

# Impact of early intervention on the development of semantic memory in a sample of mentally handicapped children of a mild degree

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Published: 09/2023

## Abstract:

Early detection and intervention is one of the basic tasks that are relied upon in various fields, including the orthophonia, because of their role in developing the various skills and processes needed by the examinee in order to be able to get rid of the disorder or reduce its severity.

The current study aimed to find out the effect of early intervention on the development of semantic memory among a sample of mentally retarded children (mild degree) benefiting from early intervention and not benefiting from early intervention, the sample consisted of 06 cases divided into two groups, 03 cases benefiting from early intervention, and 03 cases not benefiting from early intervention, They study in special sections of the primary schools Mustafa Bin Boulaid and Mohamed Bin Yamina in the Blida State (Algeria).The study used the comparative descriptive approach based on a case study, and applied the Columbia test of Burgemeister, & al 1972 to verify the degree of disability, and the semantic memory test of Abdelaziz, S (2011). The results of the study found that: early intervention has an impact on the activity of semantic memory in mentally handicapped children with mild disability benefiting from early intervention, and that there are differences between mentally handicapped children with mild disabilities who benefit from early intervention and non-beneficiaries of early intervention.

**Keywords:** early intervention, semantic memory, disability, mental disability.

Tob Regul Sci. <sup>™</sup> 2023;9(1): 4635 - 4655

DOI: doi.org/10.18001/TRS.9.1.324

## 1- Introduction:

Childhood is a very important stage in an individual's life, where all information and knowledge grows and accumulates through interaction with the components of the environment and through different experiences gained. Any malfunction or injury that occurs at this stage at the level of the brain leaves disorders or disabilities. Intellectual disability is one of these injuries that the child may be born with, and it occurs during the formation of the fetus as the child grows deficient or incomplete mental abilities and potential, and it can also occur during the first stages of the child's life.

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Intellectual disability is a decrease in the level of intelligence ranging from simple to severe with a disorder in mental processes such as attention, concentration, memory and/or perception, social maladaptation and lack of complete independence in the person with intellectual disability of any kind.

Mentally handicapped children suffer from several health and language disorders and problems compared to normal children, so they need to ensure adapted and targeted through diagnosis and early intervention, and they are affected by the activity of cognitive processes such as memory, which means the human ability to actively and effectively cognitively recall experiences and information that they have previously learned and stored for a certain period of time.

Where the researcher (Tulving 1985) proved the existence of two types of memory, long-term memory that stores information for the individual and semantic memory that represents the ability to understand and absorb information and knowledge in general, which is responsible for linking the signifier to the signified, and this cognitive process is affected by the degree of intelligence in the child.

In this research paper, we selected a sample of children who are pursuing their studies in the special sections of the schools of the wilaya of Blida. Based on a comparison between beneficiaries of early intervention and non-beneficiaries of early intervention, using the Columbia Burgemeister, blum & lorge test of mental maturity to measure the degree of disability, and the test of "semantic memory" Abdelaziz, S (2011).

### 2- **Problematic:**

The human being grows according to gradual and sequential stages in the ladder of normal growth, the child's body grows and increases in height, weight and strength, and this is what we observe from external growth, but with regard to mental and intellectual development, which is a career growth, it can only be observed with certain indicators. Any disruption in the chain of normal mental development leads to disruptions and disabilities in his living and educational life. Intellectual disability is among the most common of these disorders and disabilities that hinder the process of this growth.

The term "intellectual disability" has come to be used as an alternative to the term "mental retardation", which is defined as the state of cessation or incomplete mental development, characterized by a defect in skills that appear during the stages of growth and development, including cognitive, language, motor skills and even social abilities (WHO Geneva. 1996).

Intellectual disability is divided into intellectual disability Syndromic, where learning disabilities are associated with other medical and behavioral signs and symptoms, and non-syndromic intellectual disability, in which difficulties appear without other abnormal signs. Examples of intellectual disability include Syndromic Intellectual Disabilities syndrome, Down syndromes, and X-Fragile Syndrome sexual chromosome syndrome.

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We find a difference between people with intellectual disability in various physical, mental and social aspects, and they appear to have a fundamental lack of functional performance of mental skills to varying degrees, so they were classified according to the American Association into categories, and therefore there were many classifications of intellectual disability.

Children who have an intellectual disability suffer from deficiencies in various mental and cognitive functions such as: imagination, attention, memory, and memory is among the most important cognitive processes, and it is considered a continuous interactive and productive mental process that stores and retrieves information and experiences and is an important element in the learning process. (Al-DardIr & Abdellah., 2005, 61). Due to the importance of the latter, many researches and studies have been conducted, especially with the development of psychology and its disciplines, which showed the existence of several types of memory. It is thanks to Tulving. 1985 that long-term memory has two types, namely personal event memory and semantic memory (Solso, 247, 1996).

