

The effectiveness of Cues – Pause – Point method for overcoming echolalia in Arabic-Speaking children with autism

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Abstract: Echolalia is the parroting of the words of others and it is associated with Autism Spectrum Disorder. The purpose of the study was to examine the effectiveness of cues-pause-point method for overcoming echolalia in Arabic - speaking children with autism. To achieve this objective, the researcher prepared instrument consisted of 30 questions distributed into three content areas (identification, social interaction, and factual). The study sample consisted of 20 autistic children distributed randomly into two equal groups. Every group consisted of 10 participants. One of these groups was chosen randomly to be the experimental one to enroll in the cues-pause-point method training in order to achieve the goal of the study. The other group was chosen to be the control one. Means and standard deviations of pre-post test responses were counted. Analysis of Covariance (ANCOVA) was analyzed to determine the difference between means and Multivariate Analysis Covariance (MANCOVA) was analyzed to find out statistically differences between content areas means. T-test has been used to count the difference between post-follow up test means. The results demonstrated that cues-pause-point method can be effective in teaching children with autism correct responses. The results indicated significant differences in overcoming echolalia between experimental and control group on post test, in favor of the experimental group. Also the results indicated significant differences among experimental group on post-follow up test, in favor of the post test.

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1. Introduction:

Autism is a developmental disorder characterized by profound and pervasive deficits in social interaction, communication and play (**Autism Society of America [ASA], 2009**). Language delay and communication disorders are primary criteria in the diagnosis of autism (**Prizant & Duchan, 1981; Rutter, 1978**). In *Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition- Revised, DSM- IV-TR*, Communication disorders may include difficulties with expressive language, conversation skills, stereotyped and repetitive use of language, and idiosyncratic language (**American Psychiatric Association [APA], 2000**). It has been estimated that nearly 50% of individuals with autism are nonverbal and 50% that are verbal (**Rutter, 1978; Sullivan, 2002**). Echolalia is probably the most common exhibited deviant language patterns. It is defined as meaningless repetition or echoing of verbal utterances made by another person (**Leung & Wu, 1997**). **Prizant (1983)** pointed that echolalic behaviors are probably the most frequently discussed speech and language characteristics, most likely due to their high prevalence among verbal individuals with autism, it is estimated at least 75% of verbal individuals with autism exhibit echolalia in some form. There are two general categories of echolalia have been identified in the language of individuals with autism, immediate and delayed.

Immediate echolalia refers to repetition of one or more words in a temporally related sample verbalization. For example, the child echoes “how are you?” When someone asks “how are you?”, Delayed echolalia refers to utterances repeated at a significantly later time. For example, the child while seated at the lunch table may repeat favorite songs heard in television the day before (**McMorrow & Foxx, 1986; Schreibman & Carr, 1978**). Immediate echolalia is frequently problematic for individuals with autism; it interferes with learning in a social context and effective communication (**Charlop, 1983; Foxx et al., 2004; Schreibman & Carr, 1978; Sullivan, 2002**). The autistic child, who echoes instructions and directions to a task, would probably fail to performing the task (**Charlop, 1983**). Clinically, the persistence of echolalic behavior causes a problem for the teacher attempting to teach children with autism desirable behaviors (**Schreibman & Carr, 1978**).

Echoic language behavior is observed in normal children. Echolalia in autism is different from Echolalia in normal children in several matters. First, echoic behavior in normal children peaks at approximately 2-2.6 years of age; whereas echoic behavior in individuals with autism may be observed in adolescence and adulthood. Second, normal children extract the critical morphemes from the phrase in a telegraphic style and grammatically restructure the

phrase; whereas children with autism parrot the phrase (Sullivan, 2002). Third, echoic behavior in children with autism differs in quality and quantity from echoic behavior in normal children (Charlop, 1983).

Carr et al. (1975) suggested that children may echo when they do not understand what is being said to them. Sullivan (2002) reported that children with autism who had impairment in receptive language skills engaged in a significantly higher percentage of echolalia than children who had appropriate receptive language. Some researchers determined that immediate echolalia often was used with clear evidence of functional communication (Leung & Wu, 1997; Prizant, 1983).

