2012; Boudreau, 2002).

Comprehension has been the subject of studies also and its influence on developing language skills. Reading as well as listening comprehension are contemplated as a week area that needs proper attention, intervention and scaffolding. Strategies that depend on the use of visual techniques, strategies, materials including signing language would overcome the auditory processing weakness and thus augment the acquisition of vocabulary and consequently strengthen the comprehension skills (Boudreau, 2002; Clibbens, 2001; Morgan, Moni, & Jobling, 2004; O'Toole & Chiat, 2006).

In one of the studies, researchers found that individuals with Down syndrome have not shown impairment neither on receptive word learning tasks nor expressive word learning tasks. New word learning does not depend only on verbal short-term memory capacity, although there is a large body of evidence supporting the connection between verbal short term memory and phonological acquisition. The role of repetition and a domain-general serial order processing mechanism plays an additional support (Mosse & Jarrold, 2011). These are means to support and enhance the memory (Chapman, Sindberg, Bridge, Gigstead, & Hesketh, 2006).

There is no a priori reason why children with Down syndrome should be prevented from developing bilingual or even multilingual repertoires, even if it is unlikely that the levels of functioning eventually reached in the additional languages would be any different from that in the maternal tongue. Nor is it likely, as sometimes believed by some people in our view naively that bilingualism per se...
could alleviate some of the cognitive limitations inherent in Down syndrome. In other words, bilingualism may probably be encouraged in children with Down syndrome with some caution then it is part of the family or community situation but is neither a cognitive nor a language therapy.

The already existing body of research related only to a limited number of languages such as English, French and Italian, therefore, there is a need to explore the phonological awareness skills of children with Down syndrome in other linguistic milieus. These explorations will add further information on the phonological skills of children with Down syndrome in a way that may shed light on the controversy over their phonological skills with the final aim of enabling them to read (Hamed, 2005), and eventually speak better.

2.6 - The Arabic Language, Research Findings

Arabic language has evolved into several colloquial dialects derived from the classical form. Accordingly, oral communication in Arabic may take different forms and can be also quite different from the classical or written language. Diglossia is a challenging phenomenon. It was shown to hinder vocabulary development in Arabic of Lebanese bilingual young students (Fedda & Oweini, 2012).

Arabic language is written in an alphabetic system of 28 letters. Three letters resemble long vowels while short vowels are expressed in diacritical symbolic marks. Most Arabic letters have more than one written form and that depends on the letter’s place in a word. Although the letters maintain their main shape, yet the general form changes from beginning, to middle to end of the word. Some letters have dots above or below the shape, they could be one, two or three dots.

In general, Arabic words are a combination of consonants and long vowels. The short vowels are not always shown. Although vowelized text in Arabic would be
comprehended better, yet it is accepted that skilled and adult readers are expected to read the texts without the short vowels (Abu-Rabia, 2001). The reading process in Arabic is a function of vowels and sentence context. Phonology, which affects reading precision as well as reading comprehension, morphology (i.e., the triliteral/quadriliteral roots of Arabic words) and sentence context are considered key variables in explaining the reading process in Arabic orthography (Abu-Rabia, 2002).

Arabic orthography is characterized by specific visual complexity (Abdelhadi, Ibrahim, & Eviatar, 2012). Readers at all levels and ages are expected to rely heavily on the orthographic factors in reading (Abu-Rabia, 2007). The consistent significant contribution of orthographic factors to reading isolated words and reading comprehension at all levels of reading is related to the complexity of the Arabic morphology. Thus, the better mastery of this complex morphology enhances the chances of higher reading fluency which has its share of cognitive demands (Abu-Rabia, 2007).

In Arabic and other Semitic languages, individual morphemes are often not manifested as contiguous strings of segments. The phonological shape of a morpheme can be heavily dependent on the phonological shape of another (Bird & Blackburn, 1991).

Automacity in Arabic reading and spelling of the Arabic orthography would be better accomplished with phonology through the whole process of spelling and reading. The lexical respresentation of the phono-morpho-syntactic symbols (the last letter of words being vowelized according to the grammatical function in the sentence) is partially effective (Abu-Rabia & Taha, 2006). The complex morphology of Arabic needs short vowelization for accuracy in reading (Abu-Rabia, 2012).
Arabic morphology is built of two types of structures: derivational and inflectional. Derivational morphology, suggests that all words in Arabic are based on phonological pattern built on roots that are consonantal patterns. Inflectional morphology is constructed by attaching prefixes and suffixes to real words (Abu-Rabia, 2007). Inflectional morphology could designate clearly person, number and gender through the addition of suffixes to the basic verb pattern. One of Abu-Rabia’s studies shows that dyslexic Arabic readers have similar symptoms as others with reading disabilities in other alphabetic languages (Abu-Rabia, 2007). Results showed that dyslexic readers had difficulty in posting correct diacritic (or short vowels) in their places, they also had difficulty in syntactic awareness in posting diacritics on the ends of words to indicate grammatical function (Abu-Rabia, 2007). In Arabic, syntactic awareness demands even more effort because of its syntax based phonology which would be expected to pose a problem for people who have Down syndrome.

In another experiment by Abu-Rabia, Share, and Mansour (2003), results revealed deficits among children with reading disabilities in phonological decoding, in contrast to relative strengths in orthographic processing. Interestingly, data from this study showed uniformity with outcomes based on similar experiments done in the English language. Noteworthy deficiencies were observed in morphology, working memory, syntactic and visual processing and mostly in phonological awareness (Abu-Rabia, Share, & Mansour, 2003).

Language and communication skills rely on factors that need to be investigated individually and in relation to each other. The research that is covered in this study touches on just one aspect of this broad field as will be discussed in the conclusion.
2.7 - Reading Programs

There are a lot of reading programs targeting children and people with special needs around the world. Most of these programs that are known in our part of the world come in English or French. Also, a lot of these programs target children with reading disabilities but very few target children who have Down syndrome. Some programs have been used with children who have Down syndrome and have shown good results and have also set the pace for further investigation of developing programs that specifically target the learning profile of people who have Down syndrome in general.

Of these programs we can name a few that were the basis for many other programs that have later developed.

2.7.1 - Orton-Gillingham program. This program was developed by Samuel Orton and Anna Gillingham in the early 20th century to become one of the first highly respected remediation reading programs for people who have reading disabilities. The current developers of the program have established leadership in providing research based multi-sensory education and training. Online material and a numerous number of applications are now being produced to be used by children and adults to enhance the language and literacy acquisition. Most of these applications are designed to provide fun as well as a mobile way to practice skills like vocabulary acquisition, articulation, language and rhyming. Programs like the PCS Vocabulary Bingo The Picture Communication Symbols (PCS™) Bingo Applications are great for general education students, as well as students who have Autism, Down syndrome and Speech and Language delays (Institute for Multi-Sensory Education, 2013).
2.7.2 - Lindamood-Bell program. The Lindamood-Bell Seeing Stars program has been recommended by certain Down syndrome associations for its strength in developing Symbol Imagery for Phonemic Awareness, Sight Words and Spelling. The Seeing Stars® program helps struggling readers develop the sensory-cognitive function of symbol imagery. The uniqueness of the Seeing Stars reading program, is recognized in the instruction that directly applies symbol imagery to sight word development, contextual fluency, spelling, and increasing the speed and stability of phonemic awareness. Children with Down syndrome may gain great benefits from this program that will help them specifically in overcoming weakness in abstract symbols and short term memory (Bell, 2013).

The Lindamood Visualizing and Verbalizing for Language Comprehension and Thinking® (V/V®) program, created by Nancy Bell, helps struggling readers develop the sensory-cognitive function of concept imagery. Unlike most reading and comprehension programs, V/V instruction directly applies concept imagery to the comprehension and expression of both oral and written language, as well as the development of critical thinking skills (Bell, 2013).

2.7.3 - Down Syndrome Association. It advocated the following: Most typically developing children use the logographic approach as a tool when learning to read in the primary stages of reading. This involves learning whole words by sight or their visual pattern. Afterwards, children then proceed to an alphabetic or phonological tactic. They start to learn by listening to sounds and they begin to use letter/sound correspondences in order to decode or break words into separate sounds as a tool to read and spell them. Being skilled as visual learners, children with Down syndrome are often able to build up an impressive sight vocabulary of words. They make significant progress in the sight recognition or logographic phase but they
usually battle with the move to the alphabetic or phonological one. They often rely on strategies of logographic visual memory to maintain their progress in reading. (Down Syndrome Association, 2011)

2.7.4 - See and Learn® program: The subject of this study that will be discussed in detail in the next section.

2.7.5 - My First Letters®. A program developed by Katia Hazouri in 2006 that has become a leading reading intervention program in the Arab world. It was first established and developed to help children with dyslexia and due to its success it was also used with children who have Down syndrome. This program is also a multisensory program that took a lot of the Arabic language attributes and changed it onto a visual-spatial sensory experience (Hazoury, Oweini, & Bahous, 2009).

2.8 - See and Learn®

Finding the most adequate intervention program that could serve the purpose of my study led me to the Down syndrome Education Trust, later becoming the Down syndrome Education International (DSEI), an organization dedicated to research on the development and learning aspects of children who have Down syndrome. The DSEI have developed several intervention programs that respond to the particular learning characteristics of children who have Down syndrome. “See and Learn®” is a program that was developed by the team of educators and psychologists with the guidance of Buckley who is the Director of Science and Research Down syndrome Education International. The program is based on observations and studies that took place for many years working with children who have Down syndrome. The aim of this early intervention program is to support early language and reading development.
“See and Learn®” is based on the notion that children with Down syndrome are visual learners with a weakness in short term memory and auditory processing. This program also uses well-structured organized strategies as well as repetition. Additional attributes of this program are manifested in a friendly environment, with the proper stimulation and motivation as well as the proper social interaction to help the child improve the learning profile and build on skills that would help in future development.

“See and Learn®” relied on seeing vocabulary, that change into words, thus helping the children build an image of the words they will be learning without having to depend on the phonological sequence of letters that in its turn depends on auditory processing and phonological awareness that research has shown to be weaknesses. With “See and Learn®” the word of print is exposed to the children at an early stage helping them to understand the concept of print and reading. In small steps this world of words helps the child to see phonology and learn decoding that he or she can relate to visually as well as later on auditorally.

The program “See and Learn®” is composed of several easy-to-use, evidence based teaching programs supporting development in four key areas: Language and early reading, speech, number, memory. “See and Learn®” has been tested and proven beneficial with children at a very early age. It was reinforced by studies that have revealed that early treatment or intervention improved the language of all children with Down syndrome. It was also confirmed that babies who are exposed to an early start of language stimulation treatment soon after being born have developed as best achievers in later learning of language skills and development (Aparicio & Balana, 2002).
This early intervention program focuses on the value of teaching reading to support language development. Reading is a visual skill that as was mentioned before helps the child see the phonology and later be able to relate to phonics and thus develop language and eventually better decoding skills as well as communication. The program also emphasizes working on skills that would enhance the language development.