Human working memory occupies a very important place, as the most important component of memory. The interest of researchers in this field because of its essential role in the process of information processing, which is one of the buildings. Working memory that processes concepts, practical rules and attitudes of information about the outside world and the environment

Surrounding the human. Working memory is also the place where an individual retains his past experiences, and then retrieve them as needed (Abu al-Diar, 2012, 7).

To best manage this intimacy, Orthophonic practitioners rely on early diagnosis, which is represented in efforts to identify children at risk of disability before, during and after birth and provide care for them and their families in the early childhood years, with the aim of rehabilitating them and improving their abilities. In this context, Wolman (1997) confirmed that there are differences in memory skills between normal children and the mentally handicapped, as normal children performed better than the mentally handicapped, whether in recall or understanding. In the same context, Washahy (2003) found that early intervention improved different areas of development in children who benefited from early care.

Driffel, 2006, in her study, also found that the semantic memory of children with Down syndrome is characterized by the lack of organization of linguistic knowledge expressing things, and shows the lack and weakness of building semantic representations, in addition to the fact that the concept of classification and generalization they have is not acquired by most children, which negatively affected their acquisition of concepts and words with their meanings. Children with Down syndrome also showed difficulties at the level of intentional retrieval, which was affected by poor organization of linguistic knowledge within semantic memory.

Bay, 2009, in her study, also confirmed that children who received sponsorship at a later age had a later level compared to children who received sponsorship at an early age.

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Through our theoretical readings and supervision of many related messages, we found that children with mild mental disabilities face several problems in using concepts and words according to the appropriate situation for their meanings, as well as the lack of concepts and words on demand, but they understand the easy and simple commands of daily life. We noticed that it continues to exist, so we thought to highlight through this research paper the importance and impact of early detection and intervention in developing cognitive skills in children with mild intellectual disabilities, as well as educating and guiding parents on the importance of early diagnosis as a new treatment system for our current society.

Based on the previous information, we can raise the problem of our research in the following questions:

- **General questioning:**

- Does early intervention have a mild impact on the development of semantic memory in a mentally handicapped child?

- **Partial questioning:**

- Are there differences between mentally handicapped children benefiting from early intervention and those who do not benefit from early intervention at the level of semantic memory activity?

### 2-1- From it, the research hypotheses can be formulated as follows:

- **General hypothesis:**

- Early intervention has an impact on the development of semantic memory in a mild mentally handicapped child.

- **Partial hypothesis:**

- There are differences between mentally handicapped children benefiting from early intervention and those who do not benefit from early intervention at the level of semantic memory activity.

### 3- Objectives of the study:

- Study the impact of early intervention on the semantic memory activity of a child with a mild degree of intellectual disability.
- Highlight the suffering of mentally disabled children due to late diagnosis and untimely intervention.

### 4- Importance of the study:

- Enriching scientific knowledge.
- Disclosure of facts that would serve practitioners regarding the causes of late diagnosis.

### 5- Definition of concepts terminally and procedurally:

•**Early intervention:** is defined as the process of providing a range of special assistance educational services to children with special needs from birth to achieve maximum job performance (Barakat, 1995, 121).

**Procedurally**, it is defined as the sum of health, educational or psychological services provided to children with disabilities and children at risk of disability from birth to the age of six.

•**Semantic memory:** It is defined as: studying the reception, retention and recall of information when needed (Al -Atoum, 2012,129).

**Procedurally**, it is defined as the memory that stores general information in a verbal linguistic form, measured through the semantic memory assessment protocol of Abd Alaziz,S. 2011 used in the present study.

•**Mental disability:** is a generalized neurodevelopmental disorder characterized by significantly impaired intellectual and adaptive functioning. It is defined by an IQ under 70 in addition to deficits in two or more adaptive behaviors that affect every day, general living (Crocq, M. A., et al, 2015).

**Procedurally**, it is a neurodevelopmental disorder characterized by poor intellectual and adaptive performance, and the category used in the current study with mild disabilities.

### 6- Theoretical background of the paper:

Intellectual development disorder is known as developmental mental disorder, or general learning disability (UK and Ireland), previously known as mental retardation, a neurodevelopmental disorder characterized by poor intellectual and adaptive performance. Intellectual disability is defined when the IQ is below 70 degrees plus a deficit in two or more adaptive behaviors that affects daily and public life behaviors.

Intellectual disability is divided into intellectual disability Syndromic, where learning disabilities are associated with other medical and behavioral signs and symptoms, and non-syndromic intellectual disability, in which difficulties appear without other abnormal signs. Examples of intellectual disability include Syndromic Intellectual Disabilities syndrome, Down syndromes, and X-Fragile Syndrom sexual chromosome syndrome.

