

The effectiveness of using the symbolic reinforcement method in controlling behavioral problems among children with Down syndrome

- Attention deficit and speech disorders as a model -

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Abstract: The current study aimed to identify the effectiveness of using the symbolic reinforcement method in controlling behavioral problems (attention deficit and speech disorders) in a group of children with Down syndrome. To achieve the objectives of the study, we counted on the scale of speech disorders for the hearing impaired and normal children, the Conners test for attention deficit, and the symbolic reinforcement program were relied upon. The study group consisted of seven children with Down syndrome integrated into a special section in a primary school in the city of Laghouat, and to verify the effectiveness of the program, we used the experimental approach with a single semi-experimental design and based on pre-and post-measurement. The results of the study resulted in the effectiveness of the symbolic reinforcement method in reducing behavioral problems (attention deficit and speech disorders) in the study group.

Keywords: Symbolic reinforcement style – behavioral problems – attention deficit – speech disorders – Down syndrome.

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Introduction:

Down syndrome is one of the most prevalent mental disabilities in the world, as its number is increasing, and it is found in different communities and identities. The American Society points out that mental retardation is a sub-average mental function, where the IQ ranges between 50 to 70 on the **Alfred Binet** scale of intelligence, and this performance is accompanied by a defect in the adaptive behavior of the individual during growth, and the problem of mental retardation is one of the biggest problems that countries suffer from. However, the incidence in developing

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countries is higher than in developed countries for several reasons, including neglect and lack of proper health care, malnutrition due to economic conditions. (Essam Nour, 2006, p. 15)

It is known that mentally retarded children are more prone to behavioral problems than others are alienated from at home, at school, or in public places, which may limit their integration with others and benefit from what is around them, and with the increase in calls for the integration of people with special needs, including children and members of Down syndrome, in school or within the family and in general society and their contact with their non-disabled peers and their involvement in areas of life, this group stands in front of some challenges that may hinder the success of their integration if it has not been sufficiently cared for, followed up and taken care of. It is worth noting that children with Down syndrome are exposed to obstacles that are much more difficult than those faced by their peers from safe children, especially those related to the acquisition of language and speech and the employment of hearing, memory, and motor coordination.

It is worth noting that the study of behavioral problems in children with Down syndrome occupies an important place among educational and psychological studies, and the field of care for the mentally handicapped is one of the fields important ones in which behavior modification methods are mainly used To provide these children with the necessary skills for adaptive behavior, as well as in Addressing inappropriate behaviors (Saadi Fatiha, 2005, p. 3)

Since the method of symbolic reinforcement is among the most important behavioral methods that have proven effective in the field of behavior modification, but it has been overlooked in the field of language disorders as language disorders are among the behavioral problems, and many studies have confirmed that speech disorders are among the most important language disorders prevalent in this category, such as the study of **Mustafa Fahmy** (1985) and the study of **Miller** (1981) and the study of **Abdul Aziz Al-Chakhs** (1996), but the distraction of attention and as one of the most important mental processes Which plays an important role in the cognitive development of the individual was the point of interest of researchers, especially among the mentally retarded, such as the study of **Fadel Al-Qahtani** (2005), the study of **Rickman** (1996), and the study of **Ola Qishta** (1995) Hence the importance of this study in evaluating the effectiveness of the proposed symbolic enhancement program in controlling some behavioral problems "attention deficit - and speech disorders" as a model among a sample of children with Down syndrome.

Problematic:

Societies pay great attention to people with special needs based on the principle of equal educational opportunities for all, as allowed by their abilities and preparations, and these opportunities have evolved and become known as special education to indicate the special

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educational pattern that applies to unusual children, and from this point of view and in light of taking care of this category, specifically those with Down syndrome, specialists and researchers, as well as workers in this field, have noticed types of non-adaptive behaviors in them, where (kaufman) pointed out for behaviorally disturbed children are those who respond clearly and chronically to their environment with socially unacceptable responses (Al-Qamsh, 2007, pp. 15-17), and Al-Khatib adds that deficits in adaptive behavior is one of the most critical elements in mental disability (Al-Khatib, 1988, p. 164). From this point of view, it has become clear that the goal that special education is trying to achieve is to develop aspects of personality in children with special needs and this goal can be achieved using special educational methods and methods of behavior modification, and rarely devoid of behavior modification programs of reinforcement and due to its great impact on human behavior and defined by Al-Khatib (1988) as a procedure in which the occurrence of behavior leads to positive consequences or to remove negative consequences, which results in an increased likelihood of That future behavior in a similar situation.

One of the areas of transformation that occurred in the studies and research that dealt with behavioral problems in people with Down syndrome is the transition from the interest in descriptive studies based on the interpretation and description of these problems to experimental studies based on evaluating the effectiveness of behavioral programs in reducing them, such as: the study of Al-Issawi (1994), the study of Youssef (1993) and the study of Al-Asradj Abdullah bin Abdul Aziz (2006), which dealt with the effectiveness of behavioral programs based on symbolic reinforcement in reducing behavioral problems in people with Down syndrome, which reached the effectiveness of And the effectiveness of such behavioral programs in reducing them. However, the proposed programs for the development and modification of the behaviors of the mentally retarded did not pay attention to language disorders and distractions - within the limits of the researchers' knowledge - as they are among the most important behavioral problems facing people with Down syndrome, which prevent appropriate adaptation to them in their educational, educational and even social environment.

