

The Oral Language of Children with Down Syndrome: A Differential Field Study between Children in Special Education Classes in Primary Schools and Children Integrated in Psycho-Pedagogical Centers

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Abstract: This study aimed to reveal the existence of differences in the oral language of children with Down syndrome between children in special classes in primary school and children integrated into psycho-pedagogical centers. To achieve this objective, a comparative descriptive approach was adopted. was based on and an oral language test in children with Down syndrome by Houari Amina and Kharbache Houda (2017) was applied to a sample composed of 25 children with Down syndrome divided into two groups, 15 children integrated into special classes and 10 children. integrated into the psycho-pedagogical centers of the wilaya of Tizi Ouzou, and after collecting and analyzing data based on the Mann-Whitney difference coefficient and rank averages, the study resulted in statistically significant differences between children with Down syndrome integrated into special classes in primary schools and children integrated into psycho-pedagogical centers, in favor of children in special classes, which indicates the importance of school Inclusion for this group.

Keywords: Oral Language; Children with Down Syndrome; Inclusion; Special Classes; Psycho-Pedagogical Centers.

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I- Introduction :

The world at large, along with specialists in various fields of psychology, education, and speech-language therapy, has recognized that caring for children with special needs is a responsibility shared by all. Consequently, recent times have seen increased efforts by these specialists to find specific methods and programs that avoid isolating this group from society. This has led to the emergence of what is known as 'inclusion' integrating children with special needs in general, and children with Down syndrome in particular, into mainstream schools within special classes. These classes rely on a standard curriculum adapted according to the children's needs and specificities, working to train them and improve their mental, cognitive, and linguistic abilities. This approach replaces isolating them in psycho-pedagogical centers that use specialized programs disconnected from inclusive education. Algeria has had an experience in integrating children with Down syndrome into primary schools, despite the relatively recent interest in this direction in the Arab world.

1.Problem Statement:

The World Health Organization (WHO) defines a person with a disability as anyone whose physical or mental integrity is impaired, either temporarily or permanently, whether congenital or due to aging or an accident, such that their independence or ability to attend school or work is compromised. Similarly, the United Nations Convention on the Rights of Persons with Disabilities defines persons with disabilities as those with long-term physical, mental, intellectual, or sensory impairments whose interaction with various barriers may hinder their full and effective participation in society on an equal basis with others (MDPH, 2021).

These individuals have been categorized to facilitate their study, enable effective interaction, understand their required services, and provide necessary care. Intellectual disability is among the most prevalent, a term describing both the scientific aspect of intellectual impairment and its daily social consequences. It leads to difficulties of varying significance in thinking, conceptualization, communication, and decision-making. The medical classification of intellectual disabilities is often based on physical symptoms, with Down syndrome being a primary category within this classification (Ahmed Al-Zaher, 2008).

Down syndrome, a chromosomal disorder (Trisomy 21), falls under the umbrella of special needs. This genetic condition can lead to physical anomalies, metabolic disorders, delayed intellectual development, and impairments in higher mental processes, including cognition, memory, perception, and language. While a child with Down syndrome typically exhibits delays

across multiple domains, this population possesses a demonstrable potential for training, development, and learning.

This potential is supported by several studies. At the local level, research by Tensaout Safia (2016) confirmed the effectiveness of a proposed training program in improving oral language comprehension among children with Down syndrome integrated into special classes in primary school. Similarly, a study by Houari Amina (2018) found that a therapeutic protocol focusing on comprehension, expression, and pragmatics led to noticeable enrichment in the oral language of this group.

These local findings align with a body of international research. A longitudinal study by Buckley, Bird, and Sacks (2006) in the United Kingdom provided compelling evidence that children with Down syndrome educated in mainstream settings demonstrated superior outcomes in literacy, language, and cognitive skills, such as working memory, compared to their peers in segregated special schools. The rich linguistic models and higher academic expectations in inclusive classrooms were key factors. Furthermore, Guralnick et al. (2011) found significant differences in social and communicative skills, with included children showing a greater capacity to initiate and sustain conversations. Beyond academic and social benefits, Farrell (2000) emphasized that inclusion fundamentally shifts societal attitudes towards disability, fostering acceptance and creating a supportive environment that boosts the self-esteem and motivation of children with Down syndrome.

