

## **Enhancing Social Communication Skills (Cooperation) by Using ABLLS Program Among Autistic Children in the Capital of Kuwait**

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### **Abstract:**

*The study sought to measure the performance differences among the study subjects on the linguistic and grammatical scales due to the program, in addition to measuring the children's performance on the cooperation, and reinforcer effectiveness level which due to ABLLS program. In order to achieve the current study objectives, the experimental method was used for being more suitable to achieve them. 28 autistic children were randomly selected from autism centres at the capital of Kuwait, and then there were randomly assigned into two groups; the first was experimental and included 16 autistic children, 7 males and 9 females, while the other was a controlling group and was composed of 18 autistic children, 11 males and 7 females.*

*The study showed that there are apparent differences in the performance averages between the experimental and control groups between the post and after performances, in favour of the experimental group on the post-test. The Average score rose to 25.23 on the post-performance with a standard deviation of 8.51, while the control group post and after averages were close. Moreover, the experimental group post-test performance was higher than that of the control group. The study indicated that the proposed computer program to enhance communication skills among autistic children at ABLLS scale at the cooperative and reinforcer effectiveness has evident impact and is effective. %62 of the post-test variation on ABLLS cooperation and reinforcer efficiency scale is attributed to the computer program. The study recommends providing autistic children tethers with the opportunity to attend workshops and training courses focused on the strategies and methods used in developing the skills of these students in addition to reducing the issues facing them, the study also stresses the need to applying more studies on the programs that may help them with dealing with autistic children.*

**Introduction:**

Educational programs aim to strengthen and activate the abilities of the gifted and mentally distinguished individuals in addition to developing their thinking strategies, such as assimilation, application, analysis, synthesis and evaluation; the gifted is different from his/her peers in their way of thinking and dealing with ideas and information. Bloom had distinguished between the gifted and normal child; the gifted child assesses, constructs and analyses before absorbing information, while the normal child need to absorb the information then analyse it before reaching the assessment stage. As for the programs; each program chosen by the families or educators to develop the gifted children's abilities had its positives and negatives (Yahya. 2005; 303).

There are many global programs that had been developed to deal with autistic children, and had proven their effectiveness in teaching and training them in the verbal and nonverbal communication skills, taking into consideration Austin children characteristics, maintaining the order of the environment, exploiting their strengths as well as training them in the classroom environments , including ABLLS program which helps in evaluating the basic language skills and learning skills, which helps in identifying the causes of poor skills and thus increasing the ability to communicate with the community. Autistic children suffer from clear verbal and nonverbal communication disability; language is considered one of the basic simulations while diagnosing autism, autistic child's communication disorders is one of the key signs that negatively affect the aspects of his natural growth and social interaction. Language and communication disorders among autistic children include both to the verbal and non-verbal communication, many studies indicated that about %50 of Autistic children do not develop expressive language abilities, therefore they are usually described as silent or reticent, and instead of spoken language or direct gestures, the autistic child may lead the adult by hand towards she/ he wants, using the adult as a tool (Wetherby & Prizant. 2005). Based on this, the study is intended to contribute to enhancing social communication skills by applying ABLLS program, since it is one of the basic skills needed by any autistic child.

**Study Importance:**

The study contributes to demonstrating the effectiveness of implementing the ABLLS in enhancing communication skills among gifted children, as weekly as clarifying the ways in which ABLLS program is employed to reveal the weakness of communication skills of this important group, which is of great interest in Kuwait. It is hoped that the study will contribute as the stem of later studies on enhancing autistic children's social communication skills, helping them meet the needs of this group of children and helping their families deal with them.

**Study Problem:**

The children suffering from autism usually suffer from behavioural issues which usually occur due to the lack of communication, in other words, the autistic student may use an inappropriate behaviour rather than speaking appropriately in order to express his wishes and needs. Therefore, autistic children must learn social skills that substitute this undesirable behaviour through appropriate behavioural programs and support (Hines and Simonsen, 2008)

The Study attempts to answer the following questions:

1. Are there statistically significant differences at the  $(0.05 \geq \alpha)$  significance level in the performance of the study subject on the linguistic and grammatical compositions attributed to the program?
2. Are there statistically significant differences at the  $(0.05 \geq \alpha)$  significance level in the children's performance on the cooperation and enhance effectiveness due to ABLLS program?