Hence the need to study behavioral problems in children with Down syndrome and how to reduce and deal with them so as not to worsen the problem and threaten their psychological being and social communication. The problem of the current study is determined by evaluating the effectiveness of the symbolic reinforcement method in controlling behavioral problems among a sample of people with Down syndrome, and based on that, the following general question was asked:

- Is the symbolic reinforcement method effective in reducing behavioral problems, speech disorders, and attention deficit in children with Down syndrome Study group?

The following sub-questions branched out from it:

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- Are there statistically significant differences between the scores of the pre-and post-measurements on the scale of speech disorders in the study group attributed to the symbolic reinforcement method?
- Are there statistically significant differences between the scores of the pre-and post-measurements on the **Conners** scale in the study group due to the symbolic reinforcement method?

Hypotheses:

General hypothesis:

The symbolic reinforcement method is effective in reducing behavioral problems (speech disorders and attention deficit) in children with Down syndrome study groups.

Partial hypotheses:

- 1- There are statistically significant differences between the degrees of pre- and post-measurements on the scale of speech disorders in the study group attributed to the symbolic reinforcement method.
- 2- There are statistically significant differences between the degrees of pre- and post-measurements on the **Conners** scale in the study group due to the symbolic reinforcement method.

Importance of the study:

The importance of the current study is:

- 1- Evaluating the effectiveness of the program based on the symbolic reinforcement method in controlling behavioral problems (attention deficit, speech disorders) in a sample of Down syndrome.
- 2- This study is theoretically a scientific addition in the field of identifying the nature of behavioral problems among a sample of people with Down syndrome and knowing the impact of symbolic reinforcement in controlling and reducing them.
- 3- In practice, it is expected that the results of this study and its educational recommendations will contribute to the detection of behavioral problems and the role of symbolic reinforcement in reducing the severity of these problems in this group, especially problems related to language and attention in people with Down syndrome.

Objectives of the study:

The current study aims to:

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1- Identify the effectiveness of using the symbolic reinforcement method in controlling behavioral problems (attention deficit and speech disorders) among a group of people with Down syndrome.

2- This study tries to find out if there are differences between the pre-and post-measurements among the members of the study group in speech disorders attributed to the reinforcement program.

3- This study tries to find out if there are differences between the pre-and post-measurements among the members of the study group in the dispersion of attention attributed to the reinforcement program.

Define terminological and procedural definitions:

-Behavioral problems idiomatically:

They are children who are unable to conform and adapt to the social norms specified for acceptable behavior, and accordingly, their academic achievement as well as their relationship with teachers and classmates is affected, and they have problems related to psychological conflicts as well as social learning, and accordingly they have difficulties in accepting themselves as people worthy of respect and interaction with peers with productive and acceptable behavioral patterns and dealing with forms of authority such as teachers, educators and parents with acceptable personal behavioral patterns. (Tariq Abdel Raouf Amer and Rabie Mohamed, 2008, p. 111)

-Behavioral problems procedurally:

The most common and frequent problems in a group of children with Down syndrome are represented in this study in attention deficit and speech disorders.

-Symbolic reinforcement idiomatically:

Symbolic reinforcement is one of the common applications of the **Premack** principle, which is a positive reinforcement strategy that provides a favorite activity as a reward to motivate students to show behavior or complete a task, and can be an effective way to modify the behavior of all individuals and groups, which are symbolic rewards used as temporary alternatives with more physical reinforcers so that they will be replaced by them later, and symbols can take the form of signals – Dots - and colored paper signals - securities that are not real... etc. and students get them in exchange for performing a specific behavior. (Al-Sartawi Zidan Ahmed and Al-Chakhs Abdul Aziz Sayed, 2000, p. 44)

-Symbolic reinforcement procedurally:

They are the codes and cards that a child with Down syndrome obtains in the combined section when he shows an improvement in his behavior under study.

-Down syndrome idiomatically:

It is the symptom that is caused by chromosomal abnormalities in some children, causing a permanent total or partial deficiency in their mental, physical, sensory, communicative, academic, and psychological abilities to the extent that special education services must be provided. (Youssef Mohamed Abdel Rahman, 1993, p. 65)

-Down syndrome procedurally:

In this study, we mean mentally retarded children with Down syndrome enrolled in an integrated section in a primary school in the city of **Laghouat**.

- Distraction idiomatically:

It is the child's inability to continue to focus on a particular stimulus for a specific period due to his inability to select this stimulus or focus on it for a specific period required by the target task, or the activity that he must perform, due to his inability to exclude various environmental stimuli. (Adel Abdullah Mohammed, 2005, p. 45)

- Procedural distraction:

It means the child's inability to focus on one stimulus (the subject of learning) and not neglecting other random stimuli in the combined section, by obtaining the highest score in the **Conners** attention deficit scale.