Intellectual disability affects about 2-3% of the total population, 75-90% of those with mild intellectual disability, 30-50% of them from the unaccompanied group, or unknown cause, and about a quarter occurs due to genetic causes, 5% of whom are transmitted from parents (Crocq, M. A, et al. 2015).

Based on the Fifth Diagnostic Manual for Psychiatric Disorders DMS-5, three conditions must be provided for diagnosing the condition as intellectual disability:

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- 1- deficit in general mental abilities,
- 2- Notable limitations that limit one or more areas of adaptive behavior in multiple environments (measured through a measure of adaptive behavior, e.g. communication skills, self-help skills, personal skills, etc.),
- 3- In addition to evidence of the appearance of restrictions in childhood or adolescence.

In general, people with intellectual disabilities have IQs of less than 70, but people with a slightly higher IQ than 70 but with a severe adjustment disability may need clinical evaluation.

Intellectual disability is officially diagnosed using IQ and adaptive behaviors. A third requirement, requiring knowledge of origin from childhood, is used to distinguish disability resulting from ailment diseases such as Alzheimer's or those resulting from brain injuries

Given that the category of mental disability needs special programs to be addressed, these programs have evolved in nature and objectives through three phases:

Phase I: Early intervention focused on providing infants with disabilities with therapeutic services and activities aimed at providing them with sensory arousal.

Phase II: Early intervention has become concerned with parents' role as auxiliary therapists or teachers for their disabled children.

Phase III: Attention has become given to the family system as the largest social content affecting the child's development. Support, training and guidance of the family has become the most important goal.

Recently, the concept of early intervention has become more inclusive and wide-ranging, targeting not only children with visible disabilities but also all groups at risk for biological or environmental reasons. Successful intervention programs also do not treat children as isolated individuals but emphasize that the child cannot be well understood in isolation from family circumstances (Al-Khatib & Al-Hadidi, 2009, 30).

### 7- Previous studies:

**Hayes & Taplin 1993** study on the difference between mentally handicapped and ordinary children in visual perception aimed at identifying differences between mentally handicapped and habitual people in the ability to use different cognitive models to make classified judgments, used the Ray test (Rey,1941) and the IQ test to determine mental age, and the results show that ordinary children use both forms of previous and current information to find out what form to remember, while mentally retarded children tend to rely on previous information.

**Clara Wolman & al 1997 Study** "Effects of Causal Structure on Immediate and Delayed Story Recall by Children with Mild Mental Retardation, Children with Learning Disabilities", and Children Without Disabilities Study of Three Groups of Children Without Impacts, Compared

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to These Groups of Children "Children with mild mental retardation, children with learning disabilities and children without disabilities". The researcher told two stories on the three groups and then measured the concepts of the story and the explanation and knowledge resulting from this explanation as well as the content of the story. The findings found that there were differences in memory skills between ordinary children and the mentally handicapped. Ordinary children performed better than the mentally handicapped, both in recall, retrieval and conservation.

**Yassmina Driffel 2007** Study of Semantic Memory in Children with Down's Syndrome. It aims to identify the activity of semantic memory in children with Down's syndrome compared to ordinary children as well as the characteristics of their semantic memory. The study used a man's drawing test for Florence Goodenough to calculate the IQ, and built items for a protocol of evaluation of the semantic memory of Ansaldi1989. The sample consisted of 40 children aged between 08 and 11 years, divided into 20 children pregnant with Down's syndrome and 20 children pregnant with Down's syndrome. The researcher found that semantic memory in children with Down's syndrome is characterized by a lack of regulation of linguistic knowledge expressing things, as is the lack and weakness of the construction of semantic representations, as well as that the concept of classification and generalization is unearned by most children, which adversely affected their acquisition of concepts and words in their sense. Children with Down's syndrome also showed difficulties at the level of intentional retrieval, which was affected by poor regulation of linguistic knowledge within semantic memory.

**Badia Bay Study 2009**, entitled The Impact of Early Intervention in Space Representation and the Acquisition of Language Units for Placement in the Child Pregnant with Trisomy, a comparison study between children identified as early interventions and children guaranteed at a later age; The study aimed to find out the impact of intervention on children who had not received early intervention in space representation and acquisition of linguistic units compared to those who had received early intervention or upbringing. The study used both topographic testing and understanding testing and the production of spatial linguistic units. The results confirmed that children who received bail at a later age had a later level than children who received bail at an earlier age.