**Study Objectives:**

The study aims to measure the difference in the study subjects performance on the linguistic & grammatical structures scale due to the program, in addition to measuring the differences in the children's performance in the cooperation & reinforcer effectiveness scale due to ABLLS program.

**Study Hypothesis:**

The study stems from the following hypotheses:

- 1- There are no statistically significant differences at the  $(\alpha \leq 0.05)$  significance level in the study members' performance on the linguistic & grammatical structures scale due to the program.
- 2- There are no statistically significant differences at the  $(\alpha \leq 0.05)$  significance level in the study members' performance on the cooperation & reinforcer effectiveness scale due to ABLLS program.

**Study Concepts:**

**ABLIS Program:** Assessment of Basic Language and Learning Skills also known as The ABLIS-R. It depends on finding the weaknesses from which the autistic child suffers from based on a criteria specified in the program, and then preparing an individual educational and training the child on the goals set out in the plan according to ABA stages. (Shatet Al-Awaidi. 2008: 318)

**Autism:** According to the Individual with Disabilities Education Act (IDEA) it has been defined as a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three, that adversely affects a child's educational performance (Hallan, Kuffman & Pullen. 2009)

**Communication Skills:** Are the ability to listen, pay attention, realise and verbally respond; this skill can be learned by individuals regardless of their personalities or their educational or social backgrounds , they are skills that require continuous training like any other skills. (Al-Qahtani. 2015)

**Two: Previous Studies:**

Some of the most important studies include:

Shtetat Al-Awaidi 2018 study. The effectiveness of the Linguistic and Educational Skills Evaluation (The ABLIS-R) in Improving the Basic Skills for a Sample of Autistic Jordanian Children. The study sought to identify the effectiveness of evaluating the linguistic and education skills in improving the basic skills among a Jordanian sample of children suffering from Autism. The study sample was composed of 10 Autistic children between the ages 3-6 years old, and the basic learning skills scale from The ABLIS-R program was used as a pre and post-skill measure. The program was verified for the validity of the content , the scale discriminative honesty, and the content honesty and discriminative honesty implications, evaluators consistency implications, the consistency of repetition and the internal consistency of the scale. The study results showed that there were difference between the study members' performance in the pre- and post- evaluation with a 64.9 difference in favour of the post performance on the skills as a whole. The qualitative results of the study members showed an improvement in their post evaluation. A follow-up measurement was made to determine the effect of the program 3 weeks after it was concluded; the results showed consistency in the study members' performance in the post and follow-up evaluations.

Abd 2018 study. Exploring Autistic Children's Behaviours in the Light of the Modern Diagnostic Standards (DSM-V). The study sought to explain the behavioural manifestations of autism in the light of the recent trends. The study sample was made up of a community of female and male teachers at special education centres' in the West Bank, totalling to 62 individuals. The study used the behavioural characteristics scale, and its results shored that the most common manifestation among autistic children is verbal disorders, with an average of 3.1, which is higher than the 2.5 average, followed by the non-verbal disorders with a 2.9 average, while there were four different manifestations which ranked third ( Imitation, adapting to change fear and nervousness, and using the body. The results indicate that the lack of interpretation in these behavioural manifestations lead to a decline in the level of

services and treatment programs provided, it also recommends enhancing specialists' knowledge and skill in the behavioural manifestations of this disorder.

Qam, Dokhan. 2015, entitled: The Effectiveness of the Training Programs in Developing Communication Skills Among the Mothers of Autistic Children . The study sought to measure the effectiveness of a training program in developing the communication skills for mothers with autistic children. The study sample consisted of 12 mothers who have children with autism in Gaza Strip, Palestine. The sample was chosen based on their low scores in the nonverbal communication scale, taking into account the mothers' age group and their educational level. The researcher used both, the non-verbal scale, which she had prepared and consisted of 4 domains (imitation, common attention, recognition & understanding, referencing to what is desired), in addition to a training program based on PECS. The study showed statistically significant differences in the average scores between the pre and post measurements in favour of the post-measurement of the non-verbal communication among the mothers of autistic children. The study also showed statistically significant difference between the post and follow-up measurements in favour of the training program.