- Speech disorders idiomatically:

Speech disorders often occur in young people as a result of errors in the output of the sounds of speech letters from their exits, and not forming them correctly, and the degrees of speech disorders vary from just simple lisps to acute disorders, where speech comes out incomprehensible as a result of deletion, substitution and distortion, and some speech disorders may occur as a result of a defect in the organs of the speech system. (Faisal Al-Afif, 2010, p. 03)

- Procedural speech disorders:

It refers to those disorders in the pronunciation of syllables of speech sounds suffered by a child with Down syndrome in a compact section, through the results obtained from the speech disorders scale.

Previous studies:

Study by **Manal Abdel Hamid Mahmoud** (2012):

This study aimed to develop a therapeutic language program in developing some expressive language skills among children with Down syndrome and testing its effectiveness. The researcher

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used the semi-experimental approach, while the study population consisted of a group of Down syndrome children at the Al-Amal Association Center in Damascus and their ages ranged between (7-9) years of both sexes, and the sample was selected intentionally to achieve the goal of the study, and the sample consisted of 24 children who were randomly divided into a control and experimental group and the following tools were relied upon: Expressive Language Scale - The developed training program and the results found that there are differences in the pre-and post-measurements in favor of the experimental sample members in the post-measurement. (Mahmoud Manal Abdel Hamid, 2012, p. 129)

- Study of Al-Asradj Abdullah bin Abdul Aziz (2006):

The researcher studied the effectiveness of the reinforcement program in controlling behavioral problems among a sample of people with Down syndrome in the Women's Charitable Society in Riyadh, where the study population consisted of 30 children aged between (12-15), while the study sample was represented in (9) individuals, using the experimental approach, the study tools used in this research included a list of the most common behavioral patterns, symbols, symbolic reinforcement program. The researcher found that there are statistically significant differences between the pre-and post-measurements in the behavioral problems as a whole among the study sample. (Al-Asradj Abdullah bin AbdulAziz, 2006, p. 103)

Study of Dhafer Al-Qahtani (2005):

Where this study aimed to identify the effectiveness of a behavioral program in reducing attention disorders in mentally retarded children who can learn, and the sample consisted of (08) children who were divided into two experimental and control groups, and applied to them the list of estimating attention disorders accompanied by excessive activity and the scale of excessive activity, and the scale of attention behavior, and the behavioral program "reinforcement - modeling - discussion - performance of roles - indoctrination - cost of response - symbolic reinforcement. The results showed an improvement in the performance of the experimental group, which confirms the effectiveness of the program used in reducing attention disorders.

(Al-Zaghlwan Hassan Yassin, 2001, p. 34)

Study of Berglend (2001) :

A study on spoken language in children with Down syndrome compared to normal children, and the growth trends towards individual differences, the way words are performed and the practical skills of grammar were on a sample of 330 children with Down syndrome in the age group between (1-5) years and 332 normal children in the age group between (1-4) Yrs. The study used measures such as lists of words and sentences to know the early growth of communication and then compare the results, and the study showed that children with Down syndrome have a

slight delay in practical skills of grammar and early progress in growth in a logical way due to the great effort of early intervention. (Washahi Samah Noor Mohammed, 2003, p. 109)

Study of Rikman (1996):

Both response and reinforcement were used to help two second-graders who were suffering from hyperactive attention deficit disorder increase their attention span in class, and this included the loss of reinforcers in the form of points due to doing unacceptable behavior in the classroom in addition to gaining more points when they performed the acceptable behavior, and this procedure was performed by placing a box on the student's seat whose front surface contains a digital counter and A red light, and every minute the student was reinforcing his unacceptable behavior, such as not paying attention to the task or not performing the task required of him, or doing chaotic behavior, the red light would have been lit and then a point would be deducted from the student, while the remaining points would have been replaced by a set of reinforcers, and the results indicated that the behavior of poor attention had decreased in these two students. (Al-Zaghlwan Hassan Yassin, 2001, p. 35)

Study of Ola Keshta (1995) :

Her study aimed to identify the effectiveness of each of the techniques of reinforcement and learning by the model in reducing the level of attention deficit and hyperactivity among mentally handicapped children, and the sample consisted of (40 children), all of whom are males enrolled in institutions and institutes of intellectual education in the governorates of Cairo and Giza, and applied to them the Stanford - Binet scale of intelligence - and the scale of attention distraction and hyperactivity in children, and the homogeneity test of forms for Kogan, and the scale of estimating the social and economic level, and the results confirmed the effectiveness of both the techniques of reinforcement and learning in the model in reducing the level of attention distraction. And excessive activity and there are no statistically significant differences between the reinforcement and learning techniques of the model in reducing the level of attention distraction and hyperactivity.