2.9 - Conclusion

To talk is to communicate and to get the message across. This can start with looking, smiling, pointing, following directions, as nonverbal skills that could continue to use commenting, requesting, answering. With a program like “See and Learn®” in Arabic, the child sees words as vocabulary learning, sees meanings and says the words as a picture that will make the sentences with emphasis on proper grammar structure when stringing the words together to create more complex meanings. This program sets a base for further work on developing phonology, understanding phonics, and enabling decoding, thus improving reading, and eventually developing the language and communication.

For most children with Down syndrome, spoken language is delayed relative to mental age but they show an uneven profile: Communication skills are usually good but not necessarily verbal, vocabulary is delayed but grows steadily, and grammar is more difficult and tends to be ‘telegraphic’, using key content words. Understanding is ahead of expression; clear speech is more difficult and speech can be hard to understand. Children with Down syndrome learn vocabulary more slowly as vocabulary paces progress to sentences. First toddlers learn single words 50 – 100 words then they start to put 2 words together 200-250 words are needed before grammar starts to be used (possessive ’s’, plurals, tenses…). There will be many
children with Down syndrome in preschool/kindergarten and primary/elementary schools who do not yet have 250 words in spontaneous spoken language (Buckley & Bird, 1993).

Although the scope of this experiment was limited, the challenges it posed were significant. As the program was being adapted to Arabic, the first challenge of diglossia was manifested in the choice of vocabulary words and trying to abide by the same sequence as set by the See and Learn ® program, although, a list of 500 most commonly used Arabic words was established (Oweini & Hazoury, 2010). Children with Down syndrome demonstrate personal differences just like all other children. These differences that could influence teaching and learning are exhibited in their age, the level of language comprehension, hearing loss, speech skills, phonological awareness, reading skills, memory skills, conversation and communication skills. All these were challenges that could affect the validity of the outcome. It was important to identify and understand the characteristics of individual profiles of children to enable using the appropriate activities and strategies to stimulate their development. Each child had to be addressed in the level of language comprehension that he or she has reached using appropriate vocabulary words and sentence structures. It was also imperative to create a motivating yet challenging environment for work, giving the children the right support and scaffolding as needed, warranting the appropriate adaptation and implementation of the teaching strategies that would produce the right results. Individual tasks had to be broken into small steps, ensuring opportunities for a good proportion of practice, repetition and creating a routine that is neither boring nor too challenging. (Buckley, 2013). Children with Down syndrome love to play and enjoy learning in small steps and non-invasive environments. Challenging a child with Down syndrome can have
positive results if the educator knows how to use that child’s strengths and
knowledge. Abstract concepts and difficult problem solving situations create a
barrier to learning for children who have Down syndrome if not complimented with
scaffolding strategies. A child or a person who has Down syndrome needs to feel the
power of his ability to participate without hesitation.

Enabling people with Down syndrome to enrich their lives with better tools
for community involvement is one way to face the challenges created by living in an
Arab country and a bilingual society. This investigation could lead to other
challenging questions: What can be applied from the research in the other languages
on Arabic? What can be adapted in terms of strategies and methods? This will
remain to be discussed in the results and conclusion sections. The success of the very
eyearly stages of literacy, language and communication development will motivate us
to continue these investigations into the next phases of learning by introducing
phonics and phonological awareness and decoding skills. Empowering reading is a
tool to develop communication, which in its turn will lead to improve the chances of
a better life for people with Down syndrome.
CHAPTER THREE

METHODOLOGY

3.1 - Overview

The aim of this work was to examine the possibility of adapting and developing the See and Learn® program into an Arabic language valuable tool to augment the development of language, communication and reading skills among children who have Down syndrome?

See and Learn® is an early intervention teaching and support program that is designed to help young children with Down syndrome. It has been developed by the Down Syndrome Education International (DSEI), to support the child's early development. It can also be used as a tool in early education services to support speech and language development. Programs developed by DSEI offer practical, targeted and evidence-based approaches to promote the development of language, reading, speech, memory and number skills.

This study is based on the first step of the See and Learn programs: First Word Pictures which has been designed for children who are at the very early stages of learning language. Children are expected to learn 60 common first words using pictures. Matching and selecting activities help the children develop their visual skills and prepares them for learning to read. In the second step, the program provides activities to teach 16 familiar written words. This step enables children to read phrases containing two key words. Children move from step one to two only after they have completed learning 50 or more words in step one and are able to match the pictures.

In order to start this study, a written request (Appendix A-Figure A1- Invitation for participation) was sent by email, and followed by a limited number of
phone calls, to a large number of organizations, institutions and individuals all around Lebanon asking for volunteer participants. The message was sent via the Lebanese Down Syndrome Association, it clarified that a study was to be implemented on a program to teach reading in Arabic language to children who have Down syndrome. Only a few responses were received. An institution in the Bekaa area, and only four parents showed interest. However, after a second attempt and a personal contact, Dr. Mousa Charafeddin showed interest and requested more information. A visit was scheduled to IDAD, which is the “Friends of the Handicapped” center in Meshrif, 20 kilometers south of Beirut. A meeting with Dr. Charafeddine, president of the association, Mr. Nizar Salam, the director of IDAD and Zeina Noun, the coordinator of the early intervention program took place. The study as well as the need to have a group of children ready to be involved, was explained. All three showed interest and willingness to be involved in this study and accordingly the guidelines for the experiment were set.

The setting at IDAD early intervention center seemed ideal to perform this investigation. Among the children receiving the services there were 16 children who have Down syndrome. After a short visit to the classes, the children and teachers the initial commitment was secured. An official letter was sent to the parents of the children at IDAD inviting them to participate in the study. (Appendix A – Figure A2 Consent of families).

3.2 - Participants

The early intervention program at IDAD had about 24 children, ages ranging between 3 and 6. All of the children in the program had special needs. Among them there were 16 children with Down syndrome, the rest were diagnosed with Autism, and other cognitive delays. All the children follow a special program for three years
learning basic skills and following a curriculum that was developed by Mrs. Rita Mirhij Mufarrij. They also have special therapy sessions with a language therapist, a physical therapist, and a psychomotor therapist as well as horse riding therapy for some of the children.

None of the children read or wrote and very few had adequate expressive language skills. The children were already divided into three groups. Although the division was supposed to be mainly governed by age, two of the three groups had children of almost the same age range. The division was mainly governed by mental and cognitive ability and achievement.

The 16 children who have Down syndrome were the target population in this experiment. The program was implemented in two steps. In the first step all 16 children had the same intervention, learning the names of at least 50 commonly used words and matching their pictures as in the first step of “See and Learn®️”. In the second step, 7 children were randomly selected to work on the second step. They were chosen from the group of children who showed adequate acquisition of at least 50 words, in other words had adequately completed the first step. The rest of the 16 children continued to work on the first step. Printed words from step 2 were hung in the class for the children to see and learn in the same way regular instruction in the class takes place. All 16 children continued to follow the official program of the Early Intervention t IDAD.

3.3 - Materials

The original sixty words from the “See and Learn®️” program are shown in table 3.1. Adaptation related to grammar and morpheme structure in Arabic faced a few challenges, as indicated below.
Table 3.1 - *The words in the original program*

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<td>flower</td>
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<td>Shoes</td>
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<td>spoon</td>
<td>bricks</td>
<td>phone</td>
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<td>Sleeping</td>
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<td>brushing</td>
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<td>Washing</td>
<td>sitting</td>
<td>crying</td>
<td>walking</td>
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<tr>
<td>look*</td>
<td>wait*</td>
<td>good*</td>
<td>bye-bye*</td>
</tr>
<tr>
<td>gone*</td>
<td>finished*</td>
<td>more*</td>
<td>there*</td>
</tr>
<tr>
<td>what*</td>
<td>where*</td>
<td>on*</td>
<td>in*</td>
</tr>
</tbody>
</table>

The first challenge was diglossia, or the difference between the spoken and written vocabulary words, thus the primary selection of sight words used for building the vocabulary skills, was chosen with careful consideration as ones that do not change such as: BAB, باب (DOOR), CHUBBAK، شباك (WINDOW), KHAZANAH، خزانة (CLOSET), KURSI، كرسي (CHAIR), TAWILA، طاولة (TABLE) etc..

Another challenge to be accounted for was that in English, verbs do not change with respect to gender. This is not the case in Arabic. Because of that, all verbs had to be shown in both masculine and feminine genders. Also, in Arabic, most words including verbs change their forms when associated with grammar structure such as number and gender. Words had to be stripped to their morpheme structure, or its basic unit of meaning. Example: HUWA AKALA، هو أكل، HUM AKALOU، هم أكلوا (HE ATE, THEY ATE, HE IS EATING, THEY ARE EATING). At the early stages the verbs were taught and used only in the present tense form YA2KOULOU، AND
Moreover, only a singular noun or verb was used at this stage, (this is considered the basic derivative of the verb TO EAT). The additions will be introduced as prefixes and suffixes later and when a child is ready.

Nouns, also have the characteristic of changing with the addition of “THE”, example, KALB الكلب A DOG becomes ALKALB الكلب THE DOG and again here the basic derivative or morpheme will be used while the prefix will be introduced later.

To avoid confusion, in the use of gender, pictures of a man, a woman, a boy and a girl were used. Each action verb was also represented in two separate pictures, one acted by a male and the other acted by a female. The printed words followed the same concept. As a result the initial word list of 60 words was expanded to 72 made of 44 nouns, 16 verbs and 12 propositions and adjectives. The following tables show the list of words prepared for the program although not all were used.

Table 3.2 - The Nouns used in the Arabic program.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>أنا</td>
<td>بابا</td>
</tr>
<tr>
<td>لعبة</td>
<td>كتاب</td>
</tr>
<tr>
<td>منبت</td>
<td>مقنطر</td>
</tr>
<tr>
<td>عصفر</td>
<td>كلب</td>
</tr>
<tr>
<td>كلمات بلوزة</td>
<td>صباط</td>
</tr>
<tr>
<td>بسكوتة</td>
<td>موزة</td>
</tr>
<tr>
<td>خزانة</td>
<td>طاولة</td>
</tr>
<tr>
<td>شعر</td>
<td>عين</td>
</tr>
<tr>
<td>شركة</td>
<td>حبل</td>
</tr>
<tr>
<td>حصان</td>
<td>بقرة</td>
</tr>
<tr>
<td>امرأة</td>
<td>رجل</td>
</tr>
<tr>
<td>صحين</td>
<td>شهاد</td>
</tr>
</tbody>
</table>

Table 3.3 - The Verbs used in the Arabic program

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>يشرب</td>
<td>يستنشق</td>
</tr>
<tr>
<td>يتشرب</td>
<td>يشتبث</td>
</tr>
<tr>
<td>يقعد</td>
<td>يمشي</td>
</tr>
<tr>
<td>يتفخض</td>
<td>يمشي</td>
</tr>
</tbody>
</table>

Table 3.2 - The Nouns used in the Arabic program

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ينام</td>
<td>يأكل</td>
</tr>
<tr>
<td>تنام</td>
<td>يكل</td>
</tr>
<tr>
<td>يبكي</td>
<td>يغسل</td>
</tr>
<tr>
<td>يتعش</td>
<td>يتغسل</td>
</tr>
</tbody>
</table>
Table 3.4 - Prepositions, adjectives and other miscellaneous words.