**Abdul-Jabbar's Al Doualy Study 2016**, entitled Evaluation of Semantic Memory in Down's Child (Simple Mental Retardation). This study aimed to evaluate the semantic memory of a child with Down's syndrome The study was based on a case study conducted by the semantic memory test of Sa 'ad Abdul Aziz. The study was conducted on an eye of four children integrated into the pedagogical psychiatric center for children with disabilities in mind by the mother's guardianship of the vessel and those who share the same characteristics and criteria as age and school year. The study concluded that low semantic memory in the Down syndrome child found that low semantic memory in the Down syndrome child over 04 children who were schooled in the pedagogical psychiatric center for mentally impaired children with mentally

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disabilities shared the same characteristics and criteria as age and school age. and the results indicated a low ratio of semantic memory in a child with Down's syndrome

### Comment on previous studies:

- The means and objectives of studies are varied, each study dealing with one or two variables serves our research.
- Studies detailing the impact of early intervention on the development of semantic memory in mentally handicapped children lack a mild disability.

### 8- Place of search:

The research was conducted on a sample of 06 pupils with a mild mental disability studying in special departments of the schools of Mustafa Bin Boulaid and Mohamed Bin Yamina in Blida, Algeria, during the months of February and March in 2022.

### 9- The research community:

The research community has 42 pupils in three schools in Blida, Algeria, Ahmed Zabana Male School, Mustafa Bin Boulaid School and Mohamed Bin Yamina School. All these schools contain special sections for the mentally handicapped, children with autism and Down's syndrome, including those who benefited from early intervention when diagnosed and those who did not benefit from early detection and intervention.

#### 9-1- Accordingly, the study group was selected from:

- Referral of the three principals: by directing us to the classrooms,
- Conducting the clinical interview: Where we asked the parents about development of their kids.

After the clinical interview and Raven test were made, 12 pupils were excluded, because they did not have the criteria for the research sample, so that the research community was estimated to be 30 pupils.

#### Criteria for selecting a search sample:

- The research sample consists of children of both sexes, between 14 and 19 years of age and their mental age 07, 04 months, 09 years and 05 months.
- She has a mild intellectual disability.
- She does not have an accompanying disability (hearing, autism, motor cerebral palsy....).
- She has no visual problems.



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- Three cases benefited from early intervention and three cases did not benefit from early intervention.

The sample was selected in the intentional way, and the following two tables illustrate their characteristics:

**Table (1) Sample of children benefiting from early intervention**

Cases	Sex	Lifetime	Mental age	Type of disability	School Level	School Name
DJ-A	F	14 years and 6 months	7 years and 4 months	Light	Third Elementary	Mohammed bin Yamina
N-Y	F	15 years and months	8 years	Light	Third Elementary	Mohammed bin Yamina
B-F	M	14 years old	8 years and 10 months	Light	Forth Elementary	Mohammed bin Yamina

**Table (2) Sample of children who did not benefit from early intervention**

Cases	Sex	Lifetime	Mental age	Type of disability	School Level	School Name
S-M	M	17 years and 10 months	7 years and 8 months	Light	Forth Elementary	Mustafa bin Boulaid
DJ-.A	M	18 years and 7 months	7 years and 4 months	Light	Forth Elementary	Mustafa bin Boulaid
F-L	F	19 years and 7 months	9 years and 5 months	Light	Forth Elementary	Mustafa bin Boulaid

We note through tables (1) and (2) that the number of group I members 3 cases and the number of group II members 3 cases age range between 11 and 17 years, while their mental age is between 7 years and 4 months and 9 years and 5 months, 3 cases are female and 3 cases are male. Their disability was rated mild by Raven's IQ test, and their third and fourth primary school levels.

### 10- Study curriculum:

The research paper aims to identify the impact of early intervention on the development of semantic memory in children with mild intellectual disabilities by comparing children benefiting

from early intervention with those not benefiting from early intervention. The appropriate approach is the comparative descriptive approach based on a case study.

### 11- Data collection tools:

In this study, we used the following tools:

#### 11-1- Test of mental maturity Colombia:

The idea of establishing this test began in 1947 at Columbia University in New York by:

(Burgemeister, Blum & Lorge) The first edition was published in 1954, where it contained 85 paintings, measured the IQ of the age group between 5 and 13 years, and was amended to publish another version in 1959, replacing 17 paintings and becoming targeted at the age group between 3 years and 5 months and 13 years and 11 months. (Dague & al) The French version with 100 paintings was published in 1965 by (E.C.A.P.) This version aims to measure the overall ability of ordinary and unusual children's reasoning between 03 and 6 months, 11 years and 5 months.

The Colombia test is an individual test containing a hundred paper plates containing geometric shapes, animals and drawings of familiar people and objects, assessing mental and learning abilities by increasing difficulty. Each plate relies on a previous idea in a painting that has passed before, and is usually used for children who are mentally, motor or auditoriously retarded due to being a pure performance test. All the child needs are to understand the education and indicate the correct answer, designed for children of less than or equal to 11 years and 5 months of age, a point is given on each correct answer in each panel, but the test stops when we get 12 wrong answers in a set of 16 consecutive boards or complete 100 boards, then we collect the right points to get the raw coating point in the test. and convert them into a test schedule for mental age.