Based on an examination of the literature, various studies were investigated addressed immediate echolalia, since most of the problems associated with immediate echolalia, the term of echolalia in current study will refer to immediate echolalia.

Several studies have taken different methods with echolalia. For example, Freeman et al. (1975) taught echolalic autistic patient to answer questions correctly by using an operant conditioning procedure which involved positively reinforcing the patient after immediately a correct response and preventing incorrect responses. In contrast, Goren et al. (1977) evaluated multiple contingencies for echolalia in a reversal design with two young children. They revealed that punishment through timeout inhibited all communication, and it is not generally an effective treatment approach for echolalia. Schreibman and Carr (1978) taught children to use non-echolalic verbal response "I don't know" to a small set of previously echoed questions, and produced generalization across a broad set of untrained questions and with unfamiliar adults. The results also showed that treatment gains were maintained one month later. Other studies have actually conducted on echolalia to teach receptive or expressive labels of objects. Charlop (1983) assessed the effects of autistic immediate echolalia on acquisition and generalization of receptive labeling tasks. The children demonstrated rapid acquisition of receptive labels and improved generalization of the acquired labels to a novel environment. Charlop suggests that autistic children have opportunity to facilitate acquisition functional language from echolalia. The study did not attempt to eliminate echolalia, but focused on increasing receptive responding. A cues-pause-point method (McMorrow & Foxx, 1986) was used to teach adults with severe mental retardation to respond correctly to questions. The results indicated that the adults learned the correct response and echolalia was decreased. Also, these improvements maintained after the prompting procedure had been faded. Furthermore, the findings indicated some improvement for both echolalia and

correct responding in comparison to baseline levels as much as four years after the intervention. Other study conducted by McMorrow et al. (1987) evaluated the direct and generalized effects of cues-pause-point language training procedures on immediate echolalia and correct responding in two severely retarded females. Results demonstrated that echolalia was rapidly replaced by correct responding on the trained stimuli. Also, the results indicated that there were improvements in subjects' responding to untrained stimuli. Foxx et al. (1988) taught two student with mental retardation who communicated by signing to answer questions with signed labels. The participants received cues-pause-point method. A multiple baseline across-subjects design revealed that the participant's incorrect signing was replaced with correct responding in training and all generalization sets. The study demonstrated that the cues-pause-point method can be useful in teaching students to use their manual signing repertoires.

Leung and Wu (1997) incorporated echolalia into teaching receptive labeling of Chinese characters to children with autism. In Leung's and Wu's receptive labeling procedure, the experimenter put two stimulus cards on the table in front of the child and then the experimenter verbally requested one of the characters, and waited for a response. The child hand character to experimenter. A correct response was followed by verbal praise and food reinforcer. The receptive labeling task could be considered to be a matching task in which the child chose one of two characters corresponding to the requested label. The results suggested that learned responses occurred across different novel conditions. Additionally, the study results provide support for incorporating echolalia as an educational tool within language instruction for autistic children. Chung (1998) conducted a study in an attempt to treat of echolalia in a girl with Rubinstein-Taybi Syndrome. The study focused on teaching the contingencies of reinforcement and punishment through working on simple and concrete tasks such as one or two piece puzzles, pushing toy buttons, etc.: reinforcement for the absence of echolalia and punishment for the presence of echolalia. The study results indicated that the subject's echolalic rate decreased from 82% in the unfamiliar (difficult) task condition to 48% in the familiar (easy) task condition, and the echolalic rate of 48% further decreased to 7.2% when the verbal instruction was shortened to two words. Another finding was a generalization effect from the treated to the untreated conditions.

Sullivan (2002) examined communicative functions of echolalia in children with autism. Five children with autism were administered a functional analysis to empirically identify each child's communicative function of echolalia. The children

taught to spontaneously request the identified reinforce using functional communication training. The results of study indicated that functional communication training treatment resulted in appropriate communication successfully replacing echolalia for each participant. Furthermore, improvements in communication were maintained at a two month follow up for three of five participants.