<table>
<thead>
<tr>
<th>Arabic</th>
<th>English</th>
<th>Arabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>ماذا</td>
<td>do</td>
<td>ظاهراً</td>
</tr>
<tr>
<td>شو</td>
<td>which</td>
<td>هناك</td>
</tr>
<tr>
<td>فوق</td>
<td>above</td>
<td>هنا</td>
</tr>
<tr>
<td>في</td>
<td>in</td>
<td>بعد</td>
</tr>
<tr>
<td>هناك</td>
<td>there</td>
<td>هنا</td>
</tr>
<tr>
<td>انظر</td>
<td>look</td>
<td>مهلك</td>
</tr>
<tr>
<td>شاطر</td>
<td>share</td>
<td>عل</td>
</tr>
<tr>
<td>انتظر</td>
<td>wait</td>
<td>مهلك</td>
</tr>
<tr>
<td>على</td>
<td>on</td>
<td>هن</td>
</tr>
<tr>
<td>بين</td>
<td>between</td>
<td>وين</td>
</tr>
<tr>
<td>أي</td>
<td>any</td>
<td>وين</td>
</tr>
</tbody>
</table>

A teacher’s manual was also prepared in Arabic and distributed to teachers to be used as guidelines (Appendix E)

**The material prepared for the program.**

*Flash cards with the picture of the word on one side and the name of the word written on the opposite side.*

*Flash cards showing only the picture of the word on one side.*

*Flash cards showing only the word on one side.*

*4 pictures charts.*

*4 words charts.*

*Check lists.*

*Assessment sheets.*

*Teachers’ manual.*

**3.4 - Procedure**

In April of 2012, and after examining the material and the manual, the administration of IDAD approved the initiation of the experiment in its Early Intervention Center in Meshrif. Immediately then a general presentation was given to the teachers working with the children, to explain the program and prepare them to start the work. During the meeting, the general characteristics of language and communication development for children who have Down syndrome were presented. The program and methodology were explained in details with modeling of the implementation strategies.
Another meeting was subsequently scheduled with the parents. The program was also presented along with an overview of the characteristics. The staff, the teachers, and the parents showed enthusiasm and willingness to participate in this study.

It was also indicated to the families and teachers that the first step was going to involve the work on 60 pictures to be identified and named by the children. Everyone was asked to participate in the first step and the material was prepared for all the children at school and at home. This step involved only learning the vocabulary words. No reading was to be worked on at this stage. Parents were encouraged to follow up with their children at home. Parents were also asked to sign consent to participate letter.

Then teachers were asked to initiate the work on the pictures following the strategy explained in the teacher’s manual. The manual was an adaptation of “See and Learn®” with few modifications related to the choice of words, that were deemed necessary. All the needed instructional material was prepared and made available for the teachers and the children. That stage was started in the middle of the spring of 2012.

Unfortunately, due to a nationwide two-months suspension of activities exercised by most of the NGOs in Lebanon in protest against certain actions taken by the Ministry of Social Affairs, the program was interrupted and could not resume until the next academic year.

In the following academic year (2012-2013), the investigator was not able to get back in touch with IDAD until December 2012 due to travel and other personal commitments. Meanwhile, the teachers resumed the work alone, for 15 minute intervals, in one to one sessions, and as instructed by the manual and only on the
pictures. The teachers worked with the children on four words at a time following the sequence as per the list provided to them and the four instructional phases. Each phase was to be completed for four words before moving to the next phase. Details of the program and the method of implementation are found in the manual (Appendix E).

3.4.1 - The four instructional phases.

*Looking at the picture.*

*Matching the picture.*

*Choosing the right picture when asked*

*Saying the name of the picture.*

At the beginning of December 2012, families of the participating group of children were asked to respond to a survey designed to collect some general information about their children. The purpose of this was to learn about the children and the parents’ knowledge of their children’s abilities. In addition, the questionnaire was meant to shed the light and help determine if there are any issues that need to be taken into consideration or that might influence the results of this experiment. The questionnaire was sent to all the parents of the 16 children in the Early Intervention Program at IDAD. The questionnaire was divided into two main sections. The first section was for general information targeting basic traits and skills that may affect language and communication development. It also had three parts. The first part provides an overview of the expressive language development of the child. The second part targeted an overview of any health problems a child has, while the third section targeted working environment and behavior aspects such as attention span, working preference. Parents were also asked if they were familiar with the See and Learn® program and if they had the chance to work on it during the summer when
all activities were suspended. In the second section of the survey, an informal assessment of the knowledge of the word list was requested. The assessment targeted skills like looking at a picture, matching a picture, selecting a picture and naming the picture. Of the 16 forms sent, 10 were returned, of which 9 were almost totally completed, one was only 60% completed. The last six were never sent back. Due to the nature of the experiment, which targeted an intervention in Arabic and the diversity in languages among families, the survey questions were all in Arabic. The words to be assessed were also in Arabic which was the purpose of this study.

The first assessment by teachers was also done in December 2012 for all the children who have Down syndrome in the early intervention program. The assessment rules were also explained in the manual. The teachers were supposed to assess the children’s’ ability to perform the four steps of the program with 80% accuracy. That assessment covered only the first step that targeted learning the names of the vocabulary words. At that time, not all the 72 words were covered; the verbs needed further adaptations and additional instructional material. The prepositions and adjectives were not covered.

At that time, the teachers continued to work with the children in their classes under the supervision of their director and me. The children were expected to be able to name the pictures within reasonable pronunciation pattern.

By the end of February 2013, a second assessment was done by teachers, and the investigator. Following that assessment, and out of those who have acquired naming the first 50 picture cards, seven children were chosen randomly to start working on the second step of the program, learning the printed words. This allowed us to have an adequate number for the remaining control group. Further, since it was imperative to work with all the children in the study group as regularly and as often
as possible, it was difficult to work with more than seven students in one day. These seven became the experimental group.

For the next two-and-a-half months, the investigator worked with the seven children in one to one sessions that lasted 15 to 30 minutes each, four times a week. The session always started with a quick review of what had been learnt so far. A quick review of the picture cards was always repeated. The same pattern of work and as instructed by the manual was implemented here. Work began with four words in the printed version. Three of the four instructional phases were also applied. The children had to match, select and say the word. Matching had different forms, example word to word or word to picture. This continued through March, April and until late May. During that time, there was one long period of interruption, late March, early April due to the long spring break and Easter holidays. Work was interrupted for three weeks. At the end of the study period late May, the children were assessed for the third time by the teachers and for the second time by me. Their ability to learn the printed version was assessed.

3.4.2 - Other targeted skills.

*Study skills such as: paying attention, following directions, looking,*

*matching, choosing and naming.*

*Identifying the picture cards with clear or intelligible pronunciation.*

*Reading words representing the picture cards.*

Meanwhile the control group continued to work on the vocabulary word as they had started. The first four printed words, however, were hung in the class for all to see. The teachers would point them out to the children and go over them every day in the same regular fashion that other material in class was worked on. None of the strategies used for looking, matching, selecting, and saying were followed. The
control group was later assessed for the same words. None of the sixteen children (including the 7 in the experimental group) had been previously exposed to the written words presented in the second step of the program. It was established before embarking on the program that none of the children recognized any of the words prior to the intervention.

The seven children were also later assessed for their knowledge of the words that were introduced to them in the regular learning sessions in the class. These words were found in their early intervention program. They were all studied following the instructional strategies found in the teacher’s manual.

At this stage a phonics program was not used. The aim of the work was basically to target learning vocabulary words and learning their representation in writing to enrich expressive language as well as instill the concept of the printed word as an abstract representation of an image.
CHAPTER FOUR
RESULTS

4.1 - Findings

Results of this experiment were based on data collected pre, during and post intervention. These consisted of an initial survey questionnaire, periodic teachers’ assessment, and the investigator’s observations as well as those discussed during meetings with teachers.

The responses to questions in the ten questionnaires that were returned indicated that most of our participating children have similar backgrounds and there were no major concerns that may jeopardize the results of this experiment. Results are summarized in the following:

Responses to inquiries about production of speech stated that the age at which the child started producing some form of speech ranged from 18 months to 48, resulting in an average of 30 months. Some parents also indicated that their kids used other means of communication like gestures as well as drawings and pictures.

Speech clarity was supposed to be assessed on a scale of 1 to 10, with 1 being unclear and unintelligible versus 10 being perfectly clear and intelligible. None of the parents indicated a high intelligibility factor. The average score representing clarity of speech was 5.7.

Then next set of questions indicated that, none of the 10 children had any auditory problems. However, most of the children showed certain communication difficulties exhibited in fluent correct speech production, using correct sentence structures, as well as difficulties in articulating words and letter sounds clearly and correctly.
In the section about health background, two children were diagnosed with heart problems that were remediated and one has a visual problem.

The rest of the questions surveyed the parents’ knowledge of the early intervention program of their children at IDAD. Results indicated that the children started the Early Intervention program at an age that ranged from 6 to 48 months. This age discrepancy did not have a significant impact on the overall results. The children’s background may have been affected by other factors that may have contributed to their learning and may in turn raise validity questions. All parents responded that they were aware of their child’s early intervention program at IDAD.

Appendix B shows the original questionnaire that was sent in Arabic while Table 4.1 shows a summary of the data collected from the responses.

Table 4.1 Summary of data collected from the questionnaires that were sent to families. The values show the general average.