Usry 2015 study, entitled: Validation of the assessment of basic language and learning skills-revised for students with autism spectrum disorder using an expert review panel. The study sought to determine the validation indications and the consistency of The ABLLS-R program. The content validity indicators volume was verified, in addition to the consistency parameters which were obtained through the consistency of evaluators and the results obtained, 91 skills were adjusted and the consistency was measured through internal consistency, where the correlation coefficient was 0.953. These results confirm the validity and the consistency of the program, allowing for use in public schools with students who suffer from autism spectrum disorder.

Bakhesh 2002 study, entitled: The Effectiveness of a Training Behavioural Program on Autistic Children. The study aimed to verify the effectiveness of a behavioural training program on a sample of autistic children to develop their social interaction skills in addition to reduce their aggressive behaviour. The study sample consisted of 24 children enrolled in Amal Centre for Intellectual Development in Jeddah, ranking between 7-14 years old, with an IQ between 55-68 on Joudar Intelligence test. The researcher decided the sample into two groups equal in age and level of aggressive behaviour; one of which is a control group while the other is experimental, each of which include 12 children. The treatment program consisted of 30 session with 3 sessions a week , each is half an hour long, in which autistic children were trained on some social skills such as visual communication, understanding facial expressions, cooperation and group games. The study results showed the effectiveness of the program in reducing the aggressive behaviour among the sample; there were statistically significant differences between the average scores of the experimental and control groups in terms of the aggressive heavier. There were also statistically significant differences between the average scores of the experimental group in regards to the pre and post evaluations of the aggressive behaviour and its dimensions. This study was used to cover the theoretical aspect and the form design.

### What distinguishes this study from previous studies:

The previous studies discussed topics related to the Autism programs or ABLLS program, and were conducted in Arab and Foreign environment, while the current study is concerned with a subject that was not dealt with in previous studies, and in a different environment, namely the Kuwaiti environment.

### Study Approach:

In order to achieve the study's objectives, the experimental approach was adopted since it was the most suitable to achieve the study objectives.

### Study society and sample:

28 autistic children were randomly selected from autism centres in the capital of Kuwait. The study members were randomly divided into two groups; the experimental group which consisted of 16 autistic children 7 males and 9 females; the control group, which consisted of 18 children, 11 males and 7 females. In order to achieve the study objectives, 13 autistic students from the experimental group were chosen to study using the computer, while 13 other students from the control group were not taught using the computer.

### Groups equivalence test:

To test the parity of the experimental and control groups, test (T) was conducted for the independent samples for the two groups' students scores on the pre-test for the cooperation and reinforcer effectiveness fields as well as the linguistic and grammatical structures. Table (1) demonstrates this:

**Table (1) The Averages and standard deviations for Test (T) for the independent samples to measure the differences in the pre-performance for the experimental and control groups**

Test	Group	Number of members	Average	Standard Deviation	(T) calculated value	Freedom level	Statistical significance
Cooperation & reinforcer effectiveness	Experimental	13	7.89	4.31	1.064	24	0.265
	Control	13	9.23	4.00			
Linguistic & Grammatical structures	Experimental	13	8.23	4.50	0.639	24	0.362
	Control	13	7.56	4.26			

Table 1 shows that the performance averages between the experimental and control groups on the cooperation & reinforcer effectiveness and the linguistic & grammatical tests on the pre-performance are close and the differences between the two groups are not statistically significant at the  $(0.05=\alpha)$ . The average of the cooperation & reinforcer effectiveness test total scores for the control group was (9.23) with a (4.00) standard deviation, compared to the (7.89) average and (4.31) standard deviation of the experimental group. The matter was the same with the linguistic & grammatical structures test, where the

average of the control group was 7.56 with a 4.26 standard deviation versus an average of 8.23 and a standard deviation of 4.50 for the experimental group. Test (T) test results conform that there were no statistically significant difference at the  $(0.05=\alpha)$  significance level between the control and experimental groups, as the calculated T values were 0.639, 1.064 which is less than the tabular value of T calculated at the 24 freedom level and an error level of 0.05, which is 2.021, thus showing the equivalence of the control and experimental groups.