However, the success of inclusion is not automatic. Research by Fidler et al. (2005) highlights that effectiveness is maximized when educational strategies leverage the learning strengths of children with Down syndrome, such as visual learning, within the mainstream classroom. Conversely, Lindsay (2007) cautions that successful inclusion is a complex process contingent upon adequate support, including continuous teacher training, curriculum adaptation, and the availability of on-site speech-language therapy. Without these essential elements, the child may face greater challenges than in segregated environments.

With increasing global scientific and technological development and awareness in recent years, criticisms of the isolation-based care system in specialized centers have grown. Global trends have consequently shifted towards inclusion in mainstream schools, operating on the principle of integration rather than segregation. This aims to integrate individuals with special needs into society as effective members enjoying all their rights. Interest in including individuals with special needs in mainstream schools has grown through applying the principle of equal educational opportunities. While this concept was somewhat accepted for those with sensory or motor disabilities, it initially faced challenges concerning the inclusion of those with intellectual disabilities, particularly individuals with Down syndrome.

Algeria, influenced by this global trend, has opened special classes within mainstream schools for certain categories requiring specialized education. Children with Down syndrome are now

among the most prevalent groups in these special classes. Therefore, this study seeks to investigate whether differences exist in the oral language abilities of children with Down syndrome between those in special classes within primary schools and those in psycho-pedagogical centers, contributing to the critical discussion on the optimal learning environment for this population.

Consequently, the study's inquiry was formulated as follows:

Are there statistically significant differences in the oral language abilities of children with Down syndrome between those in special classes within primary schools and those integrated into psycho-pedagogical centers?

2. Hypothesis Formulation:

There are statistically significant differences in the oral language abilities of children with Down syndrome between those in special classes within primary schools and those integrated into psycho-pedagogical centers.

3. Significance of the Study:

The significance of this study lies in the importance of the subject it investigates, namely, the role of inclusion in special classes within mainstream schools in improving the oral language and communication skills of children with Down syndrome.

4. Objectives of the Study:

The current study aims to detect the presence of differences in the oral language abilities of children with Down syndrome between those in special classes within primary schools and those integrated into psycho-pedagogical centers.

5. Definition of Study Concepts:

- **Oral Language:** It is a means of communication involving words and sentences, gestures, facial expressions, speech rhythm, and intonation. It is essential for communication, learning, and thinking (FNO, 2011). It is the principle of communication between two individuals, which relies on simultaneous psychological, neurological, and sensory processes. A distinction must be made between two complementary aspects of oral language: the expressive aspect (production) and the receptive aspect (comprehension). (Frémont, 2014, p. 18)

Operationally: It is the scores obtained by children with Down syndrome on the Oral Language Test for Children with Down Syndrome who are native speakers of the Kabyle dialect, developed by Houari Amina and Houda Kherbach (2017).

- **Down Syndrome:** It is a chromosomal abnormality caused by the presence of an extra chromosome 21, leading to intellectual disability and physical anomalies. Trisomy 21 is responsible for approximately 95% of Down syndrome cases. Therefore, most individuals with Down syndrome have 47 chromosomes instead of 46. However, about 4% of individuals with Down syndrome have 46 chromosomes, but the extra chromosome 21 is attached to another chromosome, resulting in an

abnormal chromosome rather than an extra one. This abnormal attachment is called translocation. (Nina N. Powell-Hamilton, 2023)

Operationally: It refers to children with Down syndrome present in special classes within primary schools and psycho-pedagogical centers in the Wilaya of Tizi Ouzou

- **Inclusion:** It is the placement of children with disabilities in mainstream schools alongside their typically developing peers, either in regular classrooms or in attached special classes for part or all of the time, according to the child's needs. This is accompanied by providing support services through a multidisciplinary team and making necessary physical and human modifications to facilitate their opportunities for success and progress. (Al-Kharmchi, 2004, p. 329)

Operationally: It refers to the placement of children with Down syndrome in special classes within mainstream schools.

