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**A STUDY OF ECHOLALIA IN MALAYALAM SPEAKING  
AUTISTIC CHILDREN**

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## **ON AUTISM SPECTRUM DISORDERS**

Autism Spectrum Disorders (ASD) is a set of complex neurological disorders that affect individuals in the areas of social interaction and communication. These children commonly exhibit disorders of speech and language development, which is considered to be one of the core deficits. A lot of research has gone into the study of linguistic form, function and use in autistic population in the recent time. One can find very conspicuous delay in the onset of speech that is initially seen as mutism; later few of them gradually tend to develop speech which may/may not be functional. Speech that develops may show abnormalities of voice, prosody, articulation, pronominal reversal, atypical vocabulary development, morphosyntactic and pragmatic errors. Clinical observation of speech characteristics in autistic children revealed errors like staccato speech, monotonous speech, inappropriate questioning [Fay & Schuler, 1980; Baltaxe & Simmon (1985)]. Apart from these errors the most commonly and generally seen error is echolalia, which refers to repetition of heard speech.

## **FAILURE TO RESPOND**

Failure to respond is one of the earliest signs of communication failure. The echolalic feature in the speech of autistic children is said to be mainly due to a comprehension deficit. Schuler and Prizant (1985) concluded from their study that echolalia is the net result of limited communicative competence and normal speech skill. Besides, they fail to have the continued awareness of the nature of the relationship with other speakers and his/her state of mind. It could also be serving as self stimulatory kind of behavior as they derive pleasure out of it.

## **STUDY OF ECHOLALIA**

Study of echolalia in autistics has been a much cited topic. It is the most frequently mentioned language related characteristic of verbal autistics. Kanner (1943) identified echolalic behavior in all eight of his original clients who had acquired some speech or language (3 were described as mute). Bartak, Rutter and Cox (1975) found a history of echolalic behavior in all 19 (100%) of their autistic subjects who had acquired speech. Baltaxe and Simmons (1981) estimated that a minimum of 75% of autistic individuals who speak are echolalic or had been echolalic for extended period in development.

## **TWO GENERAL CATEGORIES OF ECHOLALIA**

Two general categories of echolalia have been identified in the language of autistic individuals namely, **Immediate echolalia** is the repetition of words/sentences that are produced either immediately or a brief time after the production of model utterance. **Delayed echolalia** is the repetition of stored, usually echoic utterance in new and usually inappropriate contexts.

Immediate echolalia has received the greater amount of attention from the researchers point of view, probably because its easily identified. Some researchers have considered it to be a meaningless parroting that secures no apparent purpose (Lovaas 1977; Schreibman and Carr 1978). Immediate echolalia is discussed as a primitive attempt to maintain social contact when an individual is confronted with language beyond his/her linguistic competence (Fay, 1973; Shapiro, 1977). Prizant and Duchan (1981) conducted a systematic study which attempted to discover specific functions of immediate echolalia by analyzing the utterances of four highly echolalic autistic children.

## **SEVEN FUNCTIONAL CATEGORIES OF IMMEDIATE ECHOLALIA**

Seven functional categories of immediate echolalia were derived based on videotape analysis of 1,009 utterances produced by the children in interactions with familiar adult in schools and at home during an eight month period. The children in this study produced echoic utterances which were interactive as well as non interactive and which were produced with and without evidence of comprehension. The specific

functional categories derived included non-focused, turn taking, declarative, yes-answer, request, rehearsal and self-regulatory.

## **NATURE OF DELAYED ECHOLALIA**

There is an increasing evidence that delayed echolalia is quite a different phenomenon from its immediate counterpart. Kanner (1973) hypothesized that delayed echolalia represented an intermediate stage in movement from immediate echolalia to more flexible and creative language. Wolff and Chess (1965) proposed two categories of delayed echolalia, non-communicative repetition that serves no apparent purpose and communicative repetition, which is used for communication even though it consists of the exact phrases a child has heard others use.

Another pattern of echolalia may be present, i.e., **Mitigated echolalia**. The term was introduced by Pick (1924) to describe the slight modification he noted in the echolalia of some of his aphasic patients. Fay (1980) found that most of the autistic children repeated the heard speech with some alterations/modifications. This is seen in the higher functioning autistics and is much more advanced than immediate/delayed echolalia. This condition is seen when the child is getting his speech more and more under voluntary control. Stengel (1947) noted two characteristic modifications: 1) Introducing the first person singular into the repeated utterance, and 2) Appending an intelligent response to an echoed question or order.