#### **Study Tools:**

The study adopted the two tools below:

#### **One: ABLLS Scale:**

On both of its domains; Cooperation & Reinforcer Effectiveness and the Linguistic & Verbal Structures

- Cooperation & Reinforcer Effectiveness Domain : Consists of 18 tasks.
- Linguistic & Verbal Structures: Consists of 20 tasks

#### **Tests' Consistency ( Cooperation & Reinforcer Effectiveness and the Linguistic and Grammatical Structures):**

To verify the consistency of the cooperation & reinforcer effectiveness and the linguistic & grammatical structure tests, each test was applied to 5 children and then reapplied a week later on the same children. After correcting the tests and reviewing the results, the correlation coefficient between the pre and post tests was calculated; the correlation coefficient for the cooperation & reinforce effectiveness test was (0.870), while the linguistic and grammatical structures' was 0.831), indicating the consistency of performance on the two tests.

**Table (2): Cooperation & Reinforcer Effectiveness and the Linguistic & Grammatical Structures' Tests Content Consistency Results using the testing and retesting**

Test	Pre-performance		Post-performance		Correlation coefficient	Statistical Significance
	Average	Standard Deviation	Average	Standard deviation		
Cooperation & Reinforcer Effectiveness	8.05	3.22	8.90	3.04	0.970	0.000
Linguistic & Grammatical Structures	9.01	3.25	9.65	3.24	0.851	0.000

Reliability through Kuder - Richardson 20 method: The reliability coefficient was calculated according to the Kuder - Richardson 20 (KR-20) equation since its is a more common tool to estimate reliability in addition to measuring the paragraphs internal consistency. The Cooperation & Reinforcer Effectiveness test reliability coefficient was (0.97), while the Linguistic & Grammatical Structures test's was (0.851, which is statistically significant at the  $(0.05=\alpha)$  level; these values indicate that both tests have an appropriate degree of reliability and homogeneity.

**Study Design and Statistical Processing**

To achieve the study's objectives, the study sample was divided into two groups: Experimental and control groups, each of which included 13 children, and the ANCOVA was used to test the study hypotheses.

**Study variables:**

**Independent Variable:** Computer program to enhance communication skills among autistic children

**Dependent Variable:** The performance of the study members on the ABLLS program in both of its domains; Cooperation & Reinforcer Effectiveness and Linguistic & Verbal Structures Skills.

**Two: Computer program**

In order to achieve the objectives of the current study the researcher built a computer program with help from Pix; a specialised computer program, which includes a wide range of subjects. Due to the characteristics of the study sample, a different subject was chosen with guidance from Pix, in addition to adding other programs similar to those found on Pix program, such as Arabic alphabet and geometric shapes. Below are the topics which were included in the program:

1. **Animals:** The lesson includes a group of animals, displayed in groups, and when the child places the cursor on the image and click the program produces a sound which names the animal.
2. **Different concepts:** The lesson trains the children to distinguish between the different concepts such as long and short; large and small. Each concept is presented through two images and when the child puts the cursor on the image and clicks it, the program produces a sound which names the concept which had been selected.
3. **Relationships:** The lesson includes training children to connect a range of related objects, such as a bat and a ball; a tooth Brush and toothpaste. Two images are displayed together and when the child places the cursor on the image and clicks the program produces a sound which names the item selected.
4. **Arabic alphabet:** The lesson includes pictures of the Arabic alphabet which are displayed I groups and when the child places the cursor on the image and clicks, the program sound the letter which had been selected.