<table>
<thead>
<tr>
<th>Section 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of children</td>
<td>10/16</td>
</tr>
<tr>
<td>Sex</td>
<td>6 girls 4 boys</td>
</tr>
<tr>
<td>Average Age</td>
<td>5.71 y</td>
</tr>
<tr>
<td>Main communication method</td>
<td>Talking, using pictures and drawings, gestures</td>
</tr>
<tr>
<td>Average age of speech production</td>
<td>29.3 months</td>
</tr>
<tr>
<td>Degree of clarity of speech</td>
<td>5.7/10</td>
</tr>
<tr>
<td></td>
<td>Where: 1 is not clear/10 is very clear</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Difficulty in mouth movement due to anatomy</td>
<td>7</td>
</tr>
<tr>
<td>Difficulty swallowing liquids</td>
<td>10</td>
</tr>
<tr>
<td>Difficulty swallowing food</td>
<td>9</td>
</tr>
<tr>
<td>Facial muscle weakness</td>
<td>8</td>
</tr>
<tr>
<td>Hesitation and difficulty in speech</td>
<td>2</td>
</tr>
<tr>
<td>Difficulty in producing correct sentences</td>
<td>1</td>
</tr>
<tr>
<td>Stuttering</td>
<td>7</td>
</tr>
<tr>
<td>Hearing and problems</td>
<td>10</td>
</tr>
<tr>
<td>Difficulty in the production of some letter sounds</td>
<td>2</td>
</tr>
<tr>
<td>Frustration when not understood</td>
<td>4</td>
</tr>
</tbody>
</table>

Section 2

| Health problem                     | 7   | 3   |
| If yes please state them           |     |     |
| If yes please state them           |     |     |

Section 3

<p>| Age at which early intervention at IDAD was started. | 25.5 months |
| Are you aware of the early intervention program at IDAD? | No | Yes |
| Are you familiar with the (See and Learn®) program | 2 | 8 |
| Have you worked on this program with your child last year? | 1 | 9 |
| Have you worked on this program with your child |     |     |</p>
<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>during the summer vacation?</td>
<td></td>
</tr>
<tr>
<td>Best place to work</td>
<td>Home/School</td>
</tr>
<tr>
<td>Best time to work</td>
<td>3 morning/7 no specific  time</td>
</tr>
<tr>
<td>Best person to work with</td>
<td>Sister/mother/grandmother/ teacher</td>
</tr>
<tr>
<td>Time span of efficient work</td>
<td>30 minutes average</td>
</tr>
<tr>
<td>Do you find the program easy to execute?</td>
<td>1</td>
</tr>
<tr>
<td>Do you think your child will benefit from the program?</td>
<td>8</td>
</tr>
<tr>
<td>What are some of the difficulties you faced when working with you child on the See and Learn Program?</td>
<td>Stubbornness/jealousy/health problems/difficulty with pronunciation of letters/</td>
</tr>
</tbody>
</table>

The results of the parents’ assessment of the word list were discarded for reasons that will be discussed later.

The first assessment of the word list done by the teachers was performed in December 2012. The results of that assessment showed variations in the abilities of the children to perform the four stages of the program. The students were asked to go through the four stages of the program: Looking at a picture, matching a picture with another similar one, choosing the right picture when asked to and finally naming the picture on the card. Five children were not able to respond or perform in any of the four tasks. The remaining 11 were able to perform all the tasks with varied level of proficiency. In the fourth phase of the first step of the program (naming the picture), the task of naming the word was considered achieved if the child was able to either say the word as a whole or sound out a few letters of the whole word or use a gesture. Even saying a different name was considered correct. Example a **قطة** can be
called بيتسة. All these were considered right since they all tell us that the child is aware and knows the picture. All teachers indicated that at that stage, most of children who learned the nouns, had difficulty with genders and saying the verbs correctly. Accordingly additional instructional material was prepared. Man, woman, boy, girl, were introduced.

The second assessment was conducted in February 2013 with the 16 children being re-assessed twice: once by the teachers and once by myself. The results of both assessments (teachers versus mine) showed slight (but not serious) difference in performance results as can be noted in the graphs below. The results showed that the performance of the five children who were not able to perform the tasks has not changed. The 11 remaining children showed an increase in the acquisition of vocabulary words as well as improvement in articulation and speech. The average outcome was 40 words out of 44 as assessed by the teachers while my assessment yielded 37 out of 44. Action verbs when said were not indicative of the gender of the person performing the action. This was homogeneous in all the children who were assessed.

It is at this stage that the seven children, who showed readiness, were chosen to be the target group for the experiment while the rest remained working as a control group.

In April 2013, the final assessment of the ability to read the printed words, delivered the following results: one child learned 16 noun words (out of the initial 44) as well as 4 verbs with the proper gender and was able to say them without mistakes 90% of the time, a second learned 10 words as well as 4 verbs but without the proper gender, and only 80% of the time; two other children learned to recognize and say 4 words also 80% of the time. Two children did not show significant
improvement. Although informal assessment showed that the seventh child was able
to read four words, yet he was not assessed formally and thus achievement could not
be recorded.

Results of individual, independent, assessments completed by the teachers
and by myself yielded 80% inter-rater reliability. The figures below show the
comparative assessments and the individual results. This was based on simultaneous
observation as well as assessment.

Out of the 16 original participants in the intervention, the 9 children in the
control group, who were seeing the printed words on the wall in their class, did not
show any indication of knowing any of them. There was a slight improvement in
knowing the vocabulary words however.

A summary of the findings is shown in the following figures. The values
indicated are the group average in each case. The individual average scores are not
indicative of the results; it is the gains that have been achieved over a certain period
of time that indicated the success of the experiment.

Figure 4.1 - Participants naming the picture of a noun

![Bar chart showing the performance of participants over time, with categories Dec-12, Jan-13, Feb-13, Mar-13, Apr-13, and indicating teacher assessments and self-assessments.]
Step one of the program focused on naming the picture cards. The first assessment in December of 2012 was done after the children had been following the program since April 2012, but with interruptions as has been indicated in the methodology. The five children, whose individual scores were very low, affected the total average of the control group. The aim however of these assessments were to follow the development and progression rather than the scores at any significant time. In all, the two groups showed improvement on naming the names of the picture cards.

Figure 4.2 - Participants naming the action verb in the picture

Learning to say the action verbs took more time required articulating the letters that designate the gender. This improved with time and when pictures of man, woman, boy, girl were introduced and associated with the action.
None of the participants in the control group was able to read any of the printed words. Five out of the seven children were able to show improvement in different degrees. The discrepancy between my and the teachers assessment is due to the fact that the teachers did a one-time assessment without doing any prior work with the children on the printed word, while my assessment was repeated and the average was recorded.
4.1.1 - Supplementary exercise.

At the end of the targeted experiment, pictures of 40 vocabulary words that were introduced and discussed in the regular teaching units that were used in the classes were shown to the 7 children. The children were asked to identify and name the objects in the pictures in order to assess their vocabulary. The results showed that out of the 40 picture cards, the children’s ability to recognize, identify, and say the names of the objects in the pictures ranged from 12 to 26 with an average of 18 words out of 40 or 45%. Words that the children could not voice out and name but showed knowledge of what they were by pointing to the word when asked, ranged from 4 to 11. The number of words that could not be named or recognized ranged from 5 to 19 with an average of 13.5 or 34% of the words. The same pictures that were used in the class were used in this assessment.
4.2 - Observations

During the experimental stage several notes and observations were recorded that could explain certain outcomes and can become the basis for further research. At the onset of the experiment and from the feedback of the parents and teachers, it was clear that the participating group of children were representative of a typical profile of the development of a child with Down syndrome as per the published literature and studied results. All the children, and without exception, showed delay in speech production, although to varying degrees. Another typical reflection of characteristics of children with Down syndrome was attributed to the fact that all the parents agreed that the children’s speech was not very clear or intelligible. This issue has been the subject of discussion and studies by many researchers (Abbeduto et al. 2007; Aparicio & Balana, 2002; Biederman & Freedman, 2007, Buckley, 1999). It has also been partly attributed to the physical structure of the face bones, the mouth, and tongue. Other factors which may also contribute to this outcome will be discussed further in the analysis.

Other observations that were noted during and after the experiment are the following: In the matching stages, the children showed that they had a visual image of the four picture chart and were able to match the printed word to the corresponding picture if the word was voiced out. They had memorized the placement of each picture. For that, other strategies were used to shuffle the pictures and avoid validity challenges.

Children sometimes, mixed up between the words that had certain similarities in the written form, like the same beginning or end such as: لعبة and طابة. These observations could become guidelines for further research into the phonics program and can be used for phonological awareness. This showed that the children were able
to see the word as a drawing. Later on, this observation was used when teaching verbs and gender and emphasis on the prefix was used.

Students were always encouraged even when they did mistakes. They were always given the chance to check their work and self-correct. This boosted their confidence and made the sessions enjoyable to all.

It was also noted that there was a discrepancy between the assessment done by the parents as opposed to that done by the teachers and myself. As a result, we decided to disregard the parent’s assessment.

For the in class program, the teachers explained that the children are usually exposed to these pictures, they do know what they are but they are rarely asked to reciprocate or talk back or identify these objects and that is why their expressive language skills do not show a lot of development. This can also be a base for future research on receptive skills.

4.4 - Validity issues

The parents’ survey may jeopardize validity sometimes, as a result of loss of objectivity. Personal issues could interfere with data collection and the outcome of the experiment. The survey gave a general idea but it could not be solely used as a reference. For example in the section about health issues only one parent indicated that their child has visual issues, although almost 30% of the children had eyeglasses. One child in the experimental group had an ongoing case of respiratory infection that incurred frequent absences. In the assessment section, a few parents indicated that their child is able to read the printed words. Because of these discrepancies, the second section of the survey (the assessment) was disregarded and the rest of the information was screened carefully. In addition to the teachers’ assessment, the children were carefully observed during the one to one sessions, as well as the play
time, recess and sometimes class time and this helped in learning more about the children and their abilities and behavior patterns.

Although the teachers were given detailed description of the program as well as demonstrations and a written detailed step by step manual, the working sessions were only sometimes controlled by the coordinator of the program. In the second step of the intervention, teaching the printed words, the investigator was the only one to work with the experimental group in one to one sessions. For the control group, the teachers continued to work according to the manual on the first step of the program, while they were instructed to follow the same method of teaching they regularly use in class for the second step of the program, the printed words. This was also only controlled by the coordinator.

The program was carried out in a small room that was the only available room in the building. There was a sandbox in the room which created an incentive for the children to come work in this room; it was also used as a reward.

Occasionally, work was stopped or modified in order to respond to the mood of the children. This ranged from sleepiness to playfulness and over excitement. Two of the children were sometimes reluctant to abide by rules or follow directions. As a result, it became difficult to follow up on their progress. One child, who showed potential but inconsistent progress, was difficult to assess due to increasing lack of cooperation.

Although we asked parents after the first step not to intervene yet it was basically unfeasible to follow up on that. The home environment and the individual intervention the children may go through at their homes was a concern that could have threatened validity. This was remediated by not giving the parents any of the printed words or sharing with them the work that was done in second step.
There was no assessment of the acquired receptive language skills.

It was interesting to note that the results of the assessment of the vocabulary words learned in class showed certain discrepancies in the achievements of two children. One who did not show any remarkable improvement in the See and Learn® intervention program scored the highest results on the assessment of the class program vocabulary words, another who showed remarkable improvement in the See and Learn® program did very poorly on the assessment of the class program vocabulary words.