Foxx et al. (2004) also conducted a study in attempt to replace the echolalia of children with autism with functional use of verbal labeling. They evaluated the direct and generalized effects of cues-pause-point method on immediate echolalia in two children with autism. They demonstrated that cues-pause-point method can be effective in teaching individuals displaying echolalia to use their verbal labeling repertoires functionally. The effect of this method rapidly replaced the children's echolalia with correct responses and these improvements were maintained during conditions where the prompts, cues, feedback, and reinforcements were faded.

Hetzroni and Tannous (2004) investigated the use of computer-based intervention for enhancing communication functions of five children with autism. Delayed echolalia, immediate echolalia, irrelevant speech, relevant speech, and communicative initiations are variables were investigated. Results indicated that all children produced fewer sentences with delayed echolalia and irrelevant speech. Also, most of children engaged in fewer sentences involving immediate echolalia and increased the number of communication intentions. Furthermore, the children were able to generalize their knowledge to other settings. **Colon et al. (2012)** evaluated the effects of verbal operant training for three participants diagnosed with autism. The results indicated that all participants produced lower levels of stereotypy and increased appropriate vocalizations.

The present study examined the applicability of **McMorrow and Foxx (1986)**; **Foxx et al. (2004)** training procedures for teaching Arabic -Speaking children with autism correct responses to questions and replacing echolalia with functional use of verbal labeling.

The need for this study is obvious. Because of the successful application of cues-pause-point method with individuals with mental retardation and autism, it seemed reasonable to assume that the same method might benefit for individuals with autism. Additionally, this method effectiveness has not been investigated before with Arabic-Speaking children with autism, it is worth noting that these children have different culture and speak language. This present study attempted to address this gap. Also, this study was designed in response to limited available recent researches concerning with echolalia.

Statement of the Problem

Echolalia is often found in children with autism in the form of mechanistic and meaningless repetition of other's utterances. Approximately 75% of verbal individuals with autism exhibited echolalia (**Sullivan, 2002**). Immediate echolalia is a common problem that it can be interfere with learning, social relationships, and communication.

Purpose of the study

The purpose of the study was to examine the effectiveness of cues-pause-point method for overcoming echolalia in Arabic- speaking children with autism. Specifically, this study aimed to answer the following questions:

1. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalia between experimental group and the control group on post test and these differences are in favor of the experimental group?
2. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic identification questions between experimental group and the control group on post test and these differences are in favor of the experimental group?
3. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic social interaction questions between experimental group and the control group on post test and these differences are in favor of the experimental group?
4. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic factual questions between experimental group and the control group on post test and these differences are in favor of the experimental group?
5. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalia among experimental group in post test and follow-up test?

2. Methods

Participants and Including Criteria

In this study, the researcher selected the participant students according to the following criteria:

1. Participants should be diagnosed with autism spectrum disorder.
2. They should not have previous exposure to cues-pause-point method training.
3. Be between seven and fourteen years.
4. Be verbal speech
5. Exhibited immediate echolalia.

Participants

20 male children students with autism, in the 7-14 year age category at Saudi Autistic Society in Riyadh city participated in the study (N=20). They were distributed randomly into two equal groups. Every group consisted of 10 participants. One of these groups was chosen randomly to be the experimental one to

enroll in the cues-pause-point method training in order to achieve the goal of the study. The other group was chosen to be the control one.

Setting

The study was conducted at Saudi Autistic Society in the city of Riyadh in Saudi Arabia. Specifically, the participants of experimental group responded to pre-post test and received the training program within three sessions per week for 20 minute for each session in three months. The sessions were conducted individually in a room with child – size table and chairs that enabled the trainer and the child to sit facing each other.

Experimental Design

The researcher in the current study adopted experimental approach, and distributed the study sample randomly into two equal groups. Every group consisted of 10 participants. One of these groups was chosen randomly to be the experimental one to enroll in the cues-pause-point method training in order to achieve the goal of the study. The other group was chosen to be the control one.