(Massad Safinaz Ahmad Kamal Ibrahim, 2006, pp. 12-13)

- Study of Abd al-Rahman al-Issawi (1994):

It aimed to identify the effectiveness of symbolic reinforcement in reducing some non-adaptive behaviors among the mentally retarded, which included the following behaviors (aggression, excessive movement, stereotyped behavior). The study sample consisted of (10) mentally handicapped students, (5) males, and (5) females aged between (9-17) years, and the results of the study showed the effectiveness of the symbolic reinforcement program in reducing aggression behaviors - excessive movement - stereotyped behavior. (Al-Asradj Abdullah bin Abdulaziz, 2006, p. 103)

- **Study of Abdul Karim (1994):**

The study included evaluating the effectiveness of the reinforcement program to provide mentally retarded children (medium retardation) some social skills, where the study sample consisted of 12 students aged between (7-9 years) and the program, which took 04 months to apply, included the use of several methods (indoctrination - overcorrection - continuous reinforcement - acting - role play and storyboard). The results indicated that the study members who were exposed to the training program were able to acquire and generalize social skills. (Al-Asradj Abdullah bin Abdulaziz, 2006, p. 104)

- **Study of Youssef Mohamed Abdel Rahman Mahmoud (1993):**

A study on the effectiveness of the symbolic reinforcement program in reducing some non-adaptive behaviors among the mentally retarded, where the study sample consisted of (10) mentally handicapped individuals from one of the special education schools in the Jordanian capital (Amman), and the researcher used the method of one group to apply the program. The study found that there are statistically significant differences between the average baseline and the stage of application and follow-up. (Al-Asradj Abdullah bin Abdulaziz, 2006, p. 104)

- **Study of (SAND FOND. ELZINGA. GRAINGER) (1987) :**

The researcher used the method of symbolic reinforcement to modify some aspects of behavior among a sample of behavioral disorders. The researcher used the adaptive behavior scale to evaluate three levels of symbolic reinforcement to modify some behavioral aspects of 100 behaviorally disturbed people, where the average age of them (2,21) years, and the results indicated the effectiveness of symbolic reinforcement in modifying behavioral problems in the study sample. (Al-Asradj Abdullah bin Abdulaziz, 2006, p. 105)

- **Denkowski Study (1985):**

The researcher used a therapeutic method to reduce the behavior of aggression among a sample of the mentally handicapped and the sample consisted of 20 disabled students aged between (12-18) years, and the treatment was verified in two stages:

The first included the application of symbolic reinforcement to a group of mentally handicapped people at home.

Second: symbolic reinforcement and isolation were applied and it was found after three experimental attempts that the second treatment was more effective than the first treatment in reducing verbal and physical aggression.

- **BEAR Study (1985):**

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The symbolic reinforcement program was applied with mentally handicapped individuals living in internal centers, and the sample consisted of (20) individuals who were divided into two groups (10) individuals for each group, where they were matched on two scales to assess adaptive behavior, and the program was applied to one group and was not applied to the other group, and the post-test was applied after 11 months, and the results found that individuals in the symbolic reinforcement program showed significant progress in behavior compared to the control group.

- Study of Maston (1984):

Maston's study included an evaluation of the effectiveness of a behavioral program in controlling some behavioral problems, where the researcher used the symbolic reinforcement method to control these behavioral problems in three females with mental disabilities, and the results indicated the effectiveness of the behavioral program and the decrease in the emergence of these behaviors, as well as the improvement of adaptive behavior for these children. (Al-Asradj Abdullah bin Abdulaziz, 2006, p. 105)

Comment :

It was noted from the defect of studies that dealt with symbolic reinforcement to control behavioral problems in people with Down syndrome and the mentally retarded a kind of agreement in terms of goal, but it differs from the current study in that it neglected language and attention when people with Down syndrome and mental disability in general as the most prominent problems suffered by people with mental disabilities.

In terms of sample size, the sample size in most studies was small due to the nature of the approach followed, which is the experimental approach with a semi-experimental design, which is the most appropriate to study the effectiveness of the symbolic reinforcement program in controlling behavioral problems.

All studies agree in terms of results on the effectiveness of symbolic reinforcement in controlling behavioral problems among the mentally retarded and people with Down syndrome, and this is what the current study seeks to study, especially in the field of speech disorders and attention deficit and how to enhance and control them in people with Down syndrome in particular and in people with mental disabilities in general.

Field Study Procedures:

Study Methodology:

Approaching a topic requires the researcher to follow A specific methodology, and this is according to the different research problems, and objectives Ruler by the researcher, and since the problem revolves around the effectiveness of the symbolic reinforcement method in controlling behavioral problems in people with Down syndrome (attention deficit and speech disorders)

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model, and On this basis, the experimental method was used with a semi-experimental design that does not use random assignment of groups and therefore control is not possible, and the design used in the current study is the design of one group with a pre-and post-test. (Abu Allam Rajaa Mahmoud, 2006, p. 213).

The current study aimed to find out the effectiveness of a symbolic reinforcement program in reducing some behavioral problems for a group of people with Down syndrome - attention deficit and speech disorders - as a model., and the dependent variables were behavioral problems (attention deficit and speech disorders), while the independent variable is the symbolic reinforcement program.