**Testing the hypotheses:****The first Hypothesis states:**

There is no statistically significant difference at the ( $0.05 \geq \alpha$ ) level in the children's performance on the cooperation & enforcer effectiveness scale which is attributed to the ABLLS program. The averages and standard deviations were calculated in addition to 2X2 ANCOVA and are illustrated in Tables 5 and 6

**Table (5) Averages and standard deviations of the pre- and post applications for the experimental and the control groups on the cooperation & enforcer effectiveness test**

Test	Group	Pre-test		Post test			
		Average	Standard Deviation	Average	Standard deviation	Audited Average	Standard error
Cooperation & Enforcer Effectiveness	Experimental	9.79	4.06	25.23	8.51	25.39	1.524
	Control	8.24	4.03	9.09	3.24	9.45	1.524

Table (5) shows that there are apparent difference in the performance averages between both the experimental and control groups and between the pre- and post performances, in favour of the experimental group's post test. The Experimental group performance average on the pre-test was 9.79 with a 4.06 standard deviation, which rose to 25.23 on the post-performance with a standard deviation of 8.51. On the other hand the control group's pre- and post performance averages were similar 8.24, 9.09 with a standard deviation of 4.03, 3.24.

To test the differences significance between the post-test averages of both groups, the experimental and control, Two Way ANCOVA analysis was used, Table 6 shows the results.

**Table (6) One Way ANCOVA analysis results to test the differences in the post-tests results for the Cooperation & Enforcer Effectiveness test between the experimental and control groups)**

Contrast source	Squares total	Freedom Level	Squares' average	F calculated value	Statistical significance	ETA squared coefficient	Explanation percentage
Pre-test	164.993	1	164.993	4.012	0.053	0.108	10.8%
Total	2213.409	1	2213.409	51.424	*0.000	0.650	62.0%
Error	1357.062	33	41.123				
Total	14959.000	36					
Total Average	4038.750	35					

\* Statistically significant differences at the ( $\alpha \leq 0.05$ ) level

The two way ANCOVA analysis results for the cooperation & enforcer effectiveness post-test performance shows statistically significant differences at the ( $\alpha \leq 0.05$ ) significance level between the performance of the experimental and control groups. The calculated value of (F) was 51.424 which is higher than (F)'s critical value at the 1 and 33 freedom levels and the ( $\alpha=0.05$ ) significance level, which was 4.085. Through the averages shown in Table (5) we find that the experimental group's performance on the post-test is higher than that of the

control group, as the experimental group average on the post-test was 25.30 with a low standard error of 1.524, while the control group average was 9.45 with a low standard error of 1.524, thus indicating that the effect the suggested computer program had on enhancing communication skills among autistic children on the ABLLS scale at the cooperation and enforcer effectiveness domain.

It is also noted from the table above that the value of ETA Squared was 0.650, which indicates that there is an impact for the suggested computer program in enhancing communication skill among autistic children at ABLLS cooperation & enforcer effectiveness domain; %62 of the variation in the post-performance on ABLLS cooperation & enforcer effectiveness scale is due to the computer program.

### The second hypothesis states:

There are no statistically significant differences at the ( $\alpha \leq 0.05$ ) significance level between the study members' performance on the linguistic & grammatical structures scale due to the program.

The averages, standard deviations and the 2X2 ANACOVA data was all calculated and are presented in Tables (7) and (8).

**Table (7): The averages and standard deviations of the pre and post performance of the experimental and control groups on the linguistic & grammatical structures test**

Test	Group	Pre-test		Post test			
		Average	Standard Deviation	Average	Standard deviation	Audited Average	Standard error
Linguistic & Grammatical Structures	Experimental	9.35	4.30	21.40	9.22	22.95	1.439
	Control	8.58	4.16	9.01	4.46	6.61	1.439

Table (7) shows that there are apparent differences in the performance averages between the experimental and control group as well as the pre and post performances in favour of the experimental group on the post-test. The experimental group's pre-performance average was 9.35 with a standard deviation of 4.30; the average rose to 21.40 on the post performance with 9.22 standard deviation. The average of the control group on the pre and post test was similar 8.58, 9.01 with standard deviations of 4.16, 4.46.