- **Test tools:** During application, we need test panels (100 1-a panels). We also need a special paper to codify correct and wrong answers and blogging fluid used by the examiner. During the drip, we need the test evaluation schedule. The test is not time-bound but usually takes 15 to 25 minutes.
- **Instruction:** I will show you a painting with a set of similar shapes, except one shape of the set is “different”, look well and then point your finger to the different shape from the rest. The teaching can be simplified in the appropriate language for the child and its characteristics can be taken into account during the presentation of the instruction by giving an example of the first and second plaque and calculating them correctly if it is infected in the third plaque.
- **Drip:** The number of correct answers from the drip sheet is calculated and then converted to a lifetime using the evaluation table. To calculate the degree of intelligence, we divide the mental age over the time age by months and multiply by 100 to get a percentage.

Mental age in months

Degree of intelligence =  $\frac{\text{Mental age in months}}{\text{Lifetime Months}} \times 100$  (conversion of age from years to months is multiplied by 12).

#### 11-2- Semantic Memory Test for Abd Alaziz, S. 2011:

It is a set of linguistic tests adapted from the measures of available language abilities tests, which prominently highlight certain aspects that rely on semantic memory consisting of 8 items.

#### -Dimensions covered by the test:

- The semantic and phonological dimension of memory
- Understanding and visual memory, auditory and verbal
- Awareness and perception of phonology

#### -Scale Objectives:

- 1-Recognize a child's ability to reproduce words.
- 2-Recognize a child's ability to reproduce figures.
- 3- Recognize the child's ability to produce rhythmic semantic structure.
- 4-Recognize a child's ability to feel and discriminate in phonology.
- 5-Recognize the child's ability to understand the vocabulary.
- 6-The child's ability to recognize image connotation.
- 7-Understanding and functional linkage of sentences.

#### -Scale Sections

##### 1- Semantic repetition of words:

The test contains 10 words per column "A" and "B". We ask the child to repeat the same meaning in the corresponding column, based on the following instruction:

Repeat the word and then pronounce the word with the same connotation on the opposite side of the table.

#### Drip:

- 1.If the child succeeds in pronouncing the words correctly, he gets a point of 1 regardless of the authenticity of its connotation. If the choice of word is correct gives a second point.

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2. Therefore, the child who succeeds in pronunciation and choice gets two points. The total points are 20.

### 2- Indicative repetition of numbers:

The test contains 9 chains of numbers spread over 3 groups A, B, C and three chains in each group. In order, we cast a series in front of children and ask them whenever we finish a series to replicate it behind us at a second rate for each number. "Listen to this series of numbers and then prepare them as you heard them ranked."

#### Drip:

1.If the child succeeds in pronouncing a whole series and within the required speed, we give him a point of 1.

2.If the child fails in a whole group and does not receive any sign, the group immediately following it shall be cancelled.

3. Therefore, the child who succeeds in pronouncing all the strings in different groups gets 9 points.

### 3- Semantic rhythmic composition:

The test contains 16 sets of rhythmic strikes that differ from each other in their vocal structure, the examiner produces them one by one and asks the child to reproduce them behind them while giving them a chance to return three times from the instruction that follows: "Listen well how to precise and then prepare the roads just like me."

#### Drip:

1.If the child succeeds in getting the roads right, he gets a point of 1. After reaching Group 9 we stop testing after 3 consecutive errors. Total points that the full respondent may receive 16.

### 4- Sensation and phonological distinction:

This test is based on the Rhyme principle and the tone, which is based on the idea of compatibility and match in the tone. The test contains 20 pairs of audio clips asking the child to know whether the two clips before it have the same tone or not. "Take a good note of these couples before you and listen to me read them and you have to take them back behind me and then determine whether they are similar in tone or not."

#### Drip:

1.If the child succeeds in identifying the similarity or not, he gets a point of 1. The set of points received by the full tenant is 20 points.

### 5- Understanding the vocabulary:

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The test contains 21 items spread over 3 groups (6 color vocabulary, 6 shape vocabulary, 9 body parts vocabulary) requiring the child to associate each individual with the evidence of what is displayed before him or her in the case of the body vocabulary, and each group has its own teaching.

### **Drip:**

1.If the child succeeds in identifying for each single, he gets a point of 1. The total points that a full respondent may receive are 12 points.

### **6- Item Label Photos:**

We present or display images one by one with children and ask them what does the image represent?

### **Drip:**

1.Each correct answer has one point and includes giving the appropriate name and indicating the image provided and hence a total item points of 80 points. If you provide the wrong answer, we give it 0 points.

### **7- Item classification and semantic order:**

We ask the child to arrange and classify the images according to their belonging to the same type and collection.