Study limits: The current study is determined by the following limits:

- Human limits: The study group included seven children between the ages of (12-13) with Down syndrome with mild and learnable mental disability and who suffer - according to their medical files and the statement of educational specialists and psychologists in charge of them - that they suffer from behavioral problems, including speech disorders and attention deficit.

The choice of group was intentional due to the lack of study group members in the integrated section of the elementary school.

- Spatial boundaries: The field aspect of the study was applied in the primary school "Taher Dani" in a special integrated section for people with Down syndrome in the city of Laghouat.

Study Tools:

1- Speech disorders scale for the hearing impaired and normal children (Al-Noubi Muhammad Ali):

The researcher designed this scale to identify the extent of the presence or absence of speech disorders and their types in hearing-impaired and normal children, the researcher has formulated the responses of the scale according to two choices, as the wrong answer gets a degree and the correct get two degrees.

The stability was calculated in three ways: re-testing with an interval of two weeks on a sample of (100) children with speech disorders, including (50) normal children and (50) hearing-impaired children, and the correlation coefficient between the first and second application was between (0.76-0.92) and the stability coefficient reached the Cronbach alpha method between (0.53-0.76).

The credibility of the scale has been calculated through the sincerity of the arbitrators, as it was found that there is agreement (95%) on the dimensions and phrases of the scale, and the sincerity of the correlative test was calculated in a manner "Pearson" between the current scale

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and the form of speech disorders prepared by **Abdul Aziz** (1997) as an external test, and its value reached (0.81) which is high, which indicates the sincerity of the scale and the researcher also calculated the global honesty of the dimensions of the scale in order to identify the saturations of the common factors of these dimensions. (Al-Noubi Muhammad Ali, 2010, pp. 19, 21)

2- Conners test for distraction:

It is a test developed to measure the symptoms of attention deficit hyperactivity (ADHD) and was designed by CONNER in 1996 to assess the behavior of the child directed to parents and teachers.

How to correct the test:

- Inattentive pattern from item 01 to item 09.
- Impulsive hyperactive pattern from item 10 to item 18.
- Mixed style It combines style 01 and style 02, : from item 01 to item 18.

The estimated weights of the different answer alternatives were also determined to calculate the number of symptoms and the severity of symptoms.

- Degrees of symptom count: Never:0 , sometimes:01, much:01, very much: 01.
- Severity of symptoms: Never:0 , sometimes:01, much:02, very much: 03. (Al-Buhairi Abdul Raqib Ahmed, 2011, p. 18)

3- Symbolic Enhancement Program:

In the current study, it means a group of classes that depend on providing reinforcement in the form of physical reinforcers that were selected and determined after asking specialists and children with Down syndrome themselves about their favorite things, which were cards containing symbols and drawings of stars, crescents, hearts, and pictures of laughing faces of different colors and sizes. These reinforcers are distributed in sufficient numbers when mitigating the emergence of behavioral problems, represented in disorders in the pronunciation of audio clips and distraction within the department, or in exchange for the child's failure to do them, and his commitment to the instructions explained by the researchers every morning, where whenever a child with Down syndrome tries to improve his attention level and correct some disturbed audio clips, one or more reinforcers are dispensed to him according to behavior, and these symbols are replaced by supportive reinforcers according to intermittent time intervals They are short at first and the time period gradually increases, and these symbolic reinforcers are pasted next to the name and photo of each child in the symbolic reinforcement table in the built-in section.

Experimental procedures:

Pre-measurement stage:

The researchers informed the specialists in charge of the study group and the parents themselves of the content of the reinforcement program and how the program is proceeding in order to adhere to the cases of continuous attendance, then the researchers pre-measurement where they applied both the scale of speech disorders and the Connors scale for distraction, and the pre-measurement continued for a week.

The stage of application of the reinforcement program:

Before starting the actual application, the researchers clarified the objectives of the program to the study group, and what behaviors are required of them to adhere to, which the researchers note every morning, and it was clarified how the program is going and introducing them to symbols and what they are and that they are obtained these symbols when they adhere to the required behaviors represented in improving their pronunciation of the syllables of disturbed sounds they have and their attention to the researchers continuously, and before the researchers begin to apply the program, she made sure that the Arthophony specialist had stopped her intervention in order not to affect the effectiveness of the program.

After that, the researchers began to apply the program, where they were correcting the pronunciation of each case of the disturbed audio clips, provided that the case adhered to full attention to the researchers during the period of speech correction, taking into account the deformities suffered by cases at the level of the speech system (tooth deformity - enlargement of the tongue - small mouth ...), as well as some cases of Down syndrome, suffer from the weakness of some sensory skills such as auditory and visual skills, all these imbalances suffered by a child with Down syndrome took The application period lasted an hour a day from (10:00-11:00) for five days a week over four weeks, and the researchers allowed the study group members to replace symbolic reinforcers with supportive reinforcers at the end of each class.