- **Psycho-pedagogical Centers:** are specialized facilities dedicated to serving individuals with intellectual disabilities. Their core mission is to rehabilitate and qualify these individuals for social integration and to enable them to express and communicate their essential needs. A fundamental objective is to secure a dignified life for them by providing tailored training and rehabilitation programs. These initiatives are designed to achieve full independence, foster self-reliance, and develop personal capabilities, ultimately empowering them to become fully integrated members of the community. (Berhail and Attik, 2021, p. 234)

II– Methods and Materials:

1. Pilot Study:

The pilot study is a crucial step in scientific research for investigating the field. Accordingly, we identified some primary schools and psycho-pedagogical centers in the Wilaya of Tizi Ouzou that we could visit. We conducted repeated field visits to these educational institutions, where we met with school principals and teachers, as well as some parents of students to explain and clarify the purpose of the study. We also made numerous visits to the psycho-pedagogical centers in the province, presenting our research topic to specialist psychologists and speech-language therapists. We discussed our research problem concerning the oral language of children with Down syndrome and presented the data collection tools we intended to use, along with the method and timeline for their application. All this was done to investigate the feasibility of conducting the study on this topic and the suitability of the data collection instruments. Through repeated field visits, we obtained comprehensive information about the reality experienced by children with Down syndrome, clarified our ideas about the topic, and identified potential difficulties we might encounter during the main field study to take necessary measures and precautions. Through the pilot study, we were able to administer the oral language test to a sample of 10 children with Down syndrome to assess the suitability of this measure. The outcomes of the pilot study included: precise definition of the study topic, in-depth understanding of the aspects and details of the study topic,

final formulation of the study hypotheses, identification of the appropriate scientific methodology, determination of the study population, and finalization of the data collection tools.

2. Study Methodology:

This study adopted a comparative descriptive approach, suitable for the nature of the topic and its objectives, as the study aims to describe and compare the oral language abilities of children with Down syndrome integrated into special classes and their counterparts in psycho-pedagogical centers. Given that the comparative descriptive method is used to study a phenomenon based on comparisons between different groups to detect differences in the effect of a specific variable on each group or on individuals within the group itself, it is deemed appropriate for this study.

3. Study Sample:

The study sample consisted of 25 children with Down syndrome, selected through a purposive sampling method. The sample was divided into two groups: 15 children integrated into special classes and 10 children integrated into psycho-pedagogical centers. The following two tables illustrate the sample characteristics.

Table (1): Characteristics of Children with Down Syndrome Integrated into Special Classes

Case	Gender	Age	Co-occurring Disorders	Institution
01	Female	10	Visual Impairment	Khelil Brothers Primary School Draâ Ben Khedda
02	Female	10	None	
03	Male	9	None	
04	Male	9	None	
05	Female	10	None	
06	Female	10	None	
07	Male	9	None	
08	Female	10	None	
09	Female	10	None	
10	Male	9	None	Romane and your son
11	Male	10	Visual Impairment	Primary School, Draâ Ben
12	Female	10	Visual Impairment	
13	Female	10	None	Khris Brothers Primary School
14	Female	9	None	
15	Male	9	None	
				Tizi Rached

Table 2: Characteristics of Children with Down Syndrome Integrated into Psycho-Pedagogical Centers

Case	Gender	Age	Co-occurring Disorders	Institution
01	Female	11	Visual Impairment	Ithran Psycho-Pedagogical Center, Maâtka
02	Female	10	None	
03	Male	11	None	
04	Male	10	Visual Impairment	
05	Female	10	None	Tuyour El Djanah Psycho-
06	Female	10	None	
07	Male	9	Visual Impairment	

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08	Male	10	None	Pedagogical Center, Draâ Ben Khedda
09	Female	10	None	
10	Male	9	None	

4. Domains of the Study:

- **Spatial Domain:** The study procedures were conducted at Khelil Brothers Primary School, located in the new district at the eastern entrance of the municipality of Draâ Ben Khedda; Romane and your son Primary School, located at the western entrance of Draâ Ben Khedda; Khris Brothers Primary School in the municipality of Tizi Rached; Tuyour El Djanah Psycho-Pedagogical Center in Draâ Ben Khedda; and Ithran Psycho-Pedagogical Center in the municipality of Maâtka, Wilaya of Tizi Ouzou.