**Time:** This item is provided 20 minutes.

**Drip:** for each correct answer of the classification one point, total points for this item 15 points.

### **8- Understanding item and functional linkage of sentences:**

We display the photo and offer it some suggestions in order to identify the features of the object in the photo and ask it to identify the right sentences for the image as well as the wrong one and include 6 cards in each card containing 5 sentences for the appropriate image.

I'll give you 5 sentences that represent the picture displayed. Answer "yes" or "no."

**Time:** Time specified for "15" minutes

**Drip:** One point for each correct and suitable answer for the thing shown in the photo and zero for the wrong answer that is not related to the image, the set of points is 30 points.

### **12- Presentation of results:**

12-1- Presentation of the results of the group that benefited from early intervention:

**Table (3) the results of Colombia's test application to the group that benefited from early intervention.**

Cases	Date of Birth	Life Time Months	Mental age Months	Number of correct answers	Degree of Intelligence
DJ-A	29/12/2007	172 months	86 months	64	54%
N.Y	30/01/2007	183 months	96 months	69	52%
B.F	01/06/2008	190 months	106 months	73	55%

The table shows that the cases that benefited from early intervention showed the correct response between 64 and 73, and the degree of intelligence between 52 and 54, which confirms that their degree of disability is moderate according to the test evidence.

**Table (4) the results of the memory test application to the group that benefited from early intervention.**

Items / Cases	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Total
DJ-A	19	06	13	16	19	74	13	29	189/206
N-Y	19	05	11	16	16	62	13	24	166/206
B-F	18	06	12	14	16	67	12	22	167/206

Through the table, the group that benefited from early intervention had good results in various items of semantic memory test.

#### 12-2- Presentation of the results of the group that did not benefit from early intervention:

**Table (5) the results of Colombia's test application to the group that did not benefit from early intervention**

Cases	Date of Birth	Life Time Months	Mental age Months	Number of correct answers	Degree of Intelligence
S-M	07/08/2004	212 months	92 months	67	43%
DJ-.A	23/11/2004	209 months	88 months	65	42%

F-L	17/11/2003	221 months	113 months	76	51%
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It is clear from the table that the group that did not benefit from early intervention received somewhat distanced answers and moderate IQs, as they were unable to answer the rest of the cards due to the disparity in the age of their integration and the difficulty in understanding the cards due to delays in detection and sponsorship resulting in a lack of attention to them.

**Table (6) the results of applying memory test to the group that did not benefit from early intervention.**

Items	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Total
Cases									
S-M	15	02	12	13	12	60	11	21	146/206
DJ-.A	16	02	09	14	14	62	12	23	152/206
F-L	14	03	09	10	17	59	12	18	142/206

The table shows that the group that did not benefit from early intervention had poor results in item II, "Indicative repetition of figures". The rest of the items ranged from medium to good, or item VI, "Designation item", had good results.

### 13- Analysis and interpretation of results:

#### 13-1- For the group that benefited from early intervention:

Children with mental disabilities and beneficiaries of early intervention had very good results in the item of semantic repetition of words, especially the two cases (1 and 2) which did not find it difficult to repeat the words given to them for words with the same connotation as they did not find it difficult to link the connotation only the case (3) It has made a mistake in two words only, which indicates that the purpose of the item has been achieved, namely the ability of these children to form and link mental images with their meanings, which has been demonstrated by Early intervention and the educational environment of disabled children in general play a role in improving these children's different areas of development and preventing the deterioration of their mental development.

In the indicative repetition of figures, their results ranged from 05 to 06 points out of 09 points, where they found it somewhat difficult to replicate the latter group (c) This is due to the inclusion of chains from simple to complex, but generally they can be considered as good results and evidence of children's ability to benefit from early intervention for conservation and recovery, this is confirmed by Wolman 1997, which found that there are differences in memory

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skills between ordinary and mentally disabled children. Ordinary children performed better than the mentally handicapped, whether in recall, retrieval or conservation.

As for the semantic rhythmic structure, their results were good, as they were able to reproduce most but long rhythms due to their difficulty. They scored between 11 and 13 out of 16 points, where it can be said that disabled children benefiting from early intervention have the ability to pay auditory attention.

In the fourth item, which is the item of sensation and phonological discrimination, their results were good, as they were able to recognize most of the syllables with the same tone, so that their scores ranged between 14 and 16 points out of 20 points, which confirms their ability to distinguish audible syllables that have the same tone.

As for the item of understanding vocabulary, they got points between 16 and 19 points out of 21 points, where they showed a very good response to the instructions where they recognized all colors and were able to recognize all shapes, but the second case could not recognize (oval shape) where it was identified as a circle and this is due to the weakness of its tribal gains in geometric shapes as we observed, as for body parts, the cases did not recognize (thumb, eyelid, chin), They succeeded in identifying the rest of the parts, which confirmed (Bay 2009) that early intervention has a positive impact on the acquisition of language units in children with disabilities.

