

The efficiency of a training program in the improvement of the attention skill for children with ASD

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Benchouk Asma ¹, Assia Abdu Allah ²

¹University of Oran 2, Algeria, Email: benchouk.asma@univ-oran2.dz

²University of Oran 2, Algeria, Email: abuyoucefassia@gmail.com

Abstract:

This study aims at developing the attention skill with a training program. The sample includes 05 children with ASD aged between 06 and 08 years old. The study uses the experimental method that aims at studying the effect of an experimental variable (the training program) on the variable of the attention skills. The study tools include the scale of attention skills for children with ASD prepared by the author. Findings show the efficiency of the training program in developing the attention skill for children with ASD. Besides, there are statistically significant differences between the pre and post measurements for the experimental group on behalf of the post-measurement. Moreover, there are no statistically significant differences between the pre and post-measurements on the attention scale for the experiment group.

Keywords: attention; training program; ASD.

Corresponding Author: Benchouk Asma, Email: benchouk.asma@univ-oran2.dz

1. INTRODUCTION :

Autism Spectrum Disorder ASD is one of the general developmental nervous disorders that affect the child before the age of 03 and remain for the whole life. It is accompanied by many deficits on the growth aspects such as the attention deficits. Attention is a basic element in the cognitive, social, and emotional development of children. Besides, ASD is a disorder that may hinder learning and adaptation with the surrounding world. Faced with this problem, many researchers, experts, and scholars started innovating methods to improve attention for children with ASD. This led to developing intervention programs that target the reinforcement of the attention, taking into consideration of the various aspects of ASD.

Based on what has been said, this paper aims at examining the efficiency of a training program for the improvement of the attention for children with ASD, taking into consideration the individual differences of the children and their developmental needs. In this regard, we aim at raising awareness of the practitioners, teachers, and families about the various styles to improve the attention of these children. Therefore, the increasing understanding of the interventions helps directing the choice of the suitable strategies' use with each case in order to increase the children's cognitive participation, education, and growth. Finally, it is necessary to focus on the continuous research efforts that aim at advancing this field. Moreover, the development of programs that improve the attention for children with ASD is still a dynamic and promising field of study. Thus, this paper aims at contributing to a better care for children with

ASD so that they manage to take advantage of their implicit potentials in their society.

1.1. Problematic:

The contemporary world witnesses a series of developmental troubles in various life fields mainly in the scientific research and psychology. In this line, ASD threatens children as it causes disabilities and deficits in social interaction and communication and in the attention skills. The typical behaviors starts emerging in the 1st months of the life. There is a quasi-agreement that these behaviors emerge completely before the age of 03. Nevertheless, some children show some deficits in their first years of life (Khouli, 2012, p. 9).

ASD is one of the most deficits that start with the first days of life and go on until death. The chances of improvement are low with 20% and 30% only for the slight cases that suffer ASD without mental delay or disabilities. On the other hand, 70% of the cases reach old adulthood with deficits and a need for a full familial care or in a specialized center (Faraj, 2003, p. 5).

Therefore, diagnosing ASD is one of the big issues facing researchers in the field of childhood because the characteristics of ASD are generally similar and intersect with each other. Therefore, it is difficult to get exact data that allow the diagnosis of the symptoms in an exact manner. Consequently, we can distinguish people with ASD from people with other troubles (Sliman, 2000, p. 36). ASD is characterized with a set of symptoms and challenges that include attention deficits. In this regard, attention plays a pivotal role in the cognitive, social, and emotional development of children. Besides, it may weaken learning, social participation, and the quality of life.

Generally speaking, children with ASD fail in the tasks that need attention mainly darting communicative attention (Chairman, 1997). Besides, they have deficits in responding to others and find difficulties in maintaining attention because they have little eye contact and generally seem not to be listening. Even their attention resulting from the social motives and stimulators such as smile, hugs, and rewards is generally limited and weak due to the limited attention they have. We can say that they pay attention just to things that result from the self-stimulation (Sherill Clodens, 1994, pp. 552-553).

In this line, Leekam et al confirm that children with ASD suffer lack of correct response to the attention invitation from the others compared to the normal ones. Besides, they are less initiating in contact and more difficult in looking at the others and following their looks, directions, and gestures. Moreover, they have a trouble in the cognitive and perceptual abilities, in addition to deficit in attention and understanding the verbal orders. The clear disorders in attention indicate the inability of the child to learn and focus on selected stimuli or some events that are not linked to the situation. This generally implies the attention distraction (Abdurrahman Sayad Sliman, 1999, p. 170).