## **LANGUAGE ACQUISITION AND DELAYED ECHOLALIA**

Baltaxe and Simmon (1977, 1981) attempted to understand the significance of delayed echolalia for the perspective of language acquisition. They collected audio recordings of the bedtime soliloquies of an 8 year old autistic girl. The child produced all utterances in the absence of other people in the environment; therefore they could not be considered as communicative.

The apparent linguistic sophistication of many of the utterances indicated that they were forms of delayed echolalia. The authors believed that the patterns of utterance produced were a type of linguistic practice in which the child substituted, deleted and/or

conjoined segments of utterances which resulted in delayed mitigated echolalia, i.e. delayed echolalia with structural changes imposed by the child. The authors indicated that such pattern practice might have been a strategy by which their subject segmented memorized form. The authors speculated that this might be a first step towards the acquisition of a rule governed, generation of a linguistic system for echolalic children.

### **A GOOD PROGNOSTIC INDICATOR**

The presence of echolalia in general is felt to be a good prognostic indicator with the view that echolalia can be later therapeutically modified into meaningful conversations (Shyamala 1989).

Howlin (1981) studied the effect of operant language training versus no language training on the language development of children with autism. One striking finding was that the echolalic children in both the experimental group (language training) and the control group (no language training) had acquired “good phrase speech” at follow up. This finding suggests that the presence of echolalic speech (as opposed to lack of speech) is a positive prognostic indicator for further language development. Further research needs to be carried out with respect to positive or negative effect of echolalia in the language development of autistic children.

### **ECHOLALIA AND THE LANGUAGE OF THE AUTISTIC CHILDREN**

Echolalia has been reported to be a significant variable in the language of the autistic children (Shyamala and Indu 1991). The literature has quoted many studies showing various echolalic patterns in the speech of autistic children.

### **STUDY OF ECHOLALIA IN INDIAN LANGUAGES-SPEAKING AUTISTIC CHILDREN**

Echolalia has been widely studied in the English speaking autistic population. No study on echolalia has been conducted so far in the Indian context focusing on echolalia of the disordered population (autistic children). Hence, a study in one of the Indian languages, namely, Malayalam (belonging to the Dravidian family of languages and largely spoken in the state of Kerala) was taken up considering that such a study would

augment the present understanding of the verbal behavior of autistic children and the very nature of the disorder itself. Hence this descriptive study of echolalia was undertaken.

### **Method**

**Subject** Seven verbal autistic children (5 male and 2 female) with mild grade mental retardation (IQ: 55 – 70) in the age range of 6 – 11 years were selected for the present study. All these children had Malayalam as their mother tongue. The oral mechanism examination revealed normal structure and function.

**Material Used** Picture books, Tape recorder, 30 preselected sentences (given in appendix) for repetition task.

**Procedure** Minimum of 100 word utterances were elicited from the subjects using the following methods.

1. Picture description.
2. Conversation.
3. Story narration (The Thirsty Crow).
4. Repetition of 30 simple sentences.

All these responses were recorded, data was transcribed in I.P.A form. The obtained data were qualitatively and quantitatively analyzed.

### **Method of Data Description and Analysis**

The speech samples were analyzed for various linguistic as well as paralinguistic features. For general description, all the 100 utterances were considered. While, for echo description and echo distribution only the 30 preselected samples with varying length of stimuli and their echoic responses were considered. The speech characteristics included the following aspects.

#### **Speech Characteristics**

Subjective evaluation of

1. Vocal characteristics of pitch, loudness and quality.

2. Articulation.
3. Intonation involving stress, rhythm and timing.

### **Linguistic Characteristics**

Comprehension and expression abilities of the subjects were informally evaluated. MLU in words was calculated as – total no. of words / total no. of utterances.

### **Other Paralinguistic Features**

1. **Response:** whether there was response (echo) or no response (absence of repetition of the target word).
2. **Response time:** To note whether there was a delay in repetition task or not.
3. **Audibility of echoes:** To check as to whether the echolalic utterances were loud or whispered.
4. **Prompting:** To check whether the subjects came out with echolalic utterances spontaneously (auto echolalia) or needed verbal prompting. This aspect was further investigated as to whether a full prompt or partial prompt were needed.

### **Nature of Echolalic Utterances**

Whether they were

- Complete or incomplete repetitions.
- Reduced / expanded echoes.
- Mitigated modified echoes.
- Type of stimulus words omitted (content or functional words).

### **Pronouns in Echoes**

Whether pronouns were present or absent. Whether pronoun confusions (as reversals) were present or not.

### **Deixis in Echoes**

Deictic terms present or absent like, temporal terms – today / tomorrow / now / then  
Personal terms – he / she / I / you  
Positional terms – here / there

### **Functional Category of Echoes**

- Turn taking.