The giving of codes to the cases at the beginning of the program was random and intensive, so that when the case appears that it is trying to hide or reduce speech disorders or trying to pay attention to the researchers and follow the instructions that the researchers say in the morning of each day, one or more symbols were dispensed to them according to the behavior for which the symbolic reinforcer was deserved, and they were replaced on the same day from the end of the class at a rate of twice per day for three days, and then at a rate of Once a day for three days, then every two days, then once in four days, and then every week is replaced once and so on until the end of the program.

During this, the exchange of symbols was gradually reduced and the focus was on social reinforcers more than physical, to ensure continued improvement even after stopping providing

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those symbols to a child with Down syndrome when he performed the desired behaviors. The improvement in the level of attention in this group is attributed to the reinforcement program.

post-measurement stage:

A week after stopping the reinforcement program, the researchers reapplied the speech disorders scale and the attention deficit meter to see the outcome of the cases.

Presentation, analysis and discussion of the results of the study:

1- Presentation, analysis and discussion of the results of the first partial hypothesis :

To ensure the validity of the hypothesis, a Wilcoxon value was extracted for the results of speech disorders behavior before and after the application of the program, and the following table illustrates this:

Table (1): Results of the Wilcoxon test to compare between the pre-and post-measurement of the study group in the behavior of speech disorders:

Behavioral problem	Measurement	Mediator	N	Value (Wilcoxon)	Significance level
Speech disorders	pre	47	7	2,38	0,017
	Post	56	7		

Table (1) shows statistically significant differences at the level of (0.05) for the behavior of speech disorders, where the mediator was in the tribal measurement (47), and the median became after the application of the program (56), and the value of (Wilcoxon) calculated 2.38, which is statistically significant at the level of significance (0.017).

To find out the extent of development in the scores obtained in the scale of speech disorders before and after application, the scores of this behavior were calculated for each case in the stage of pre-measurement and post-measurement and the following table illustrates this:

Table (2): Evolution of the degrees of speech disorders scale before and after application:

Measurement	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Overall average
Tpre	46	38	51	47	43	52	51	85,46
Post	56	46	56	54	48	56	56	53,14

It is clear through Table (2) the extent of development that occurred in the study group by comparing the scores in the pre-and post-measurement for each case separately, as well as the general average of this change for the first behavioral problem (speech disorders), there are some cases that were suffering from some disorders in the syllables of sounds and improved by the reinforcement program in all audio clips, such as case (1), which obtained in the pre-measurement on 46 and post-on 56, as well as case (3) that it got in the pre-measurement on 51 and the post-measurement on 56, as well as the case (6), and the case (7), all of these cases improved in the performance of all the audio clips disturbed by the reinforcement program.

This is also confirmed by the general mediator, where the mediator was in the pre-measurement (47) to become in the post-measurement (56), and by observing the mediator in the post-measurement, the tracker realizes the extent of improvement between the pre-measurement and the post-measurement, and this indicates the effectiveness of the symbolic reinforcement method in reducing speech disorders of audio syllables when the study group.

Interpretation and discussion of the results of the first partial hypothesis:

The clear impact of the effectiveness of the symbolic reinforcement program to reduce the problems under study can be explained by the organized and programmed use of this reinforcement program in people with Down syndrome, and to the diversity of reinforcers used in this study, which led to the lack of saturation, and the semi-experimental design with one group, through which the program was applied to each case separately, especially with regard to correcting the pronunciation of each case in exchange for obtaining symbolic and physical reinforcements and Even social had a significant impact on the improvement of cases, and from it, the methods of behavior modification, especially symbolic reinforcement, proved effective in improving the pronunciation of some syllables in this study, and we can attribute that development in performance between the two measurements to the failure of traditional methods used with the study group, in addition to the lack of symbolic and physical reinforcements and continuous reliance on some verbal and social reinforcements that lose their value due to the repetition factor.

The study group has shown progress in correcting syllable speech disorder and the following is a presentation of the most prominent sounds that have been treated by symbolic reinforcement:

– Whistling sounds: which are confused between similar sounds, especially

(س-ص-ز), as the majority of the study group members were suffering from mixing or substitution in the pronunciation of these sounds, such as pronouncing the sound of "ز" in the form of the sound of "س" and "ص" in the form of "س" and vice versa, the study group has improved in the pronunciation of these audio clips, due to the exercises carried out by the researchers to remove the separation between the existing similarities.

-Sounds of the tip of the tongue and teeth:(ث - ظ - ذ): People with Down syndrome are characterized by some difficulties and deformities at the level of the speech system such as (acromegaly of the tongue - deformity of the teeth - and small mouth) and this is what prevents the good pronunciation of these sounds, but the study group and due to intensive training and the impact of continuous reinforcement of good pronunciation, most cases were able to pronounce these syllables in a good way.

– Frictional sounds: (ج - ش): The average child acquires the pronunciation of such sounds late, and since a child with Down syndrome suffers from mental retardation, he acquires them late compared to the normal child, and confusion is located a lot in the pronunciation of these sounds, but the study group improved significantly in the pronunciation of these sounds.

Liquid sounds : (ر - و - ل): These sounds are frequently confused in children with Down syndrome, as the majority of the current study group found it difficult to pronounce the letter "ر" because it needs precise neuromotor synergy.