The sixth item on the designation of images was good, as they had no difficulty in naming most of the items presented in the images. Their results were limited to 62 to 74 out of 75 points. The first case did not recognize the picture of the couch only. The second and third case was because they did not recognize the remaining images.

In the classification and semantic order, they were able to arrange the approved images for each group where they earned points between 12 and 13 points from up to 15 points, they couldn't classify the animals that lived with us in the house and the predators. And this is because they are classified in their curriculum into pets and savages, they are therefore considered good results, indicating these children's ability to rank and disaggregate by characteristics of objects.

The last item, which concerns the understanding and functional linkage of sentences, may provide children benefiting from early intervention with good results, with a total of 23 to 29 points out of 30, where all cases were mistaken (cat does he have claws?) Because of their lack of understanding of the term "claws", and (the saw does it have electrical types?) This is based on their knowledge and acquisitions.

For the whole test, mentally disabled children with a mild degree and beneficiaries of early intervention received results ranging from 166 to 189 out of 206 points. The highest total obtained in the case (01), which showed superiority over all cases in the various test items, can be considered good. This is proof that early intervention has an impact and an effective role in developing semantic memory. It is rich in terms of vocabulary and concepts and is acquired by



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various concepts of this memory, such as classification, abstraction, circulation and the composition of mental images as demonstrated by the researcher. (Washahy 2003) The mentally late have the ability to recall the experiences and information they are frequently dealt with for a short period of time.

### 13-2 - For the group that did not benefit from early intervention:

Children with mental disabilities and those not benefiting from early intervention had poor consequences in terms of speech repetition compared to the first group, especially in the two cases (1 and 3) which found it difficult to repeat the words given to them due to functional pronunciation disorders, and for words with the same connectedness they also found it difficult to relate them to the same, indicating that these children's ability to form and relate mental images only to their meaning. (Driffel 2007) The semantic memory of disabled children is characterized by a lack of organization of linguistic knowledge expressing objects, which negatively affects their acquisition of concepts and words in their sense.

The indicative repetition item limited their results to between 02 and 03 points out of 09 points, where they found it difficult to replicate the group (b) and (c) for the item, which is due to the inclusion of chains from simple to complex, especially the situation (1 and 2) They were able to repeat the first and second series of the first group only, which is because of the poor attention we observed, which means that children who are not beneficiaries of early intervention suffer from a visible lack of conservation and retrieval, as confirmed by (Driffel 2006) In her study, disabled children had difficulties at the level of intentional retrieval, which had been affected by poor regulation of linguistic knowledge within semantic memory.

With regard to the indicative rhythm composition clause, their results were weak compared to early intervention beneficiaries, who were unable to reproduce most of the rhythmic strikes, especially long ones, owing to the difficulty in distinguishing them. They received points ranging from 09 to 12 out of 16. It can be said that children with disabilities who do not benefit from early intervention have poor auditory attention.

In item IV, "Sensation and phonological discrimination", their results were weak, as they were unable to identify most of the soundbites with the same tone, with results ranging from 10 to 13 out of 20 points, which explained the disruption of their ability to discern the audiovisual passages with the same tone.

As for the item of understanding the vocabulary, they received between 12 and 17 out of 21 points, where they showed a moderate to weak response. For instructions where they recognized all colors, they found difficulties in identifying all shapes, especially case (1 and 2), which could not identify (oval shape and cube), and for body parts they recognized (only ears and arm) and did not succeed in identifying the rest of the parts. This is due to the excessive protection of parents, as we found during the clinical interview.

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The sixth item on the designation of images was weak, as they had difficulties in naming most of the items presented in the images. Their results were limited to 59 to 62 points out of 75. Cases 2 and 3 made a mistake in naming most of the pictures of animals, especially marine and insects. This is due to the excessive protection of parents, according to our observations during the budget procedure. The situation (1) misnamed all the peasant tools and some insect names, due to poor tribal gains and delayed social integration, as confirmed by The concept of classification and generalization of disabled children is unearned, negatively affecting their acquisition of concepts and words in their sense.

In the classification and semantic order, they were unable to arrange the approval images for each group where they received points between 11 and 12 points from up to 15 points, they could not classify animals living with us in the house, predators, insects and means of transport. This is also due to delayed school integration, and is therefore considered weak results, indicating that these children are weak in order and disaggregated by characteristics of objects.

The last item on understanding and functional linkage of sentences, children with Down's syndrome who do not benefit from early intervention may receive poor results, with a total of 18 to 23 points out of 30, where all cases have misstated (key does it have types and sizes? Saw is it used in the kitchen? Does it have electrical types? Cat does he like water?) Because of the weak tribal gains of sizes and shapes, animals and the outside world.