- **Temporal Domain:** The study was conducted from the beginning of September to the beginning of October 2025.

5. Study Instrument:

This study relied on the Oral Language Test for Children with Down Syndrome who are native speakers of the Kabyle dialect, developed by researchers Houari Amina and Kherbache Houda (2017).

- **Objective of the Test:** The Kabyle Oral Language Test aims to assess the oral language of children with Down syndrome, i.e., to understand their comprehension, expression, oral, and pragmatic abilities. This test incorporates simple concepts related to the child's daily life and environment, manifested in various fields: (Family, Small and Large Body Parts, Shapes, Temporal and Spatial Concepts, Clothing, Home, School, Animals, Vegetables, Fruits, Professions, etc.). This test also allows for identifying strengths and weaknesses in oral language skills and precisely determining which of the aforementioned fields are stronger or weaker. Furthermore, it helps understand the type of communication the child uses and their ability to narrate events through auditory and visual stimuli, as well as the extent of their response and understanding of the examiner's instructions. The test also aims to identify the most appropriate methods for preparing and designing educational programs that seek to develop and acquire oral language skills in children with Down syndrome. These objectives are achieved through individual interviews with each child, where the examiner presents a series of questions accompanied by picture cards, followed by oral questions answered by the child.

- **Test Content:** The test comprises 3 main skills:

-**Comprehension Ability:** Consisting of Implicit Comprehension (which itself includes Family Members, Body Parts), Shape Recognition, Lexical Comprehension (Temporal Concepts and Spatial Concepts), and Syntactic Comprehension.

Oral Expression Ability: Consisting of Phonology (Word Repetition), Vocabulary (Home, Clothing, School), Semantic Fluency (Animals, Vegetables and Fruits), and Morphosyntactic Integration.

Pragmatic Ability: Consisting of Story Narration, Object Use, and Word Completion, as detailed in the following table:

Table (3): List of Test Items

Skills	Sub-items	Score
1. Comprehension Ability	1.1.Implicit Comprehension	- Family Members /6
		- Body Parts /14
		- Shape Recognition /6
	1.2. Lexical Comprehension	- Temporal Concepts /4
		- Spatial Concepts /6
	1.3. Syntactic Comprehension	- Syntactic Comprehension /6
2. Oral Expression Ability	2.1 Phonology	- Word Repetition /10
	2.2 Vocabulary	- Home Vocabulary /9
		- Clothing Vocabulary /6
		- School Vocabulary /8
	2.3 Semantic Fluency	- Animals /6
		- Vegetables /6
		- Fruits /6
		- Professions /6
	2.4.Morphosyntactic Integration	- Morphosyntactic Integration /5
3. Pragmatic Ability	3.1. Pragmatic Ability	- Story Narration /4
		- Object Use /6
		- Word Completion /6

The source: (Houari, A. & Kherbache, H. (2017), p. 58)

- **Scoring Method:** The scoring procedure was defined by awarding one point for a correct answer and zero for an incorrect answer. The total maximum score was 120 points, distributed across the dimensions/linguistic skills as follows:

The Comprehension dimension contained 42 items.

The Oral Expression dimension contained 62 items.

The Pragmatics dimension contained 16 items.

6. Statistical Tools Used: The Mann-Whitney U test for comparing differences, along with mean ranks, was used, employing the Statistical Package for the Social Sciences (SPSS), Version 23.