Statistics

Researcher used descriptive statistic principles of means and standard deviations to find out the performance of the participants on pre-post test as well as the T-test to know if there are statistically significant differences between the participants' responses means to the post and follow up test or no. Also, the researcher used Analysis of Covariance (ANCOVA) in analyzing the participants' responses to the pre-post test to explore statistical differences between means,

and Multivariate Analysis of Covariance (MANCOVA) to find out significant differences between content areas means.

Instrument

The researcher prepared a test to obtain the required data (see appendix). The test consisted of 30 questions distributed into three content areas (i.e., 10 questions per area). The identification area included questions such as “what is your name?”; the social interaction area included questions such as “how are you today?”; whereas Factual area included questions such as “ what’s name city you live?”.

Validity

To check the validity of the test and the appropriateness of the questions, the researcher presented the test to five raters holding Ph.D in special education at faculty of education in king Abdulaziz University. They rated the test in terms of: (a) relation questions to the content areas and how far they represent it, (b) appropriateness of language phrasing (wording). The researcher took their comments into account, and the necessary changes were done.

For further validity, correlations Coefficients between test items and the total score of test were extracted. The correlations coefficients ranged between (0.36 - 0.78). Also, correlation coefficients among the content areas and with the total score of test were extracted (See table 1), it should be noted that all correlation coefficients were statistically significant and acceptable, and therefore, are not deleted any of items.

Table 1. Correlations Coefficients among the Content Areas and with the Total Score of Test

Content Area	Identification	Social interaction	Factual	
Identification				
Social Interaction	.830(**)			
Factual	.572(**)	.684(**)		
Overall	.821(**)	.900(**)	.886(**)	

*Statistically Significant at Level (0.05)

** Statistically Significant at Level (0.01)

Reliability

The final version of the test was administered to the exploratory sample consisted of 30 students. Cronbach's alpha and test-retest were used to calculate

the reliability for the content areas and the “Overall”. It should be noted that all reliability coefficients were statistically significant and acceptable for objectives of this study (See table 2).

Table 2. Reliability Coefficients (Test-Retest and Cronbach's alpha) for Content Areas and Overall

Content area	Test-Retest	Cronbach's alpha
Identification	0.84	0.73
Social Interaction	0.86	0.71
Factual	0.83	0.70
Overall	0.85	0.78

Answer coding schemes

The researcher prepared a form to encode participants' responses to the 30 questions. The form included four responses for each question ranging from (complete echolalia) given 1 score, (partially echolalia) given 2 scores, (incorrect response) given 3 scores, and (correct response) given 4 scores. The total score of test was ranged from 30-120.

Trainers

The trainers' team is from special education teachers supported with researcher supervision. All of them have sufficient clinical experience in working with students with autism. They all have particular training in the implication of cues-pause-point method.

Procedures

Preparation of test: the researcher prepared a test included 30 questions distributed into three content areas: The identification area included 10 questions such as "what is your name?"; the social interaction area included 10 questions such as "how are you today?"; whereas Factual area included 10 questions such as "what's name city you live?".

Pre test administration: the trainers' team administered the pre-test on the participants of the experimental group and control group.

Training phases: the training procedures of Cues-Pause-Point method consisted of five steps:

Training step 1, the participants were taught to verbally label each picture card that would be trained as correct responses. Labeling training consisted of the trainer (a) displaying the picture cards from each set on a table; (b) verbally ("what is this?") and /or gesturally (pointing or tapping the card) prompting the participant to identify the objects; (c) providing feedback (i.e. "yes" for correct response, "try again or no" for an incorrect response, a "no" for an echo, and "you did not answer" for no response); (d) saying the correct label when the participant failed to do so and then prompting him to label correctly; and (e) giving verbal praise and a reinforce for correct responses. This training continued until each picture was correctly labeled during three consecutive trials when the trainer simply pointed to it.