More of these observations and results will be analyzed and discussed in the final Analysis and Discussion chapter.
CHAPTER FIVE

ANALYSIS, SYNTHESIS AND DISCUSSION

5.1 - Overview

This experiment focused on the learning profile of children who have Down syndrome and showed results that were consistent with previous findings. The results showed that the principles of intervention and the teaching strategies that resulted in positive outcome in the original See and Learn® program done in English and applied on English speaking children (Buckley, 1999, 2013) had also shown a positive and promising outcome when applied on Arabic language and used with Arabic speaking children who have Down syndrome. These initial results can be used to develop the program further in Arabic. The scope of this experiment was limited. It covered the first two steps of the program with emphasis on sight words and beginning sentences. These results, however, were enough to prove the viability of the study and to set the grounds for further research and a promising outcome.

5.2 - Analysis of the results

To the best of our knowledge this is the first time there has been an attempt to adopt, translate, and adapt the See and Learn® program to Arabic. The overall results were very positive and indicative of the universality of the teaching strategies used in this program.

The first step of the experiment targeted learning the vocabulary words of the pictures on the flash cards. All the children had to go through this step. The first challenge was diglossia, where the spoken language is different from the written and formal one, as in Arabic. Ferguson (1959) defines diglossia as:

“a relatively stable language situation in which, in addition to the primary dialects of the language (which may include a standard or regional standards),
there is a very divergent, highly codified (often grammatically more complex) superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community, which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any section of the community for ordinary conversation.” (Ferguson, 1959)

Diglossic framework is a force that could function in the attainment and fluency of reading in Arabic (Saiegh-Haddad, 2005). For example a cat can be a قطة or a بيسة or a هرة. Classical Arabic is viewed as a prototype of the ‘traditional diglossia’ where a sacred language serves as H for an entire civilization (Snow, 2013). The choice of words (قطة or a بيسة or a هرة) proves realized this fact, yet another challenge was the pronunciation of the word which could vary. Although the phonological representation of a written word may be obviously retrieved from its orthographic form (letters and diacritics), this regular orthography represents a complex diglossic context. Examples such as كِتاب could be read as كْتَب or a word such as لِعْبَة could be read as لِعْبِة if the diacritics or the short vowel symbols are not used (Saiegh-Haddad, 2005). To overcome confusion resulting from diglossia, the words used were relatively the same in both spoken and written Arabic. Examples such as bed, chair, bear, book etc. are words that do not change in orthography. However these same words could be pronounced differently without the short vowel symbolism, such as the examples above. When the children were first introduced to the pictures, it was obvious that a lot of them knew the names of the objects in the pictures. Although the majority had difficulty in articulating the words properly, those who were able to articulate or pronounce words properly used the common spoken pronunciation. The teachers and I however continued to emphasize
the more classical form of pronunciation although the words did not have the short vowel symbols, an issue that was a subject for discussion later. In the first assessment and even after the children had been learning the words, many of them would either say a few letters or say a different word or maybe use gestures. However, as the program resumed with structured sessions and increased emphasis on the articulation and pronunciation of the words, the children showed improvement. A few were able to pronounce the words as their instructor said them, with proper articulation of letter sounds and although the small vowels (diacritics) were not placed on the words, the children would say the word with the small vowels as they heard it. The degree of intelligibility and clarity of speech when saying these words increased. The degree of this accomplishment varied from one child to the other. The majority continued to produce the words without much clarity yet they did not stutter or show any hesitation when attempting to name the pictures they were seeing. We observed a conscious effort to follow the phonological pronunciation that the teacher or I used. They were very confident and frequently used gestures to accompany certain words like bed, comb, table, chair, etc. The use of gestures and pointing to objects were also observed and showed consistency and regularity. These were encouraged as the purpose was to give the children the feel that they have the ability to express even if with gestures and if only one word. The main task was divided into smaller steps that would be built upon. The children were never challenged and were given the space and time to practice, with the right support structured routine and repetitive intervention (Bird, Beadman, & Buckley, 2001). The children were able to use their long term and visual memory to learn, retain and reproduce the information presented to them. The majority of the children learned 40 out of the 44 nouns. The children also learned the basic 16 verbs without
pronouncing what discriminates the genders. The verb was pronounced the same whether it was for a male or a female. When in the second step, the printed word of the verb was taught, the little differences in the prefix of the verb helped two children to differentiate the genders. This could be a tool that could be developed for later work on phonics and phonological awareness.

In February 2013, seven children were randomly chosen out of the 12 who showed readiness to work after learning 40 vocabulary words. The same methodology was used to teach the 7 children the printed words. It was noticed that to have effective teaching sessions, the child should come to the session with enthusiasm, be willing to sit in his or her chair as designated for the time allocated, be willing to listen to instructions and apply them as required and be content all the time. One child showed notable progress within the first week; the rest started to show progress as the sessions continued into the second and later weeks. They all realized that the drawings they were looking at are representations of the pictures on the cards. This was also partly due to the fact that when they learned the pictures, they were seeing the printed words on the back of the picture card. They liked to always flip the card to compare the picture with the printed word. This was later used as scaffolding (Yussof & Zaman, 2011), when they were asked to choose the word. They would flip the card to assess themselves and find out if their answer was correct or not. Every session started with a short informal assessment of what had been taught the session before but without any intervention. It was noted that in these first few minutes, some children showed adequate knowledge that was not necessarily reflected at the rest of the time during the session. This reflected the effect of short attention span that may have hindered the retention of the information beyond a certain time period. This usually resulted in a certain behavior pattern such as
restlessness, inability to focus or follow directions that interfered with learning during the session. Children with Down syndrome performed more poorly in a short term memory test than the typically developing children. In addition, when compared with results of studies on other children with Down syndrome with similar mental age, in western countries, their profile appeared worse. This implied that, while shortfalls in verbal short-term memory in Down syndrome may well be universal, it is imperative to know that the culture and educational experiences has an impact on performances that may vary as a consequence (AbdelHameed & Porter, 2010). On the other hand, the routine and continuous repetition of the same pattern of information over a period of time even when the information was acquired had its impact on other children who were able to repeat the information even after an absence of three weeks due to Easter and other vacations (Conners, Rosenquist, Arnett, Moore, & Hume, 2008).

In general, the children showed improvement several aspects related to the program, even if it was not recorded in the learning of the printed words. Two children who had behavior problems at the beginning of the sessions and who were not able to sit and work for more than two minutes showed remarkable improvement in this aspect and were able to continue the sessions till the end. Their knowledge of the printed words was still very preliminary but had we continued with the intervention they would have probably been able to catch up with their peers.

Only one child did not show any improvement, the daily assessments were inconsistent, that child’s behavior pattern did not support learning. The child showed limited attention span, displayed jitteriness and restlessness when working on words. although the names of the pictures were learned. The same behavior pattern was
observed in class. The child did not follow directions and did not conform to class activities.

All the teachers without exception indicated in their reflection on the program that all the children benefited in different ways. Comments indicated that the program had positive effects on their confidence, communication skills (verbal and nonverbal), and their social skills. All the teachers indicated that the program was easy to apply and implement and that it helped them all in different degrees.

5.3 - Synthesis and Comparison with literature

Children with Down syndrome seem to proceed through the same stages as other children in learning to read. They go first through establishing a sight vocabulary or logographic reading and then they later develop the ability to use phonic knowledge to spell and decode words or alphabetic reading. They do however rely more on logographic reading strategies for longer than other children (Bird et al. 2001). The obtained results from this experiment showed that this is true even for Arabic. The children without knowing the letters showed the ability to identify the words. Those who did not say the printed words were able to go through the matching exercise and choosing exersices with little mistakes; this showed that they were comparing the figures and matching them accordingly.

People with Down syndrome have a high and relatively narrow arched palate, enlarged tonsils and adenoids, also a relatively small mouth and jaw area as compared to their tongue (Abbeduto et al. 2007). As a result, the production of intelligible sounds and clear words can be difficult for some children while others are able to overcome this difficulty (Kumin, 2006). This was however, one of the observed traits when working with the children. Some of them, whose speech did not show remarkable improvement as sought, were able with continuous and repetitive
trials on a daily basis to show potential for positive results. Others were even able to sound the words with the short vowels.

Further, the positive results that were achieved at this stage have to do with the choice of words. The words were chosen from settings in the daily life of the children. They were also carefully chosen to sound the same whether they are in formal or spoken Arabic. It is important to begin with the vocabulary the child knows and understands, and with short simple sentence structures (Bird et al., 2001). The combined use of signed and spoken input can boost early language development and establish attention for vocabulary development accentuated through the use of other augmentative and alternative communication systems such as graphic symbol and picture systems (O'Toole & Chiat, 2006).

In the next phase of the experiment many factors played a role in the positive outcome. Children with Down syndrome are basically visual learners. Learning from listening only is difficult (Bird et al. 2001). The children saw the word as an image; they tied it to a picture and sometimes an experience or an event (there was a giant stuffed bear in the room, and every time they saw the word bear (دب) they would look at it or go and pat its head). A child should be able to know and understand the words, the grammar and the sentence structure used in a text in order to be able to read with understanding (Roch & Levorato, 2009; Morgan et al., 2004). In line with previous findings in other languages, the children demonstrated relative strengths in word identification skills. The strong performance on this measure of reading compared to other areas of knowledge likely reflects strengths in visual memory skills, as well as educational experiences related to literacy instruction (Boudreau, 2002).
In Arabic, words are made up of a combination of consonants and long vowel sounds, short vowel sounds are not always represented in writing. It should also be noted that when learning the words, the children repeated the pronunciation they heard even without the short vowels. This may not have been essential at this stage in learning, however there has been some discussion as to the necessity to put the short vowels on the words in order to make these signs familiar to the child and accordingly simplify the process when moving to decoding and phonics.

When matching a set of four words flash cards with a chart that had the four pictures or words on it, the children and at the very early stages would match the words with the chart when the word is pronounced. We realized later that they memorized the place of the pictures on the chart. Again we notice that the repetition and routine consistent work helped support their memory as perceived in the study done by Chapman et al (2006) . The children created a visual image of the chart they were working on with accurate knowledge of the position of these pictures on this chart. This phenomenon was used at the beginning as scaffolding which is another important tool to be used to enhance learning (Yussof & Zaman, 2011). Eventually the children were asked to do the matching in a more challenging way.