As for the audio syllables that some cases were unable to improve their pronunciation, they are due to abnormalities at the level of the speech system, which need intensive training and a longer time to correct them.

The researchers noted that the most common manifestation or type of speech disorders in the study group is substitution.

It can be said that the symbolic reinforcement has an effective role in the treatment of disorders of sound syllables suffered by the study group, and therefore due to the lack of previous studies - within the limits of the researchers' knowledge - dealt with the effectiveness of behavioral programs in general or symbolic reinforcement in particular in reducing speech disorders in people with Down syndrome or the mentally retarded, there are no identical studies and consistent with the current study, which found There are statistically significant differences between the results of the pre- and post-measurements on the scale of speech disorders in the study group in favor of the post-measurement, but there are some studies that have proven the effectiveness of language development programs in improving speech and expressive language in people with Down syndrome, such as the study of **Manal Abdel Hamid Mahmoud** (2012) and

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studies that dealt with language development in people with Down syndrome compared to the normal child, such as the study of Berglend (2001).

2- Presentation, analysis and discussion of the results of the second partial hypothesis :

To ensure the validity of the hypothesis, a value (Wilcoxon) was extracted for the distraction behavior before and after the application of the program, and the following table illustrates this:

Table (3): Wilcoxon test results for comparison between pre- and post-measurement of the study group in the behavior of attention deficit:

Behavioral problem	Measurement	Mediator	N	Values (Wilcoxon)	Significance level
Distraction	pre	21	7	2.37	0.018
	Post	11	7		

Table (3) shows statistically significant differences at the level of (0.05) for the distraction behavior: where the Mediator was in the pre-measurement (21) and became after the application of the program (11), and the calculated value (Wilcoxon) (2.37), which is statistically significant at the significance level (0.018).

To find out the extent of development in the degrees of the attention deficit scale before and after application, the scores of this scale were extracted for each case in the stage of pre-measurement and post-measurement and the following table illustrates this:

Table (4): Evolution of the degrees of the attention deficit scale before and after application:

Measurement	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Overall average
pre	23	18	22	14	21	23	15	19,42
Post	5	10	11	12	12	12	8	10

It is clear from Table (4) the extent of development that occurred for the study group through the scores obtained in the pre- and post-measurement for each case separately, where we notice a significant decrease in the level of attention dispersion in the averages of cases, this is what the general average showed.

This is also confirmed by the general mediator in the pre-measurement (21) to become in the post-measurement (11), and by observing the general Mediator obtained in the post-

measurement, the tracker realizes the extent of improvement between the pre-and post-standard, and this indicates the effectiveness of the symbolic reinforcement method in reducing the behavior of attention deficit when the study group.

Interpretation and discussion of the results of the second partial hypothesis:

In light of the results of this hypothesis, we can say that the study group's achievement of continuity and improvement on the Conners Attention Deficit Scale, but may be due to the effectiveness of the symbolic reinforcement method in reducing the level of attention distraction and confirming the researchers' use of this method through its adoption with the study group, which was credited with the continuity of attention in each case, and this is due to the effective impact of the program.

The effectiveness of the program may be due to the programmed and organized use of this training method and accuracy in its use by the researchers, as well as the use of the reinforcement method individually, which increases the likelihood of improving the level of attention in this category according to each case, in addition to that, the method of punishment or negative reinforcement is often used to improve the level of attention with regard to children of integrated sections and sections of special education institutions, and perhaps this method was a qualitative leap and a new method that proved effective in reducing the level of Distraction.

The current study has proven that there are statistically significant differences in the behavior of (attention deficit) between the pre-and post-measurements on the Conners scale in the study group in favor of the post-measurement, and these results are consistent with the study of **Dhafer Al-Qahtani (2005)**, where this study aimed to identify the effectiveness of a behavioral program in reducing attention disorders in mentally retarded children who are able to learn, and reinforcement was among the techniques used in the study, The results showed an improvement in the performance of the experimental group, which confirms the effectiveness of the program used in reducing attention disorders.

And also the study of **Ola Keshita (1995)**, which aimed to identify the effectiveness of both the techniques of reinforcement and learning by model in reducing the level of attention deficit and hyperactivity in mentally handicapped children, and the results were confirmed their effectiveness, and this is consistent with our current study, as well as the study of **Rickman (1996)**, where both response and reinforcement were used to help two second-grade students who were suffering from attention deficit disorder accompanied by hyperactivity. The results indicated that the behavior of attention deficit has decreased in these two students, and therefore previous studies agree with the current study in that the reinforcement style and behavioral methods have an effective role in reducing the level of attention deficit.