Training step 2, in this step, the trainer prompted the participant to remain silent before, during, and briefly after he presented the questions and then to label one of the pictures (i.e. correct answer) that was present on a table in front of the child. This was done by having the trainer (a) hold up his right index finger at eye level midway between child and himself to indicate that the trainer want silence (this is the "pause prompt") during the instructions, questions, and for approximately 1 s following the question, and say "no" or "shh" whenever the child verbalized; (b) move his finger so that it touched the correct response card approximately 2 s after the question was completed (

recall that at the end of response identification training each participant was responding correctly to the point prompt only); and (c) use the response identification training prompts (e.g, tapping the object, "what is this?", if necessary to ensure that the labeling response occurred; (d) cover the picture with a folder immediately after the uncovered trial, pause prompt again, restate the question, and move his right index finger so that it touched the folder when a correct response was desired (i.e., the trainer prompted again and used the response identification prompts if a response did not occur even though the picture was covered);(e) provide the same verbal feedback and consequences which were used in the uncovered condition for the first verbalization that occurred. Continue in this manner so that each of the ten questions in this content area are asked and at later sessions cover the ten questions from each of the other two content areas.

Training step 3, in this step, the pictures were removed from the training setting, and no point prompts were used. The training simply used the pause prompt as he presented the questions and then withdrew his hand so that it was closed and in contact with his chest when a response was desired. The feedback and consequences were the same as before.

Training step 4, in this step the trainer asked questions in a random order, and provided feedback and consequences as they always had.

Training step 5, fade the feedback and reinforcements by reducing the number of words trainer use to praise the participant and rewarding every other correct response. Gradually eliminate all feedback and reinforcements.

Maintenance: the trainer observed the participant's response, asked other questions (not trained) and used the "pause" prompt when needed. The trainer ignored echoed responses, prompted the correct answer, and let participant try again.

Post test administration: immediately after the completion of the training, trainers' team administered the post test on the participants of the experimental group and control group.

Follow-up test: four weeks after the end of training, the trainers' team administered the test on experimental group to see if there significant difference between post test and follow-up test.

3. Results

The study was conducted to achieve the main objective was to examine the effectiveness of Cues-Pause-Point method for overcoming echolalia in Arabic - Speaking children with autism.

The results which obtained after analyzing the data acquired in accordance the study's questions as following:

Q1. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalia between experimental group and the control group on post test and these differences are in favor of the experimental group?

To answer this question, means, standard deviations and estimated marginal means for experimental and control groups participants were extracted (See table 3).

Table 3. Means, Standard Deviations, and Estimated Marginal Means of the Participants' Responses to the Pre-Post Test According to Groups.

Group	Pre Test		Post Test		Estimated Marginal Mean
	Mean	Std.	Mean	Std.	
					3.905
Experimental	1.23	.100	3.91	.066	1.191
Control	1.19	.088	1.19	.089	2.548
Overall	1.21	.094	2.55	1.396	

As shown in Table 3, the mean score of participants in experimental group on pre test was 1.23 and a standard deviation of $SD = .100$; whereas the mean score on post test was 3.91 and a standard deviation of $SD = .066$ and the estimated marginal mean was 3.905.

Regarding the control group, the mean score of participants on pre test was 1.19 and a standard deviation of $SD = .088$; whereas the mean score on post test was 1.19 and a standard deviation of $SD = .089$ and the estimated marginal mean was 1.191. For the purpose of investigating the significant differences, the ANCOVA was extracted as shown in Table 4.

Table 4. Results of Analysis of Covariance (ANCOVA) for the participants responses

Variation Source	Sum of squares	df	Means squares	F	Sig
Covariate	.001	1	.001	.108	.747
Group	35.347	1	35.347	5458.810	.000
Error	.110	17	.006		
Overall	37.012	19			

The results of ANCOVA indicated that there were a statistically significant differences ($p=0.05$) attributed to effect of method, F value was $F= (5458.810)$ at $p=0.000$, for $p = 0.05$. These differences are in favor of the experimental group.

Q2. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic identification questions between experimental group and the control group on post test and these differences are in favor of the experimental group?

Q3. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic social interaction questions between experimental group and the control group on post test and these differences are in favor of the experimental group?

Q4. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic factual questions between experimental group and the control group on post test and these differences are in favor of the experimental group?

To answer these questions, means, standard deviations and estimated marginal means of content areas according to experimental and control groups were extracted (See table 5).