Factors that also affected the overall results were manifested in having effective working sessions (AbdelHameed & Porter, 2010). The child should show willingness to come to the session. The child is willing to abide by the rules of work and listen to instructions and implement what is required. Most of the time, these conditions were achieved. When a child showed reluctance to work a time out period was used and a change of mood. Children with Down syndrome are known to have difficulty in motivation and persistence. Although persistence appears to be an individual characteristic, yet early mastery motivation is significant for later
achievement and has important implications for the focus of early interventions, an area worth of significant future research (Gilmore & Cuskelly, 2009). The children love the challenge and the feel of accomplishment something (Bird et al., 2001). They loved the motivation that was taking place by using smiling faces and a lot of cheering and clapping. They were never reprimanded for mistakes; they were always corrected in a subtle way. The investigator also found a way to have them assess their own performance. As we were working, they all seemed very enthusiastic about the working sessions. In a couple of cases, however, two children were not following the instructions. This behavior had a negative impact on their accomplishment.

Individuals with Down syndrome face delay in pragmatics, yet they are able to at least partly overcome their limited expressive language skills so as to be able to convey complex content (Abbeduto et al., 2007). One of the participants who was known for being shy and rarely displaying expressive communication skills was observed to have developed expressive skills albeit non verbally. This child would volunteer to do tasks in the class, and would be the first to stand ready to go to the working sessions, sometimes trying to get more than one session a day. This participant was able to achieve a reading level of 12 words pronounced with adequate clarity.

It was obvious that all the children could do very well on Arabic word recognition, an observation that has been established in many studies in English (Abbeduto et al., 2007; Buckley, 2013)

Collaborating during work, listening to directions, understanding and applying these directions as instructed demanded also motivation, support and the right scaffolding in order to achieve the sought result. Modeling instructions helped
in clarifying the tasks involved and thus frustrations were avoided (Lemons & Fuchs, 2010, Biederman & Freedman, 2007).

5.4 - Discussion and Recommendations

Teaching reading to children with Down syndrome has been a subject of controversy for many years, let alone teaching reading in Arabic. The goal of this study was to prove that first of all Arabic is a language that can be taught to children with Down syndrome; and second, that teaching reading can improve the communication skills and language development of these children. The results of this experiment and our observations showed that strategies and principles implemented in the See and Learn® program or other similar programs can help accomplish this goal and respond to the children’s needs.

The principles of this program and the teaching strategies proved to be effective in the early stages of sight word reading in Arabic. This can be further developed to conform to the characteristics of Arabic language.

First, although the word list was carefully chosen from the same list of the original See and Learn® program, the choice of words could be further modified to conform better to the local environment.

The choice of words can also reflect traits in Arabic orthography and phonology to be friendlier, such as avoiding graphic similarities that may cause confusion in the early stages. Words like دب and كتاب were sometimes mixed up. Also words that have pronunciation difficulties should be avoided as well. Choices at the beginning should be restricted to one and two syllable words.

The pictures played a big role in creating a visual image of the word being taught, however these also need to be clear representatives of what is being taught to
avoid confusion. A child reading a book may be mistaken for either a child or a book
and although this cannot be avoided but with technical intervention, the emphasis can
be placed on the book.

At a more advanced stage in the program, words like مشط and مفتاح can be
used to introduce the concept of letter sounds. This was tried with the only
participant who was able to read 16 words by the end of the experiment. The child
responded by imitating the movement of my mouth as I emphasized the first letters
in the words and was at the same time pointing to the letter in the words. This could
be further developed in later experiments. First sounds could also be used for phonics
and phonemic awareness if the first letter is colored and the sounding is emphasized
for example. Using different colors may be helpful here.

Motivation and persistence were key factors behind the program success. To
sustain that, additional activities were sometimes used within the framework of the
program as the experiment was progressing, even though the basic guidelines of
instructional strategies were strictly adhered to. To avoid discrepancies, additional
activities or methodology used at any time, was applied consistently on all
participants. This was done to continue to motivate the participants and avoid a
routine that may bore them; different strategies were sometimes used in accordance
with the individual needs of the children as well. The teaching was done in the form
of a game. Sometimes and although the program called for introducing four words at
a time, with some children further division into smaller steps was required and it
was better to work two words out of the four, at a time. It was critical to examine the
memory capacity of the children and work within its boundaries.

During the course of the experiment, an authority in Arabic language
teaching and an author of Arabic teaching books indicated that the short vowels
should be added to have the childaccustomed to using them and to facilitate reading in the future (Abu-Rabia, 2001, 2012)

Choosing the right time is also very critical to ensure the full participation of the children. In addition, the needs to secure certain prerequisite skills that could affect the teaching outcome should be secured such as behavior patterns, elimination of distraction, ensuring concentration for an appropriate period of time.

5.5 - Limitations

There were a few limitations that did not affect the validity but hindered the results. The original program is supposed to be implemented in two 15 minutes sessions every day. The original idea was to have parents involved to work on one of the sessions, but since neither I nor the teachers could control the quality or quantity of work done by the parents, it was seen best not to involve them. This eventually decreased the number of sessions. In the second phase, that of teaching the printed word, the investigator alone worked with the children. IDAD is located in Mishrif, which is about 20 kilometers outside of Beirut. Going there was only taking place at an average of four times a week and for one session for every child per day. During the three months, Easter vacation closed the center for two weeks, followed by a preplanned travel for ten days which meant that the program was stopped for more than three weeks. This, however, can only underscore the strength of the program as witnessed in the positive and encouraging results. Other limitations had to do with some personal issues for some of the children that could be related to health, like hearing or visual problems, or attitude problems, like behavior or low attention span. Production of material was also a difficult task and time consuming. All the pictures had to be real life pictures since children with Down syndrome have difficulty with
abstract notions. We had to do a lot of colored copies, the degree of clarity of which varied and may have created some confusion.

In spite of all the challenges, limitations and all the drawbacks that happened along the way, this study, and within a relatively short time period, showed without a doubt that Arabic is a language that children with Down syndrome can learn to communicate with, they can learn to read it at a very early age when given the right intervention. The See and Learn® program when adapted to Arabic, is recommended for children as early as six months of age. This will set a base for many skills that will help the child develop abilities that will enhance the learning journey. The value of this program does not lie in just teaching reading but in developing accompanying skills such as concentration, following directions, exercises for long and short memory, and a motivation to learn.

This can be just the beginning of a lot of advances that can be the topics of further research in the future and in the world of developing communication skills and language for children who have Down syndrome and living in the Arab world.
REFERENCES


APPENDICES

Appendix Ia

Letter of Invitation

Dear All,

I am writing to extend an invitation for participation in an American-funded literacy program for children aged between three to five years. This program aims to enhance the reading skills of children in the Kingdom of Saudi Arabia, and I believe that you have the necessary qualifications to participate in this initiative.

The program is designed to provide support and guidance to parents in teaching their children to read. It is a comprehensive program that covers all aspects of early childhood education, including literacy, mathematics, and social skills.

I would like to inform you that the program is free of charge, and it will be conducted in the Kingdom of Saudi Arabia. The duration of the program is one year, and it is scheduled to start in September 2023.

I am looking forward to hearing from you soon. Please do not hesitate to contact me if you have any questions or concerns.

Best regards,

Hana.Boukhadra@gmail.com

Keywords: Phone number, Email address, Contact information.
Appendix 1b

Contract with families

To the families,

With regard to the work of the program to teach reading in the Arabic language to children, there were 21 sessions, and as you know, this program was conducted at the University of the United States and the children participated in it. The program was conducted in Arabic and the children were taught by a teacher.

Also, this program was conducted in Arabic and the children were taught by a teacher.

In this regard, I would like to thank all of you for your participation in this program and I hope that this program will continue in the future.

Hana abukhadra@gmail.com
Ldsa.lb@gmail.com
Unpublished: 03841995

I sign the approval of the program in this regard.

Signature

Date

The contract is valid for the respective contract and the family.

H. Abukhadra

The contract is valid for the respective contract and the family.

Signature

Date
Appendix II
Family Questionnaire

حضرته الأهل الكريم

الرجاء تعبئة هذه الاستمارة بثبات قدر من الدقة.

1. نمو وظائف أطفالكم/أعمالكم

اسم الطفل/الفرقة

الجنس: ♂ ذكور ⬤ ♂ ننًا ⬤ تاريخ الولادة

الكلام ⬤ الصور والرسوم ⬤ لجنة التراث ⬤ لجنة الفن ⬤ تجهيز تقني متعدد ⬤ غيره

بدا باللغة/الكلام باللغة: ⬤ 18 شهرا ⬤ 24 شهرا ⬤ 30 شهرا ⬤ 36 شهرا ⬤ 42 شهرا ⬤ 48 شهرا ⬤ 54 شهرا ⬤ 60 شهرا.

على الميزان من 1 إلى 10 قيم قدرة طفلك/طفلتك على التكلم بطريقة مفهومة وواضحة.

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الرجاء وضع علامة على الإجابة الصحيحة.

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Appendix III

Student evaluation form

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<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>75</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>65</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>E</td>
<td>55</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
</tr>
</tbody>
</table>

*Note: ID numbers represent student identification, while grades range from A (highest) to E (lowest).*
Appendix IV

Teachers’ reflections

“SEE & LEARN” IN ARABIC, AN EARLY INTERVENTION PROGRAM TO TEACH LANGUAGE & READING TO CHILDREN WITH DOWN SYNDROME

Questionnaire for teachers:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes □</th>
<th>No □</th>
</tr>
</thead>
<tbody>
<tr>
<td>هل كان لديك فكرة عن برنامج SEE &amp; LEARN للتنمية مهارات التواصل والقراءة لمغزومه داون؟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>هل شاركت بالعرض للبرنامج الذي جرى في نيسان 2012؟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>هل كان هذا الحضور وأهداف البرنامج واضحين؟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>هل كان المرض كافيا للتحريف على البرنامج وطريقة العمل؟</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

إذا لا، الرجاء شرح الأسباب:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes □</th>
<th>No □</th>
</tr>
</thead>
<tbody>
<tr>
<td>هل طلبت على الدليل المراقب للبرنامج والذي يحدد طريقة العمل؟</td>
<td></td>
<td></td>
</tr>
<tr>
<td>هل كانت الإرشادات وطريقة العمل واضحة و كافية؟</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

إذا لا، الرجاء شرح الأسباب:

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes □</th>
<th>No □</th>
</tr>
</thead>
<tbody>
<tr>
<td>هل استطعت أن تطبق طريقة العمل كما هي موجودة بالدليل؟</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

إذا لا، الرجاء شرح الأسباب:

ما هو عدد الأولاد الذين قمت بالعمل معهم؟
المستند الأولي: التعرف على المفردات

متى بدأت لأول مرة؟

حدد الفترة الزمنية التي عملت بها على البرنامج في المرحلة الأولى (إذا كان هناك انتظام عن العمل بسبب العطل أو ظروف أخرى)

من______________________________ إلى______________________________

بسبب

من______________________________ إلى______________________________

بسبب

من______________________________ إلى______________________________

بسبب

كم عدد المفردات التي تم العمل عليها؟

Storyboard. هل تمكن الطلاب من التفاعل مع جميع الخطوات المطلوبة؟

Storyboard. هل كان هناك إرادة واضحة للالتزام من هذا البرنامج؟

الرجاء التوضيح:
هل كان هناك فائدة للمهارات التالية:
- التفكير والذبابة
- التعرف على الأشكال المماثلة أو المتشابهة
- إتباع الإرشادات والتعليمات
- التواصل التف⁡ع⁡ل