Children with ASD are characterized with a deficit in attention selectivity in the non-stressing situations. They can develop their eye contact in the stress situations and in peer-to-peer tasks unlike the natural or open situations where they cannot continue eye contact for a long time due to the attention deficit (Kenumion, 1997, p. 266). Furthermore, they may not pay attention unless for a short time in some cases. Nevertheless, they may pay attention to the concrete things around them mainly the things that turn such as the fan, the car wheel, the

circular games, etc. These things draw the child's attention for a long time than the usual and relax him. Thus, the end of the circular movement triggers him, leading him to screaming and loss of relaxation; he may not relax unless the circular movement comes back (Khaled Mohamed Ahmed, 2008, p. 78).

Therefore, many researchers designed programs of improving attention that suit the special needs of children with ASD. Nevertheless, there are still big challenges that lie within the diversity of the symptoms of ASD. In this line, each child shows distinct characteristics that affect his understanding of the world and interaction with the environment stimuli. As a result, the use of one method that suits all children shall not handle the needs of the individual care for children with ASD. There is another important challenge related to the identification of the basic mechanisms that contribute to the attention deficits of children with ASD. The understanding of these mechanisms is necessary to develop efficient interventions.

Some factors such as the sensual differences, limited interests, and contact deficit may affect the attention of children with ASD. However, their complex interaction requires extensive research methods for a better understanding. Moreover, the programs must take into consideration the dynamics of the family, the child, and the school. In addition, the cooperation between the parents, teachers, and experts is very important to support the continuity of education and the application of the attention strategies in various contexts. This led to the diversity of studies that help these children develop their attention. Based on this, we tackle this issue to provide a training program based on the complementary various activities

to train children with ASD on a better attention. In this context, we raise the following problematic: “To extent is the training program efficient in developing the attention deficit of children with ASD”.

1.2. Hypotheses of the study:

1. There are statistically significant differences between the mean of the means of the degrees of the experiential group on the attention scale before and after the application of the program on behalf of the post-measurement.

2. There are statistically significant differences between the mean of the means of the degrees of the experiential group on the attention scale in the post and monitoring measurements.

1.3. Aim of the study:

The study aims at knowing the effect of the training program on the development of the attention deficit of children with ASD.

1.4. Importance of the study:

The importance of the study lies within the theoretical and practical sides as follows:

- It contributes to increasing knowledge and facts about attention of children with ASD.
- It sheds light on the attention skills and their negative effects on the various development aspects of children with ASD.
- It sheds slight on the importance of the training programs in the various development aspects of children with ASD.

1.5 The practical importance:



- Improving the attention skills of children with ASD through a training program that includes training sessions for children and counseling sessions for parents.
- Involving parents in the implementation of the program designed for children with ASD who suffer deficits in the cognitive functions. This has a positive effect on the acceleration of the treatment and the generalization of the positive effect of the program.
- Recommending the use of the program used in the study in the development of the attention skills in the ASD centers.

2. Terms of the study:

2.1. ASD:

It refers to the self-enclosure, the absorption in thought, the hyperactivity, and the low ability of attention, communication, and social relations establishment (Anderson, Marcia, 1990, p. 3). Besides, it is a developmental trouble characterized with deficit or suspension of the growth of the perception and language. Thus, it affects the ability to communicate, learn, and grow cognitively and socially. It is accompanied by an alienation and emotional stalemate as if the nervous system stops completely and the senses stop working. The child lives in alienation save in some random typical movements with no goal for a long time and in tantrums as a reaction to any pressure or change of his own world (Howlin, 1995, p. 31).

It is also defined as the inability to communicate with the others. It is accompanied by the social withdrawal, alienation, and the inability to establish social relations. Besides, it causes troubles in languages, cognitive skills, perceptual abilities, and

attention. Moreover, it leads to hyperactivity and the inability to understand the verbal orders (Abdel Mannan Mala Maamour, 1997, p. 437).

Besides, it is defined as a set of general troubles in the social interaction, the imaginative activity, and the ability to communicate. In addition, it includes the alienation and the low continuous attention to the external events and subjects (Denis, Kurita et al., 1999, p. 2). Moreover, it is a set of comprehensive and developmental troubles that disturb and confuse children as they include a deviation in all the aspects of the psychological performance in childhood, including attention, perception, leaning, language, social skills, contact with reality, and the motor skills (Abdel Aziz al-Shakahs, 2002, p. 52).