As shown in Table 5, the results showed differences in means, standard deviations, and estimated marginal means for content areas on pre and post test as result of difference of methods (experimental and control), these differences are in favor of the experimental group. For the purpose of investigating the significant differences between means, the MANCOVA of content areas was extracted (See table 6).

As shown in table 6, the results indicated that there were statistically significant differences ($p = 0.05$) attributed to effect of method in all content areas, these differences are in favor of the experimental group.

Q5. Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalia among experimental group on post test and follow-up test?

To answer this question, means and standard deviations for both post and follow-up test were extracted, and For the purpose of investigating the significant differences between means, T-test was extracted. (See table 7)

Table 5. Means, Stds., and Estimated Marginal Means of Content Areas According to Experimental and Control Groups

Content Area	Group	Pre Test		Post Test		Estimated Marginal Mean
		Mean	Std.	Mean	Std.	
Identification	Experimental	1.06	.052	3.94	.084	3.940
	Control	1.06	.052	1.11	.152	1.110
	Total	1.06	.050	2.53	1.457	2.525
Social Interaction	Experimental	1.30	.183	3.86	.126	3.863
	Control	1.20	.125	1.22	.162	1.217
	Total	1.25	.161	2.54	1.362	2.540
Factual	Experimental	1.32	.225	3.92	.079	3.934
	Control	1.31	.160	1.24	.184	1.226
	Total	1.32	.190	2.58	1.382	2.580

Table 6. Results of Multivariate Analysis of Covariance (MANCOVA) for the participants responses According to Content Areas

Source of Variance	Content Area	Sum of squares	df	Mean squares	F	Sig
Identification (Pre)	Identification (Post)	.005	1	.005	.261	.617
	Social interaction (Post)	.000	1	.000	.009	.928
	Factual (Post)	.055	1	.055	2.812	.114
Social Interaction (Pre)	Identification (Post)	0.0001	1	0.0001	.000	.998
	Social interaction (Post)	.002	1	.002	.086	.773
	Factual (Post)	.030	1	.030	1.501	.239
Factual (Pre)	Identification (Post)	.002	1	.002	.119	.735
	Social interaction (Post)	.014	1	.014	.586	.456
	Factual (Post)	.026	1	.026	1.346	.264
Group Hotelling's=410.543 P=.000	Identification (Post)	35.114	1	35.114	2008.206	.000
	Social interaction (Post)	30.690	1	30.690	1263.257	.000
	Factual (Post)	32.125	1	32.125	1634.550	.000
Error	Identification (Post)	.262	15	.017		
	Social interaction (Post)	.364	15	.024		
	Factual (Post)	.295	15	.020		
Overall	Identification (Post)	40.318	19			
	Social interaction (Post)	35.228	19			
	Factual (Post)	36.272	19			

Table 7. Means, Stds., and T-test of Participants' Responses to the Post – Follow-up Test

Content Area		Mean	Std	T	df	Sig
Identification	Post test	3.94	.084	2.703	9	.024
	Follow-up test	3.83	.157			
Social Interaction	Post test	3.86	.126	2.538	9	.032
	Follow-up test	3.75	.143			
Factual	Post test	3.92	.079	3.737	9	.005
	Follow-up test	3.77	.125			
Overall	Post test	3.91	.066	3.618	9	.006
	Follow-up test	3.78	.097			

As shown in Table 7, the mean scores differ based on the participants' responses (post and follow-up test). In post test the Identification area had a mean of $M =$

3.94 and a standard deviation of $SD = .084$; whereas the Identification area in follow-up test had a mean of $M = 3.83$ and a standard deviation of $SD = .157$. A T-