III- Results and discussion :

1. Results Presentation

Table (4): Results Obtained on the Oral Language Test by Children with Down Syndrome Integrated into Special Classes

Case	Comprehension Ability (42)	Oral Expression Ability (62)	Pragmatic Ability (16)	Total (120)
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01	40	52	4	98
02	40	48	6	94
03	42	50	4	96
04	40	52	4	96
05	42	58	10	110
06	38	46	4	88
07	40	50	4	94
08	38	44	4	86
09	42	56	10	108
10	42	48	4	94
11	40	48	4	94
12	40	51	4	95
13	42	54	6	102
14	38	44	4	86
15	42	48	6	96

The source: (Oral Language Test Scoring Sheets)

From the previous table, it is observed that scores ranged from a maximum of 42 to a minimum of 38 in comprehension ability. Meanwhile, a maximum of 58 and a minimum of 44 were recorded in oral expression ability. Scores ranged from a maximum of 10 to a minimum of 4 in pragmatic ability. Consequently, the total test scores for children with Down syndrome integrated into special classes ranged from a maximum of 110 to a minimum of 86.

**Table (5): Results Obtained on the Oral Language Test by Children with Down Syndrome Integrated into
Psycho-Pedagogical Centers**

Case	Comprehension Ability (42)	Oral Expression Ability (62)	Pragmatic Ability (16)	Total (120)
01	30	44	4	78
02	28	24	0	52
03	30	40	0	70
04	26	30	0	56
05	40	40	4	84
06	24	22	0	46
07	18	20	0	38
08	26	34	0	60
09	28	30	0	58
10	30	46	4	80

The source: (Oral Language Test Scoring Sheets)

Table (5) shows that scores ranged from a maximum of 40 to a minimum of 18 in comprehension ability, while a maximum of 46 and a minimum of 20 were recorded in oral expression ability. Scores ranged from a maximum of 4 to a minimum of 0 in pragmatic ability. Thus, the total test scores for children with Down syndrome integrated into psycho-pedagogical centers ranged from a maximum of 84 to a minimum of 38.

2. Analysis of Results

To verify the hypothesis, the Mann-Whitney U test was calculated, yielding the following results:

Table (6): Mann-Whitney U Test Results for Oral Comprehension Ability between Children with Down Syndrome in Special Classes and Those in Psycho-Pedagogical Centers

Group	Sample Size	Mean Rank	Mann-Whitney U	Sig. (2-tailed)	Significance Level (α)
Special Classes	15	17.60	6.00	0.00	0.05
Psycho-Pedagogical Centers	10	6.10			

The source: (SPSS Output)

From the table above, the mean rank is 17.60 for children with Down syndrome integrated into special classes, compared to 6.10 for those in psycho-pedagogical centers. The Mann-Whitney U value is 6.00, and the significance value is sig = 0.00 at the adopted significance level of $\alpha = 0.05$.

- Statistical Analysis:

Since the significance value (sig = 0.00) of the Mann-Whitney U test is less than the adopted significance level ($\alpha = 0.05$), it indicates that there are statistically significant differences in oral comprehension ability between children with Down syndrome integrated into special classes and those in psycho-pedagogical centers. Comparing the mean ranks shows that the mean rank for children in special classes is higher than that of children in centers, meaning the differences are in favor of children integrated into special classes.

Table(7): Mann-Whitney U Test Results for Oral Expression Ability between Children with Down Syndrome in Special Classes and Those in Psycho-Pedagogical Centers

Group	Sample Size	Mean Rank	Mann-Whitney U	Sig. (2-tailed)	Significance Level (α)
Special Classes	15	17.77	3.50	0.00	0.05
Psycho-Pedagogical Centers	10	5.85			

The source: (SPSS Output)

This table shows a mean rank of 17.77 for children in special classes versus 5.85 for those in centers. The Mann-Whitney U value is 3.50, and the significance value is sig = 0.00 ($\alpha = 0.05$).

- Statistical Analysis:

As the significance value (sig = 0.00) is less than $\alpha = 0.05$, there are statistically significant differences in oral expression ability between the two groups. The higher mean rank for the special classes group indicates that the differences are in their favor.

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Table (8): Mann-Whitney U Test Results for Pragmatic Ability between Children with Down Syndrome in Special Classes and Those in Psycho-Pedagogical Centers

Group	Sample Size	Mean Rank	Mann-Whitney U	Sig. (2-tailed)	Significance Level (α)
Special Classes	15	17.00	15.00	0.00	0.05
Psycho-Pedagogical Centers	10	7.00			

The source: (SPSS Output)

Here, the mean rank is 17.00 for the special classes group and 7.00 for the centers group. The Mann-Whitney U value is 15.00, with a significance of $\text{sig} = 0.00$ ($\alpha = 0.05$).