To test the significance of the difference between the post-test averages of the experimental and control groups, Tow Way ANCOVA was used; Table (8) shows the results:

**Table (8): One Way ANOCOVA analysis results to test the differences in the performance on the linguistic & grammatical structures pre-test between the experimental and control groups.**

Contrast source	Squares total	Freedom Level	Squares' average	F calculated value	Statistical significance	ETA squared coefficient	Explanation percentage
Pre-test	624.652	1	624.652	16.875	*0.000	0.338	33.8%
Total	1579.989	1	1579.989	42.682	*0.000	0.564	56.4%
Error	1221.570	33	37.017				
Total	13234.000	36	3695.222				
Total Average		35					

\* Statistically significant differences at the ( $\alpha \leq 0.05$ ) level

The two way ANCOVA analysis results for the linguistic & grammatical structures post-test performance shows statistically significant differences at the ( $\alpha \leq 0.05$ ) significance level between the performance of the experimental and control groups. The calculated value of (F) was 42.682 which is higher than (F)'s critical value at the 1 and 33 freedom levels and the ( $\alpha=0.05$ ) significance level, which was 4.085. Through the averages shown in Table (8) we find that the experimental group's performance on the post-test is higher than that of the control group, as the experimental group average on the post-test was 22.95 with a low standard error of 1.439, while the control group average was 6.61 with a low standard error of 1.439. This indicates the impact ABLLS program had in improving the average score on the linguistic and grammatical structures' test.

It is also noted from the table above that the value of ETA Squared was 0.564, which indicates that there is an impact for the suggested computer program in enhancing communication skill among autistic children at ABLLS linguistic & grammatical structures' domain; %56.4 of the variation in the post-performance on ABLLS linguistic & grammatical structures scale is due to the computer program.

### Discussing the results:

The study showed that there are apparent differences in the performance average between the experimental and control groups in addition to the pre and post performances, in factor of the experimental group on the post-test. The average pre-performance for the experimental group was 9.79, which had risen to 25.23 on the post-test with an 8.51 standard deviation of 8.51, while the pre and post performances average for the control group were very close with about 8.24, 9.09, with an average deviation of 4.03, 3.24 for both.

The study confirmed that there are statistically significant differences between both groups post-performances, and that the experimental group's performance on the post-test was higher than that of the control group. The experimental group post-performance average

was 25.39k while the control group's was 9.45, indicating the impact the suggested computer program has on enhancing the communication skills among autistic children on ABLLS cooperation and reinforcer effectiveness scale.

The study proved that there is an impact for the suggested computer program in enhancing the communication skills among autistic children on ABLLS cooperation & reinforcer effectiveness scale; %62 of the deviation in the post-performance on ABLLS cooperation & reinforcer effectiveness scale is due to the computer program. The study also showed that there are apparent differences in the performance averages between the experimental and control; group and the pre and post performances in favour of the experimental group in the post-test. The experimental group pre-performance average was 9.35 with a standard deviation of 4.30, which rose to 21.40 on the post-test with a 9.22 standard deviation, on the other hand, the control group pre-and post- performances averages were close 8.58, 9.01 with a standard deviation of 4.16, 4.46.

The study showed that the experimental group performance on the post-test was higher than that of the control group. The experimental group post-performance average was 22.95 with a low standard error of 1.439, while the control group's post-performance average was 6.61, with a low standard error of 1.439, indicating the impact ABLLS program has in improving the average on the linguistic & grammatical structures test, thus showing that the suggested computer program has an impact in enhancing communication skills among autistic children on ABLLS linguistic & grammatical structures scale. %56.4 of the post-performance deviation in the ABLLS linguistic & grammatical structures domain is due to the computer program.

Recommendations: In the light of the study outcomes, it recommends the following:

- Providing teachers of autism with the opportunity to attend workshops and training courses on the strategies and methods used in developing the skills of those students and reducing the issues facing them.
- The continuity and intensive training on the use of the necessary social skills program dedicated which autistic children lack.
- The need to apply more field studies on autism and the programs which help them deal with that group.
- The urgent need to conduct studies on the effectiveness of this program among the educational programs dedicated to autistic , by using different variables and a bigger number of autistic children.

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