هل كان العمل يوميا؟

ما هي الأوقات (أو الساعة) المفضلة للعمل على البرنامج؟

ما هو معدل زمن العمل الإجمالي لكل تلميذ؟

ما هو معدل وقت العمل الفعلي؟

هل تستطيع تحديد نقاط القوة لهذا البرنامج؟

ما هي؟

هل تستطيع تحديد نقاط الضعف؟

ما هي؟

ما هي التحديثات المفترضة التي قد تحسن من فعالية هذا البرنامج ونتيجه؟

هل لديك ملاحظات أخرى؟
برنامج القراءة "أنظر وتعلم" للأطفال ذوي تثليث الصبغية 21 أو متلازمة داون

المواد المطلوبة لتنفيذ البرنامج:

مجموع عدد الكلمات: 76 مقسمة كالتالي:

44 اسم مع صور، 16 فعل مع صور، 16 كلمة (افعال واحرف جر) بدون صور

البطاقات:

الصور: 
- 44 اسم
- 16 فعل

الكلمات: 
- 76 كلمة

اللوحات: 
- 19 لوحة

الاستمارات:

للأهل:
- العقد مع الأهل
- التقويم الأول للأهل
- صفحة تسجيل التقدم بالعمل والإنجاز

للأساتذة:
- استمارة التقويم للمراحل الثلاثة: عند البدء، خلال، لدى الانتهاء من العمل
- صفحة تسجيل التقدم بالعمل والإنجاز

دليل العمل ويحتوي:

القسم الأول: كيفية التقييم
القسم الثاني: كيفية العمل
القسم الأول - قبل البدء بالبرنامج

التقييم العام:

التقويم العام:
• تحديد مستوى المعرفة لكل طفل بما يتعلق بالتعرف على مفردات الصور وقراءة اسماءهم

المواد المستخدمة:
• جدول بالمفردات المطلوب تعلمها
• صور المفردات
• الكلمات التي تدل على المفردات

الطريقة:

المرحلة الأولى: التعرف على مفردات الصور

النشاط الأول: النظر
• تعطى بطاقة للطفل و يطلب منه النظر اليها.
  • يعتبر ناجزاً إذا أخذ الطفل البطاقة ونظر إليها لفترة قصيرة
  • يكرر هذا التمرين لأول اربع بطاقات وتسجل النتيجة.
  • إذا أجزى الطفل هذا العمل ننتقل للنشاط التالي وإذا لم ينجره ننتقل للمجموعة اللاحقة

النشاط الثاني: المطابقة
• توضع بطاقات المجموعة الأولى الاربع أمام الطفل
  • يعتبر ناجزاً إذا أخذ الطفل البطاقة ووضعها فوق البطاقة المماثلة
  • يكرر هذا التمرين لأول اربع بطاقات وتسجل النتيجة.
  • إذا أجزى الطفل هذا العمل ننتقل للنشاط التالي وإذا لم ينجره نعود للنشاط الأول مع مجموعة جيدة.

النشاط الثالث: الاختيار
• يذكر اسم احدى البطاقات ويطلب من الطفل ان يدل عليها. (أين......؟، اعطني......)
  • يعتبر ناجزاً إذا اختار الطفل البطاقة الصحيحة
  • يكرر هذا التمرين لأول اربع بطاقات وتسجل النتيجة.
  • إذا أجزى الطفل هذا العمل ننتقل للنشاط التالي وإذا لم ينجره نعود للنشاط الأول مع مجموعة جيدة.

النشاط الرابع: التسمية
• يشار إلى إحدى البطاقات ويطلب من الطفل أن يسميها. (ما هذا؟ ما هذه؟)
  • يعتبر ناجزاً إذا أعطي الطفل التسمية الصحيحة
يكرر هذا التمرين لأول اربع بطاقات وتسلج النتيجة:

- إذا انجز الطفل هذا العمل أو لم ينجزه ننتقل للنشاط الأول مع مجموعة جديدة.

المرحلة الثانية: قراءة مفردات الصور

النشاط الأول: المطابقة

- توضع بطاقات المجموعة الأولى الأربع أمام الطفل وتوضع الكلمة المناسبة تحت كل صورة

- يعطى الطفل أول بطاقة لكلمة ويطلب منه وضعها فوق البداقة المماثلة

يُعتبر ناجزا إذا أخذ الطفل البطاقة ووضعها على الصورة المطابقة

يكرر هذا التمرين لأول اربع بطاقات وتسلج النتيجة:

- إذا انجز الطفل هذا العمل ننتقل للنشاط التالي وإذا لم ينجزه نعود للنشاط الأول مع مجموعة جديدة.

النشاط الثاني: الاختيار

- توضع بطاقات المجموعة الأولى الأربع أمام الطفل

- يذكر اسم إحدى البطاقات ويطلب من الطفل أن يدل عليها (أين.....؟، اعطني.....)

يُعتبر ناجزا إذا اختار الطفل البطاقة الصحيحة

يكرر هذا التمرين لأول اربع بطاقات وتسلج النتيجة:

- إذا انجز الطفل هذا العمل ننتقل للنشاط التالي وإذا لم ينجزه نعود للنشاط الأول مع مجموعة جديدة.

النشاط الثالث: التسمية

- توضع بطاقات المجموعة الأولى الأربع أمام الطفل

- يشار إلى إحدى البطاقات ويطلب من الطفل أن يسميها (ما هذا؟ ما هذه؟)

يُعتبر ناجزا إذا أعطي الطفل التسمية الصحيحة

يكرر هذا التمرين لأول اربع بطاقات وتسلج النتيجة:

- إذا انجز الطفل هذا العمل أو لم ينجزه ننتقل للنشاط الأول مع مجموعة جديدة.
القسم الثاني - برنامج العمل

المرحلة الأولى

- البدء بتعليم الأولاد صور لـ 60 كلمة من الكلمات الشائعة والمعروفة جيدا لدى الطفل

النشاطات:

- النظر إلى الصور
- مطابقة الصور
- اختيار الصور
- تسمية الصور

الرجاء الإلتزام قدر الإمكان بالتعليمات المرافقة.

يمكنكم استعمال كلمات مرادفة محاكية أو معروفة ولكن المهم الإلتزام بالمتابعة وبالكلمة المختارة.

لكم حرية التنوع والتفكير بالعبات جديبة و طرق مختلفة للتطبيق إنما يجب الإلتزام بالمبدأ والمنهج.

الرجاء الالتزام بالمتابعة معنا ومشاركتنا بكل ملاحظاتكم.

شكراً
النشاط الأول: النظر إلى الصور

الهدف:
- إنشاء نمط عمل يعتاد الطفل عليه
- تعريف الطفل على جميع الصور على البطاقات
- ربط الكلمة بالصورة التي يراها على البطاقة

المواضيع المستخدمة:
- مجموعة من أربع بطاقات

المواد المستخدمة:
- علبة، صندوق صغير، ظرف، كيس أو أي شيء لوضع البطاقات به

الطريقة:
ضع البطاقات الأربع أمام الطفل، الصورة إلى الأسفل (الصور مخبأة)
- أقلب إحدى الصور وأطلب من الطفل أن ينظر إليها وقل: انظر
- قل الكلمة التي تصف الصورة أو استعمل لغة الإشارة
- تأكد أن الطفل ينظر إلى الصورة
- ضع الصورة في كيس أو علبة وقل للطفل أن الصورة غير موجودة (ما في صورة)
- قل للطفل أن هناك بعد وكرر الخطوات السابقة

ulers_one_completed:
- الرجاء الإنتهاء من الصور الأربع أخير الطفل أن اللعبة انتهت. خنص
- تركز على الكلمات التالية: انظر، يوجد بعد، لا يوجد، انتهى، جيد

نشاطات مواكبة في المنزل:
- النظر إلى صور مماثلة في الكتب وإعادة لفظ الكلمات
- استعمال الكلمات خلال اليوم وفي النشاطات العادية
- استخدام الكلمات وربطها مع الألعاب والمواد المختلفة في البيت وتمثيل بعض الأفعال من خلال الألعاب مثل أكل شرب الخ
- استعمل مخيلتك كما تريد لتخلق العاب مختلفة تستعمل فيها هذه الكلمات

التقويم والمتابعة:
- سجل التاريخ الذي تحقق فيه الهدف على الجدول المرافق
- عند تحقيق الهدف للفئات الأربع يمكنك الانتقال بهذه المجموعة إلى النشاط التالي أي المطابقة، كما يمكنك بنفس الوقت البدء بالمجموعة التالية من الكلمات بالنشاط الأول.

النشاط الثاني: مطابقة الكلمات
الهدف:

- العمل على التركيز، النظر، والتفكير
- استمرار العمل على ربط الكلمة المسموعة بالصورة

المواد المستخدمة:

- لوحة لأربع صور
- البطاقات الأربع المناسبة
- كيس صغير

الطريقة

- ضع البطاقات الأربع في الكيس
- ضع لوحة الكلمات أمام الطفل
- أظهر الصورة الأولى وألفظ الاسم وتتأكد أن الطفل ينظر إلى الصورة وقل:
  انظر...
- شجع الطفل ليضع الصورة على الصورة المطابقة على اللوحة وقدم الدعم المطلوب عند الحاجة. (استخدم: أي، على)

كرر الخطوات السابقة مع الكثير من الثناء وقل: جيد.

- عند وضع جميع الصور قل: انتهينا.

النشاطات المواكبة

- حاول أن تلعب مع الطفل العاب مشابهة فيها تطابق من خلال الصور، أو الأغراض والمواد المستعملة في البيت.

التقويم والمتابعة:

- سجل التاريخ الذي تحقق فيه الهدف بدون أي مساعدة على الجدول المرفق.
- تابع العمل على نشاط المطابقة مع المجموعات الأخرى حتى تتأكد من تحقيق الهدف بدون مساعدة.
- عند تحقيق الهدف للكلمات الأربع يمكنك التوجه إلى النشاط التالي أي الاختيار، كما يمكنك بنفس الوقت البدء بالمجموعة التالية من الكلمات.