test between the means showed $t(9) = 2.703$ at $p = .024$, for $p = 0.05$. Thus, significant differences were found in the means between post and follow-up test. For the second content area, in post test the Social interaction area had a mean of $M = 3.86$ and a standard deviation of $SD = .126$; whereas the Social interaction area in follow-up test had a mean of $M = 3.75$ and a standard deviation of $SD = .143$. A T-test between the means showed $t(9) = 2.538$ at $p = .032$, for $p = 0.05$. These results indicate a statistically significant difference was found in the means between post and follow-up test. Regarding the third content area, in post test the Factual area had a mean of $M = 3.92$ and a standard deviation of $SD = .079$; whereas the Factual area in follow-up test had a mean of $M = 3.77$ and a standard deviation of $SD = .125$. A T-test between the means showed $t(9) = 3.737$ at $p = .005$, for $p = 0.05$. These results indicate a statistically significant difference was found in the means between post and follow-up test. Finally, content areas "Overall" in post test had a mean of $M = 3.91$ and a standard deviation of $SD = .066$; whereas the content areas in follow-up test had a mean of $M = 3.78$ and a standard deviation of $SD = .097$. A T-test between the means showed $t(9) = 3.618$ at $p = .006$, for $p = 0.05$. These results indicate a statistically significant difference was found in the means between post and follow-up test. In summary, the findings indicated a statistically significant differences were found between post and follow-up test in all content areas and overall in favor of the post test.

4. Discussion

This study was conducted to examine the effectiveness of Cues-Pause-Point method training for overcoming echolalia of twenty speaking- Arabic young children with autism. The study was designed to answer the following questions: (a) Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalia between experimental group and the control group on post test and these differences are in favor of the experimental group? (b) Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic identification questions between experimental group and the control group on post test and these differences are in favor of the experimental group? (c) Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic social interaction questions between experimental group and the control group on post test and these differences are in favor of the experimental group? (d) Are there significant statistical differences at ($p \leq 0.05$) in overcoming echolalic factual questions between experimental group and the control group on post test and these differences are in favor of the experimental one? (e) Are there significant statistical differences at ($p \leq 0.05$) in

overcoming echolalia among experimental group on post test and follow-up test?.

The first research question indicated a statistically significant differences in decreasing echolalia between experimental and control groups on post test, and these differences are in favor of the experimental group. Taking into consideration the result that experimental group had a mean score of $M = 1.23$ on pre test and a mean score of $M = 3.91$ on post test; whereas the control group had a mean score of $M = 1.19$ on pre test and a mean score of $M = 2.55$ on post test. This result indicates the effectiveness of Cues-Pause-Point method for overcoming echolalia. The fast acquisition of correct responses may be attributed to a number of factors. First, Cues-Pause-Point method involves errorless learning. Second, the use of pictures which complement the visual learning style of individual with autism. Third, the use of potent reinforcers including food items are one of the factors affecting the efficiency of a response. Furthermore, the schedule and immediacy of reinforcement may have also contributed to the rapid acquisition correct responses. Fourth, the use of instructional strategies such as pause, discrete trail training, and use of prompts and fade prompts may have also facilitate learning.

This result was confirmed by various studies (Freeman et al., 1975; Schreibman & Carr, 1978; McMorrow & Foxx, 1986; McMorrow et al., 1987; Foxx et al., 1988; Chung, 1998; Sullivan, 2002; Foxx et al., 2004; Hetzroni & Tannous, 2004; & Colon et al., 2012) indicated that the training program rapidly replaced the children's echolalia with correct responses.

The current study and previous studies demonstrated that echolalic behavior as possible to get rid of it or minimize it. There are several possible similarities between current study and previous studies. First, all participants successfully acquired correct responses (i.e., Schreibman & Carr, 1978; Chung, 1998; Foxx et al., 2004; & Colon et al., 2012). Second, some studies have used application of Cues-Pause-Point method (i.e., McMorrow & Foxx, 1986; McMorrow et al., 1987; Foxx et al., 1988; & Foxx et al., 2004). Third, all participants' improvement maintained after prompts faded. Fourth, the current study trained responses with trained stimuli and assessed generalization with untrained stimuli. Finally, the current study focused on targeting immediate echolalia as previous studies.

In contrast, there are however, a few differences. First, in current study, the researcher adopted experimental approach (experimental and control groups); whereas the most of previous studies adopted A single-subject with a multiple-baseline design (Freeman et al., 1975; Schreibman & Carr, 1978; McMorrow & Foxx, 1986; McMorrow et al., 1987;

Foxx et al., 1988; Chung, 1998; Sullivan, 2002; Foxx et al., 2004; Hetzroni & Tannous, 2004; & Colon et al., 2012) . Second, the participants of current study limited with male children. Third, some of previous studies used different methods in decreasing echolalia. **Goren et al., (1977)** used punishment through timeout to eliminate echolalia; whereas **Schreibman and Carr (1978)** used the “I don’t know” method to make an appropriate verbal response. Fourth, some of previous studies have focused on targeting receptive labeling (**Charlop, 1983; & Leung & Wu, 1997**); whereas the current study focused on targeting verbal behaviors.