For the test as a whole, children with a mild degree of intellectual disability and without early intervention received between 142 and 152 out of 206 points. The highest total obtained was the case (02), which showed weakness in the various test items mentioned above compared with the first group benefiting from early intervention. This is evidence that early intervention has an impact and an effective role on the activity of semantic memory. These children have demonstrated a clear weakness in terms of vocabulary and concepts and are unearned by various concepts of memory, such as classification, abstraction, generalization and the formation of mental images of mental maturity. There are statistically significant differences between the rates of social maturity of the children of the experimental group before and after applying the treatment program in favor of the post application.

### **14- Interpretation and discussion of hypotheses:**

Through results obtained through the application of the Colombia test and the semantic memory test, early intervention has an effective impact on the development of the semantic memory of a child with a mild degree of intellectual disability and that there are differences between children with a low degree of intellectual disability who benefit from early intervention and those who do not benefit from early intervention at the semantic level for the benefit of early intervention beneficiaries.

These results can be explained by the fact that children with a low degree of intellectual disability benefiting from early intervention have the ability to classify, generalize and distinguish between similarity and difference, as well as the ability to understand the various connotative relationships between concepts without visual basis, which indicates that they can distinguish between what is real and what is not. And they have the ability to judge and correct contradictory sentences as well, and that's what I've come up with. (Weshahhi, 2003) There are statistically significant differences between the rates of social maturity of the children of the experimental group before and after applying the treatment program in favor of the post application.

Children with mental disabilities who do not benefit from early intervention have experienced difficulties in determining the relationship between different concepts and, consequently, the absence of the concept of abstraction. They have also found it difficult to identify some images that belong to the same semantic field, as well as their failure to acquire the concept of generalization that manifests themselves in different responses and erroneous random choices. This indicates that their semantic memory lacks concepts and meanings. This is consistent with most previous studies, including the Driffel 2006 study, which confirmed that the semantic memory of disabled children is characterized by a lack of organization of linguistic knowledge expressing things, as well as the lack and weakness of the construction of semantic representations, as well as the fact that their concept of classification and generalization is unearned, negatively affecting their acquisition of concepts and words in their sense. Children with a mild degree of intellectual disability also showed difficulties at the level of intentional retrieval, which was affected by poor regulation of linguistic knowledge within semantic memory. The results of the Wolman1997 study indicated that there were differences in memory skills between ordinary children and mentally handicapped children. Ordinary children performed better than mentally handicapped children in both retrieval and understanding.

## 15- Conclusion:

In this paper, we examined the impact of early intervention on the development of semantic memory in children with mild intellectual disabilities. Bay (2009) refers to the type of study where its study aimed to identify the impact of early intervention in space representation and the acquisition of linguistic units in trisomy-bearing children 21-comparative study - between children with early intervention and late-age children. Driffel (2007) also conducted a similar study aimed at identifying the activity of semantic memory in children with Down's syndrome compared to ordinary children as well as the characteristics of their semantic memory.

In our study, we studied the impact of early intervention on the development of semantic memory in a sample of mentally disabled children with mild disabilities, benefiting from early intervention and not benefiting from early intervention, by conducting the Orthophonian test, both the Colombian mental maturity test to ascertain the ratio of intellectual disability, and the

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semantic memory test of Abd Alaziz, S (2011) to detect seminal memory activity of the two categories.

These tests were applied to a sample of 06 pupils with mild mental disabilities studying in special departments of Mustafa Bin Boulaid and Mohamed Bin Yamina schools in Blida, Algeria, 03 of whom benefited from early intervention and 03 who did not benefit from early intervention.

After the application of data collection tools and the analysis and interpretation of the results, the partial hypothesis and the general hypothesis were achieved. that early intervention has a positive impact on the semantic memory activity of a mentally disabled child of a mild degree, the results of the study also showed that there are mild differences between mentally disabled children benefiting from early intervention and those not benefiting from early intervention at the semantic level of memory activity in favor of early intervention beneficiaries. as they are acquired for semantic memory concepts and indicators despite their simplicity, these concepts and indicators allowed them to succeed in testing items, reflecting mentally handicapped children not benefiting from early intervention who found it difficult to do so because they were unearned for semantic memory concepts and indicators, and demonstrated a clear deterioration in other cognitive processes .

In the light of the results of the present study, we recommend and propose the following:

- Further studies on the same subject on a larger sample.
- Study other types of memory on children with other disabilities in order to ensure that early intervention affects different cognitive processes for different disabilities and disorders.
- The need to sensitize, guide and train parents about the difficulties they face in taking care of their children and to help them develop a suitable environment for their children in order to better adapt and help them integrate into their communities in order to make them effective.

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