- Statistical Analysis:

With $\text{sig} = 0.00 < \alpha = 0.05$, statistically significant differences exist in pragmatic ability between the groups. The higher mean rank for children in special classes confirms that the differences are in their favor.

Table(9): Mann-Whitney U Test Results for Overall Oral Language between Children with Down Syndrome in Special Classes and Those in Psycho-Pedagogical Centers

Group	Sample Size	Mean Rank	Mann-Whitney U	Sig. (2-tailed)	Significance Level (α)
Special Classes	15	18.00	0.00	0.00	0.05
Psycho-Pedagogical Centers	10	5.50			

The source: (SPSS Output)

This final table shows a mean rank of 18.00 for the special classes group compared to 5.50 for the centers group. The Mann-Whitney U value is 0.00, and the significance is $\text{sig} = 0.00$ ($\alpha = 0.05$).

- Statistical Analysis:

The significance value ($\text{sig} = 0.00$) being less than $\alpha = 0.05$ indicates statistically significant differences in overall oral language between the two groups. The comparison of mean ranks demonstrates that these differences are in favor of children with Down syndrome integrated into special classes within primary schools.

3. Interpretation and Discussion of Results

Following the collection and analysis of field data, the results confirmed the presence of statistically significant differences between children with Down syndrome integrated into special classes and those integrated into psycho-pedagogical centers. These differences were observed

across all dimensions of oral language: comprehension ability, oral expression ability, and pragmatic ability. Crucially, these differences favored the children integrated into special classes within primary schools.

This outcome signifies the importance of inclusion in special classes for improving the oral language skills of children with Down syndrome. Given that oral language is vital for a child's academic performance and social interaction, serving as a primary communication tool, focusing on its development is of paramount importance. Numerous studies have demonstrated that children with Down syndrome possess a capacity for training, learning, and improvement. This is corroborated by the study of Tinsawat Safia and Tribash Rabia (2016), which aimed to enhance the level of oral language comprehension in children with Down syndrome through a linguistic-cognitive training program and concluded in the effectiveness of the proposed program. Similarly, the study by Houari Amina (2018), which aimed to improve oral language through a therapeutic protocol, found its results demonstrated the efficacy of the provided protocol in enhancing oral language in this group. Furthermore, the study by Tinsawat Safia (2018), which investigated the effectiveness of a proposed training program to improve oral language comprehension abilities in children with Down syndrome integrated into special classes in primary schools, yielded results confirming the program's effectiveness. These findings align with those of Hend Mahmoud Abdel Samie Ahmed (2022), whose study aimed to detect the effectiveness of a training program in improving expressive language skills in children with intellectual disabilities (Down syndrome) and found a strong effect of the used training program in improving expressive language in the study sample.

IV- Conclusion:

This study ranks among the scientific research that has sought to investigate the importance of inclusion in special classes for improving the mental, cognitive, and linguistic abilities of children with Down syndrome. This segment of society requires special care without being isolated from the community; rather, they need integration. Many studies have indicated this group's receptiveness to training and learning. This study aimed to detect differences in the oral language abilities of children with Down syndrome between those in special classes within primary schools and those integrated into psycho-pedagogical centers. To achieve this objective, a comparative descriptive methodology was adopted. The sample consisted of 25 children with Down syndrome, divided into two groups: 15 children integrated into special classes and 10 children integrated into psycho-pedagogical centers. The oral language test was applied to them. After data collection and analysis, the study revealed statistically significant differences between the two groups, with the differences favoring the group of children integrated into special classes. Therefore, inclusion plays a significant role in enhancing the linguistic abilities of this group.

- Recommendations

Based on the obtained results, we propose the following:

- 1 .Increase focus on catering to individuals with intellectual disabilities in general, and Down syndrome in particular, by designing training programs and therapeutic protocols to improve and develop their mental, cognitive, and linguistic abilities.
2. Encourage the integration of children with Down syndrome into special classes within primary schools.

3. Generalize the establishment of special classes across all educational institutions.

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