Furthermore, it is characterized with troubles from an unknown source that lead to diverse disabilities and troubles that affect the cognitive sides such as the mental delay, school delay, linguistic delay, emotional problems, and hearing and seeing problems (Zeineb Cheqir & Mohamed Moussa, 2007, p. 33).

Comment:

The researcher sees that there are various definitions for ASD. Scholars faced a difficulty in identifying a definition due to the complexity of this disorder. Therefore, each of these definitions complements the other. They are all definitions that aim at achieving a comprehensive definition for ASD. Nevertheless, there are various views for the psychologists and experts. As for the procedural concept adopted by this study, it is that ASD is one of the comprehensive development troubles that are characterized with attention deficit (Mohamed al-Arbi Shamoun, 1996, p. 254).

2.2. Attention:



Attention is the conscious concentration of the feeling on one stimulus and the neglect of the others; this is known as the concentrated or selective attention. On the other hand, it is divided attention when there is a division of attention between two or more stimuli (Al-Sayad Ali Sayad & Faika Badr Mohamed, 1999, p. 17).

Attention is the ability of the individual to use the mental energy or ability in a cognitive process. It is a set of important processes followed by other cognitive processes. The failure of the individual in directing his attention towards a specific stimulus, or to correctly select from the surrounding stimuli leads to the failure of the rest of the processes and, thus, making wrong responses (Ibtissem Hamed al-Satiha & Khaled al-Fakharani, 2001, p. 51).

Comment:

After presenting the various definitions of attention, we find that there are various definitions and a disagreement among the experts regarding this concept. In this line, some see that it is the impossibility of recognizing the stimulus that triggers the individual. These definitions complement each other. As for the procedural definition used in this study, it is that attention is the degree got by the child with ASD on the attention scale.

2.3. Program:

The procedural definition of the program used in this study is that it is a set of organized and planned activities that aim at improving attention for children with ASD.

3 .Practical side:

3.1. Theoretical field:

The researcher shall use the quasi-experimental method through measurement tools and the program that is applied on the experimental group to check the study hypotheses.

3.2. Variables of the study:

The independent variable: it is the program used in the study.

Dependent variable: it is the perception.

3.3. Sample of the study:

It includes 05 children with ASD (04 males and 01 female) aged between 06 and 08. In the light of determining the sample, we identified the children whose ages are between 06 and 08, diagnosed their ASD with the help of doctors and experts, and set some criteria as follows:

- The child must have simple to moderate ASD according to the diagnosis of the center that takes care of them.
- We excluded children with accompanying impairments such as hearing, mental, visual, or motor impairments.

3.4. Statistical tools used in the study:

We used Wilcoxon test for the non-parametrical statistical significance (related data).

Study tools:

1st tool: scale of attention for children with ASD prepared by the author.

This scale aims at identifying the study sample that includes children with attention deficits. The scale was used in the pre, post, and monitoring measurements.

Psychometric properties of the scale:

The author used many methods:

First: the validity:



Reviewers’ validity:

The scale was presented to 05 reviewers in psychology to tell their views about what they see should be modified or deleted, and about the linguistic correctness. Thus, we made the suitable modifications on some items and confirmed the validity of the content of the scale thanks to the views and suggestions of the reviewers.

Internal validity:

Table 1. The results of the internal validity

Items	Value of the correlation coefficients	Items	Value of correlation coefficients
1	.597**	11	.745**
2	.702**	12	.445**
3	.676**	13	.672**
4	.738**	14	.271**
5	.613**	15	.310**
6	.650**	16	.740**
7	.694**	17	.740**
8	.717**	18	.457**
9	.662**	19	.575**
10	.685**		

** Significance level 0.01, * significance level 0.05

Table 1 shows that all the correlation coefficients between the items and the total degree are significant at 0.01. Thus, the scale is valid.

Consistency of the scale:

Table 2. The results of the consistency and Cronbach’s alpha values of the secondary components and sensual perception scale

Components	Consistency methods
	Cronbach’s Alpha ,**616

The perception scale, with its secondary components, has a high degree of consistency, as they are all significant at level 0.01. Thus, we confirm the validity and consistency of the attention scale and its suitability for this study.

The scoring method:

The questions must be answered according to Lickert 05 point scale. The answers with their scores are as follows: does not happen (1), happens rarely (2), happens sometimes (3), happens usually (4), happens always (5). The highest degrees refer to the difficulty or deficit. The highest score shall be 95 while the lowest shall be 19.

2nd tool: the training program for the development of attention (made by the author).