General discussion of hypotheses:

The main objective of the current study is to find out the effectiveness of the symbolic reinforcement method in controlling behavioral problems in a group of children with Down syndrome, and since the two partial hypotheses were verified, it was confirmed that "there are statistically significant differences between the degrees of pre- and post-measurements on the scale of speech disorders in the study group in favor of the post-measurement" on the one hand, as well as verify the second hypothesis, which On the other hand, this indicates that the symbolic reinforcement method has proven effective in alleviating the behavioral problems under study in the study group, meaning that the results of the current study concluded that there are statistically significant differences between the pre-and post-measurements in behavioral problems of the study group in favor of telemetry, that is, the general hypothesis has also been fulfilled. There are many studies that have proven that symbolic reinforcement has an important and effective role in alleviating some behavioral problems, such as the Maston study (1984), where the researcher used the symbolic reinforcement method to control some behavioral problems in three females with mental disability, and the results indicated the effectiveness of the program Behavioral and to the decrease in the emergence of these behaviors, as well as the improvement of adaptive behavior of these children, and the study of BEAR (1985) where the symbolic reinforcement program was applied with mentally handicapped individuals living in boarding centers to reduce behavioral problems and the results found that individuals in the symbolic reinforcement program showed significant progress in behavior compared to the group. The current study also agreed with the study of **Sand fond, Elzinga and Grainger** (1987), where the researcher used the method of symbolic reinforcement to modify some behavioral aspects of a sample of behavioral disorders, and the results indicated the effectiveness of symbolic reinforcement in modifying behavioral problems among the members of the study sample, and the study of **Youssef** (1993) on the effectiveness of the symbolic reinforcement program in reducing some non-adaptive behaviors among the mentally retarded, as well as the study of each of **Abdul Rahman Al-Issawi** (1994) and the study of **Al-Asradj Abdullah bin Abdul Aziz** (2006), which found the existence of statistically significant differences between the measurements before and after in the behavioral problems of the mentally retarded, but the study of **Denkowski** (1985), which was the use of a therapeutic method to reduce the behavior of aggression in a sample of the mentally handicapped, where the application of symbolic reinforcement and isolation has been found after three experimental attempts that the method of isolation was more effective than the method of symbolic reinforcement in reducing verbal and physical aggression, and therefore the All studies agreed that symbolic reinforcement has an effective role in reducing behavioral problems among the mentally retarded despite the differences in the sample and in chronological age and in behavioral problems in themselves.

Conclusion:

Since each child has his own entity and composition, which varies from one child to another, and this privacy applies to all children, including children with special needs in general and children with Down syndrome in particular, and the life of a normal child is not free of behavioral problems that prevent natural adaptation to his environment and society, the life of a child with Down syndrome is also not free from some behavioral problems, and the incidence of behavioral problems among the mentally handicapped, including those with Down syndrome, may exceed Their normal peers, as proven by some studies, and therefore the identification of behavioral disorders and their early diagnosis is one of the vital issues in the field of special education and ensuring people with disabilities because of the great value in therapeutic and rehabilitation intervention, and for that it was necessary to take care of developing the necessary methods for that, especially if it comes to language problems and attention, which are considered one of the most important behavioral problems suffered by people with Down syndrome.

Therefore, this study dealt with one of the most important topics raised in the field of special education, which is behavioral problems, which is one of the most important difficulties facing children at different ages, especially in childhood, which prevents good adaptation to the social environment, but if it comes to the category of mentally retarded these problems become more severe, which requires the intervention of behavior modification programs to reduce or mitigate these problems.

The aim of the current study was to evaluate the effectiveness of the symbolic reinforcement method in reducing some behavioral problems when a group of people with Down syndrome (attention deficit and speech disorders) as a model, and this study ended with a set of results that were presented and interpreted, where all hypotheses were achieved and this indicates the effectiveness of the behavioral reinforcement program represented in the symbolic reinforcement method in reducing these problems.

Based on the results of the current study regarding the evaluation of the effectiveness of the symbolic reinforcement method in reducing some behavioral problems in a group of people with Down syndrome "speech disorders and attention deficit" as a model, and what the researchers observed during and after the application of the program, they make the following recommendations:

Recommendations:

- Since the problem of language and attention is among the most important problems suffered by this group, it is necessary to pay attention to such problems and allocate behavioral, training and treatment programs for them.

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- Providing a study environment rich in stimuli that increase the level of attention in this category, and using the method of symbolic reinforcement and other effective behavioral methods.
- Planning counseling programs for families with Down syndrome and training them to improve the language performance of their children, through early diagnosis and early intervention.
- Develop counseling and treatment programs that help parents understand the behavioral problems suffered by people with Down syndrome, especially with regard to language disorders and attention deficit.
- Guiding parents, specialists and educators in charge of raising and educating people with Down syndrome on the effective role of symbolic reinforcement and behavior modification methods in reducing behavioral problems in this group.
- Holding specialized training courses for speech therapists, psychologists, educators and workers in special education institutions and in integrated departments, in the field of treating behavioral problems, especially with regard to speech and language disorders and attention deficit.
- The need to pay attention to the design of school curricula, activities and behavioral therapy programs on scientific bases based on theories of behavior modification, whether it is a child with Down syndrome or a safe child.
- Encouraging researchers to conduct more research in the field of behavior modification and its effectiveness in reducing both speech disorders and attention deficit, due to the lack of this type of research in Algerian society in particular and Arab society in general.

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