Results of the second, third, and fourth study objectives aimed to find out if there significant differences in overcoming echolalic identification, social interaction, and factual questions between experimental group and the control group on post test. The results indicated that statistically significant differences were found in overcoming echolalic identification, social interaction and factual questions between experimental group and the control group on post test in favor of the experimental group. The echolalic identification, social interaction, and factual questions were replaced with correct responses. These results in agreement with **McMorrow & Foxx, 1986; McMorrow et al., 1987; Foxx et al., 1988; & Foxx et al., 2004** in which participants reported an improvement in echolalic identification, social interaction, and factual questions replaced with correct responses. These results may be related to the same reasons that have been mentioned in the discussion of the first question.

Regarding the last question, indicated that statistically significant differences were found among experimental group on post and follow-up test in favor of the post test in all content areas and the total score of the test. The researcher believes that all participants maintained improvements with correct responses, despite of the simple difference between the post and follow-up test. This result may be related to fact that children with autism have difficulties in maintaining the acquired skills and generalized across different settings.

The result partially disagreement with previous researches indicated that all participants maintained correct responses and generalized improvements in different settings (**Schreibman & Carr, 1978; Charlop, 1983; McMorrow & Foxx, 1986; McMorrow et al., 1987; Chung, 1998; Sullivan, 2002; Foxx et al., 2004; & Hetzroni & Tannous, 2004**).

Limitations and recommendations of the study

Despite the positive outcomes of this study, two limitations, need to be addressed. First, the study was conducted on male children. Second, the sample size is small. Future studies should include both males and

females’ children with a relatively large sample as possible. Future research may explore the possibility of training parents to implement cues-pause-point method with their children. Research may also examine what parent variables result in effective maintenance and generalization of trained verbal responses for children with autism.

Conclusion

The purpose of this study was to examine the effectiveness of cues-pause-point method for overcoming echolalia in Arabic - speaking children with autism. Despite the limited number of participants, the current study indicated that cues-pause-point method could help autistic children with immediate echolalia develop functional communication skills and can be generalized improvements in the subject’s verbal responses to questions and untrained stimuli. The major findings were that the children in current study acquired correct response, and they generalized responses in different settings and with untrained stimuli.

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Appendix
Research Instrument

Direction: Listed below are questions distributed into three content areas. Four numbers follow each question (1, 2, 3, 4) and each number means the followings:

- 1 means “ complete echolalia”
- 2 means “ partially echolalia”
- 3 means “ in correct response”
- 4 means “ correct response”

Content Area	No.	Question	Complete Echolalia	Partially Echolalia	In Correct Response	Correct Response
Identification						
	1	What’s your name?				
	2	Where do you live?				
	3	How old are you?				
	4	What’s your sister’s name?				
	5	What’s your brother’s name?				
	6	What’s your father’s name?				
	7	What’s your mother’s name?				
	8	What’s your address?				
	9	What’s your nationality?				
	10	What’s your phone number?				
Social Interaction						
	11	How are you today?				
	12	What do you like to play?				
	13	What do you like to eat?				
	14	Where do you go to school?				
	15	Who is your friend?				
	16	What’s your favorite TV show?				
	17	What do you like to drink?				
	18	What’s your favorite toy?				
	19	What football team you like?				
	20	What’s your favorite song?				
Factual						
	21	What’s name city you live?				
	22	What best football team in Saudi Arabia?				
	23	What does a dog say?				
	24	Where does a fish live?				
	25	What season does it rain in?				
	26	When do you go to sleep?				
	27	When do you go to school?				
	28	How many days per week?				
	29	What shines in the sky at night?				
	30	What does doctor in hospital?				

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