This tool aims at developing the attention skill. This can be achieved through:

- Training the child on the concentration and attention activities.
 - Training the child on the increase of the attention duration.
- Besides, it is based on some principles as follows:
- The child with ASD needs a complementary learning environment that helps increase the abilities.
 - Training on the various activities.

Considering the individual differences.

- Considering the needs and characteristics of children according to the age.
- Integrating them in the social activities.

3.5. Procedural limits of the program:

Temporal limits:

The program was carried out during 04 months from 15/11/2022 to 15/03/2023 with two sessions per week. Thus, the total sessions are 32. The session takes almost 45 mn; the real time for activities execution is between 25 to 35 mn while the rest is for preparation and evaluation of some activities of the previous sessions.

Spatial limits:

The program was applied in a private clinic.

Human limits:

The program was applied on 05 children with ASD aged between 06 to 08.

Results and discussion:

This chapter tackles the statistical treatments. After presenting the statistical results, the author shall explain the results and answer the hypotheses. Then, we interpret the findings in the light of the theoretical frame of the study and the previous studies. In this line, the author used the non-parametrical statistics, including Wilcoxon test on two correlated samples.

1st hypothesis:

It states that there are statistically significant differences between the means of the degrees of the experiential group on the attention scale before and after the application of the program on behalf of the post-measurement.

To examine its validity, the author conducted Wilcoxon test on two correlated samples to calculate the significance of the difference between the means of children with ASD before and after the application of the program. Table 03 shows the results of this hypothesis:

Table 3. The results of the 1st hypothesis

Scale	Measurement	Number	Arithmetic mean	Standard deviation	Means of the degrees	Total of degrees	Z	Significance level
Attention	Pre-measurement	5	19	9.30	3	15	2.619	Significant at 0.001
	Post-measurement	5	82.40	15.646	8	40		
	Monitoring measurement	5	82.40	15.646	8	40		

Table 3 shows statistically significant differences at significance level 0.01 between the means of the degrees of children with ASD in the experimental group in the post-measurements compared to the pre-measurement. This confirms the efficiency of the program as the attention improved. This improvement manifests in their degrees on the scale. In this regard, the author sees that the program suits the needs of children as confirmed by previous studies and researches. In this regard, the results of this study agree with the results of Rilens Beer and al (1998), and the study of Rombough (1999).

The studies of Huang, Cheng-Zang (1995) and Huang Cheg-Fang found out the development of attention for children with ASD using normal programs (training, behavioral, etc) and computer programs. Therefore, it is possible to redress the inattention behavior and to increase the attention for children

with ASD through focus on many activities and the use of many styles including the positive reinforcement such as the use of praise and awards like candies or chips. However, it is easy for children with ASD to lose attention rapidly (Shaker Qandil, 2000, p. 79).

Besides, these studies agree with our results and point out to the development of attention for children with ASD. In this line, it is agreed that the early intervention improves the attention of children with ASD because this skill is pivotal and leads to positive changes in all the other skills such as the response to the various stimuli, the self-management, the motivation to respond to the social and environmental stimuli, and the interaction with the others (Koegel, Dunlap, 1999, pp. 2-3; Schltheis et al., 2000, p. 1).

Results of the 2nd hypothesis:

It states that there are statistically significant differences between the mean of the degrees of the experiential group on the attention scale in the post and monitoring measurements.

To examine its validity, the author conducted Wilcoxon test to find the differences between the means of children with ASD on the scale immediately after application of the program, and after a period of its application.

Table 4. The results of the 2nd hypothesis

Scale	Measurement	Number	Arithmetic mean	Standard deviation	Means of the degrees	Total of the degrees	Z	Significance level
Attention	Post-measurement	5	82.40	15.646	8	40	16.3	0.165 Insignificant
	Monitoring measurement	5	84	15	8	39		

Table 4 shows the validity of the 2nd hypothesis because there are no statistically significant differences between the degrees of the post and monitoring measurements. This is thanks to the strength of the program and its continuity in improving the attention skill for children with ASD.

3.6. Recommendations of the study:

Based on the findings of the use of a program for the development of the attention skill for children with ASD, we suggest that:

- It is necessary to gradually teach children how to acquire the attention skill.
- It is necessary to provide the necessary tools in the child's environment to help acquire attention skills.
- It is necessary to diversify the activities provided for the child.
- It is necessary for the family to participate in the programs of developing the attention skill.
- It is necessary to hold meetings and seminars to show how to deal with children with ASD
- It is necessary to provide the material needs to take care for children with ASD.

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