النشاط الثالث: الاختيار

الهدف

- ادراك مفهوم ومعنى الكلمة المسموعة.
تحديد الكلمات التي يعرف معناها

المواد المستعملة:
- مجموعة من أربع صور
- صندوق صغير
- كيس صغير

الطريقة:
ضع البطاقات الأربع في الكيس الصغير
- أخرج إحدى البطاقات من الكيس وقل الاسم ثم ضعها على الطاولة أمام الطفل واطلب منه الانتظار حتى تنتهي. قل: انتظر
- أخرج باقي البطاقات واحدة وراء الأخرى وكرر الخطوات

إسأل الطفل: أين .......؟ (الفظ الكلمة المتابعة للصورة التي تسأل عنها)

ساعد الطفل على إيجاد البطاقة ووضعها في العلبة. قل: في الداخل
- كرر الخطوات لجميع البطاقات حتى الانتهاء. قل: انظر في الكيس، انتهي

النشاطات المواكبة
- في الحياة اليومية حاول أن تسأل طفلك عن الأشياء المختلفة في البيت واطلب منه أن يدل عليها
- ساهم بتنفيذ هذا التمرين خلال النشاطات الروتينية في المنزل مثل على طاولة الطعام: أين الصحن، أين الملعقة وغيرها
- حاول أن تقوم بالألعاب مسلية تدور حول اختيار مثل ضع الصور على الأرض وطلب من طفلك أن يقفز فوق صورة الكلمة التي ذكرتها

التقويم والمتابعة:
- سجل التاريخ الذي تحقق فيه الهدف بدون أي مساعدة على الجدول المرفق
- تابع العمل على نشاط المطابقة مع المجموعات الأخرى حتى تتأكد من تحقيق الهدف بدون مساعدة
- عند تحقيق الهدف للكلمات الأربع يمكنك الإنتقال بهذه المجموعة إلى النشاط التالي أي التسمية.

النشاط الرابع: التسمية

الهدف:
- يتعلم الطفل استخدام الكلمة ولفظها قدر الإمكان

المواد المستعملة:
مجموعة من أربع بطاقات

علبة

كيس قماش

الطريقة:

- ضع البطاقات الأربع في الكيس
- أخرج إحدى البطاقات من الكيس وقل الاسم ثم ضعها على الطاولة أمام الطفل
- واطلب منه الانتظار حتى تنتهي.
- أخرج بطاقة أخرى من الكيس وكرر العملية.
- اطلب من الطفل أن يختار بطاقة من البطاقتين. قل مثلا: هل تريد الفرشاة أو الكباية؟
- إنتظر قليلا حتى يبتسم على البطاقة التي يريد أو يلفظ اسمها.
- ساعد الطفل كي يبتسم على البطاقة. تردى الفرشاة؟ ها هي الفرشاة؟ خذ الفرشاة.
- إنتظر حتى يحاول أن يبتسم على الاسم بعدك.
- بعد ذلك ضع الطفل البطاقة في الصندوق. ضعها في الصندوق، انتهى.
- كرر العملية مع بطاقة أخرى.
- عند الإنتهاء دع الطفل يرى أن الكيس أصبح فارغا.

النشاطات المواكبة:

- حاول أن تكرر الطريقة في الحياة اليومية مستخدما الأدوات المتاحة. الفظ الكلمات أمام طفلك واستعملهم بجمل قصيرة ومفيدة مثل: اشرب الحليب، امشط شعر، يا بابا، يا ماما نائمة الخ.
- كرر الكلمات قدر الإمكان وشجع الطفل على تكرار الكلمة ولفظ الكلمة بقدر استطاعته.
- حاول أن تخلق العابا مسلية تستخدم فيها هذه الكلمات بطرق مختلفة.

التقويم والمتابعة:

- سجل التاريخ الذي تحقق فيه الهدف بدون أي مساعدة على الجدول المرفق.
- تتابع عمل على نشاط التسمية مع المجموعات الأخرى حتى تتأكد من تحقيق الهدف بدون مساعدة.
- عند تحقيق الهدف لجميع الكلمات يمكنك الانتقال إلى المرحلة التالية أي تعلم الكلمات وقراءتها.
المراحل الثانية:

- البدء بتعليم الأولاد قراءة الكلمات لصور 60 كلمة من الكلمات الشائعة والمعروفة جيدا لدى الطفل

النشاطات:

- مطابقة الكلمات والصور
- اختيار الكلمات
- تسمية الكلمات

الرجاء الإلتزام قدر الإمكان بالتعليمات المرافقة

يمكنكم استعمال كلمات مرادفة محكية أو معروفة ولكن المهم الإلتزام بالمتابعة وبالكلمة المختارة. لكم حرية التنوع والتفكير بالعباء الجديدة وطرق مختلفة للتطبيق إنما يجب الإلتزام بالمبدأ والمنهج.

الرجاء التماسكم بال_air ومشاركتنا بكل ملاحظاتكم.

شكراً
النشاط الأول: مطابقة الكلمات

الهدف:
- تحضير الطفل للكلمة المكتوبة
- ربط الكلمة المسموعة بالصورة وبالكلمة المكتوبة

المواد المستخدمة:
- لوحة لأربع صور
- لوحة لأربع كلمات
- البطاقات المصورات الأربعة المناسبة
- البطاقات المكتوبة الأربعة المناسبة
- كيس صغير

الطريقة
- ضع البطاقات الأربعة في الكيس
- ضع لوحة صور الكلمات أمام الطفل
- أظهر الصورة الأولى وألفظ الاسم وتأكد أن الطفل ينظر إلى الصورة وقل إنظر المطلوب عند الحاجة. (استخدم: أين، على)
- إقلب الصورة وتظهر الكلمة وقليها
- كرر الخطوات السابقة مع الكثير من الثناء وقل: جيد
- عند قلب كل الصور أعد نشاط المطابقة ولكن هذه المرة باستعمال الكلمة المكتوبة
- أظهر الكلمة الأولى وقل انظر هذه الكلمة تقول:.....
- شجع الطفل ليضع الكلمة على الكلمة المطابقة على اللوحة
- كرر الخطوات السابقة مع الكثير من الثناء وقل: جيد
- عند وضع جميع الكلمات قل: إنتهينا
- أعد هذا التمرين كلما استطعت

النشاطات المواكبة
كرر تمرين المطابقة بعدة أشكال مثل مطابقة الكلمة مع الصورة أو الصورة مع الكلمة أو الكلمة مع الصورة كما يمكنك وضع الصورة والكلمة تحتها ومطابقة الكلمة مع الكلمة.

التقويم والمتابعة:
- تتابع العمل على نشاط المطابقة بكل أشكاله وباستعمال الكلمات الأربع الأول فقط حتى تتأكد أن طفلك يقوم بهذا العمل تكرارا ودون مساعدة.
- سجل التاريخ الذي تحقق فيه الهدف بدون أي مساعدة على الجدول المرفق.
- لا تبدأ بالعمل على مجموعات أخرى قبل إنجاز نشاط الاختيار والتسمية للأربع كلمات الأول.
- عند تحقيق الهدف للكلمات الأربع يمكنك الإنتقال بهذه المجموعة إلى النشاط التالي أي الاختيار.

النشاط الثاني: الاختيار

الهدف:
- ادراك مفهوم ومعنى الكلمة المكتوبة
- تحديد الكلمات التي يعرفها ومعناها

المواد المستعملة
- مجموعة من أربع صور
- مجموعة من الأربع كلمات المطابقة

الطريقة:
- أخرج جميع البطاقات الأربعة من الكيس الصغير واعطوه الفظ الكلمة التي تسأل عنها.
- أخرج بطاقتي صور من الكيس أرها لطفلك وقل الاسم ثم اقلب الصورة وضعها على الطاولة أمام الطفل واقرأ الكلمة المكتوبة على الوجه الآخر.
- أخرج باقي البطاقات واحدة وراء الأخرى وكرر الخطوات.
- أسأل الطفل: أين .......؟ (الفظ الكلمة التي تسأل عنها).
- صعد الطفل على إيجاد البطاقة ثم أقلبها وانظر إلى الصورة وردد الكلمة.
- كرر الخطوات لجميع البطاقات عدة مرات وواظب على إعطاء المساعدة الضرورية والتشجيع المستمر.

النشاطات المواكبة
في الحياة اليومية حاول أن تسأل طفلك عن الأشياء المختلفة في البيت واطلب منه أن يدلك عليها

- ضع أسماء المفردات المختلفة التي درسها طفلك في أماكنها الطبيعية في المنزل وكرر قراءة الكلمات مع طفلك دائماً.

- حاول أن تقوم بالألعاب مسلية تدور حول الاختيار مثل ضع الصور على الأرض واطلب من طفلك أن يقفز فوق صورة الكلمة التي ذكرتها.

التقويم والمتتابعة:

- سجل التاريخ الذي تحقق فيه الهدف بدون أي مساعدة على الجدول المرفق.
- تابع العمل على نشاط الاختيار مع المجموعات الأخرى حتى تتأكد من تحقيق الهدف بدون مساعدة.
- عند تحقيق الهدف للكلمات الأربع يمكنك الانتقال بهذه المجموعة إلى النشاط التالي أي التسمية.

النشاط الثالث: التسمية

الهدف:

- يتعلم الطفل قراءة الكلمة ولفظها قدر الإمكان.
- يبدأ بقراءة كلمات لاستعمالها في جمل مفيدة.

المواد المستعملة:

- مجموعة بطاقات من أربع كلمات مكتوبة.
- علبة.
- كيس قماش.

الطريقة:

- ضع البطاقات الأربع أمام الطفل وقلبها لجهة الكلمة المكتوبة.
- استمر بهذا التمرين وكرره مع البطاقات الأخرى حتى يتعلم الطفل قراءتهم.
- أسعد الطفل كي يلفظ الاسم المكتوب على البطاقة. تريد الفرشاة؟ ها هي الفرشاة؟ إنتظر حتى يحاول أن يلفظ الإسم بعدك.

النشاطات المواكبة:
حاول أن تكرر الظاهرة في الحياة اليومية مستخدمًا الأدوات المتاحة. الفظ الكلمات أمام طفلك واستعملهم بجمل قصيرة ومفيدة مثل: اشرب الحليب، امشط شعرك، بابا أكل، ماما نائمة الخ.

كرر الكلمات قدر الإمكان وشجع الطفل على تقليدك ولفظ الكلمة بقدر استطاعته.

حاول أن تخلق العابا مسلية تستخدم فيها هذه الكلمات بطرق مختلفة.

التقويم والتبعة:

- سجل التاريخ الذي تحقق فيه الهدف بدون أي مساعدة على الجدول المرفق.
- تابع العمل مع المجموعة الأولى لكل المرحلة.
- إبدأ بالمجموعة التالية عندما تتأكد أن الكلمات أصبحت مقروءة.
- إدخال مجموعة جديدة وكرر النشاطات الثلاثة مع المجموعات السابقة المتقدمة وكرر التمارين.
- تابع العمل على نشاط التسمية مع المجموعات الأخرى حتى تتأكد من تحقيق الهدف بدون مساعدة.
- عند تحقيق الهدف لجميع الكلمات يمكنك الإنتقال إلى المرحلة التالية أي بدأ استعمال الجمل.