- Affirmatory.
- Self regulatory.

Based on the observations as above, the results were obtained and discussed.

### Results and Discussion:

**Table – 1 Speech and Language Characteristics**

	<b>Comprehension and expression</b>	<b>Mean length of utterance</b>	<b>Vocal characteristics Articulation, Intonation, Stress and Rhythm</b>	<b>Pronouns and deixis</b>
S1	Comprehension is better than expression. Comprehends 3-4 words sentences and complex commands but fails to express spontaneously. Expresses through gestures by pointing towards the things he needs.	.70 words	On subjective evaluation, normal articulatory movement. Uses high pitched voice, cries, grunts, groans observed timing, stress is appropriate in echolalic and non-echolalic utterances.	Could use pronouns and deictic term in echolalia utterances like /avar/, /aval/, /naale/ etc, but not appropriate in spontaneous speech.
S2	Comprehension is better than expression. Comprehends 3 words sentences and complex commands. Needs prompting to express spontaneously. Expresses through gestures by pointing and turning to things needed.	.68 words	On subjective evaluation, normal oral mechanism and articulatory movements. Slow rate of speech. Appropriate stress and intonation in both echolalic and non-echolalic utterances.	Pronouns and deictic terms like /avar/, /aval/, /naale/ etc, was used appropriately in echolalia utterances. In spontaneous speech when used showed confusion.
S3	Good comprehension. Comprehends almost all directions. Uses gestures to express himself.	.81 words	Appropriate stress, rhythm and intonation in all the utterance. On subjective evaluation, normal articulation.	Could use pronouns and deictic term appropriately in echolalia utterances, but were not found in spontaneous speech.
S4	Better comprehension. Could comprehend verbal commands well and various activities to	.78 words	Has soft voice. Better stress rhythm and timing is seen on imitation but showed a faster and irregular rate on	Pronouns and deictic terms were used appropriately on imitation, which was

	be carried out. Prompting needed to come out spontaneously. On imitation output was better.		spontaneous utterance.	appropriate in spontaneous speech.
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	<b>Comprehension and expression</b>	<b>Mean length of utterance</b>	<b>Vocal characteristics Articulation, Intonation, Stress and Rhythm</b>	<b>Pronouns and deixis</b>
S5	Expression is better than on other subjects. Comprehension is also equally good. Latency for expression is greater than comprehension.	.85 words	No abnormalities noticed for their articulatory ability. Appropriate stress, rhythm and intonation in both echolalic and non echolalic utterance	Pronouns were used but reversals were noticed for 'I' his name was incorporated, for "today" he said tomorrow.
S6	Most of time expresses by imitation. Comprehension is better than expression. Could understand complex commands.	.82 words	On subjective evaluation, normal oral mechanism was noticed. Speaks slowly. High pitch voice. Uses appropriate stress in both echolalic and non echolalic pattern.	Uses pronouns and deictic terms appropriately In echolalic utterances but not in spontaneous speech.
S7	Comprehension is better than expression. Comprehends 3-4 words long utterances and complex commands.	.75words	Normal articulatory movements observed on subjective evaluation. Over emphasis and sudden loud out- burst of words / sounds which in tern affected his stress pattern other wise timing & rhythm was appropriate.	Could use pronouns and deictic terms appropriately in the imitation task.

**Table – 2 Echo Description (Description of Echolalic Utterances)**

Subj	Resp.	Resp. time delay/ Nodelay	Loudness Loud/soft /whispered	Prompting full/ Partial	Auto	Reduced	Expanded	Mitigated echolalia	Category of words omitted	Functions -Regulatory -Turntaking -Affirmation
S1	Present	At times 2/30 delayed responses were noticed of 5-10 sec	Loud echoes were observed	The subject did not need any prompting	30/30 = 100%	Nil	9/30 = 30%	Nil	Nil	App. Turn taking was seen. Regulatory functions were evident. Affirmation was present.
S2	Present	Sometimes 4/30 delayed, delay of 10 sec noticed	Most of the time loud echoes were noticed, rarely whispered echo was seen.	Needed prompting 6/30 full prompting was needed	24/30 = 80%	Nil	16/30 = 53.3%	Nil	Nil	Accurate Turn taking was evident with little bit of prompting. Affirmation was evident.
S3	Present	Rarely 2/30 delay of 0-5 sec was observed.	Loud echoes were observed.	Prompting for 3/30 which was full prompt.	27/30 = 90%	Nil	9/30 = 30%	Nil	Nil	Accurate Turn taking was evident with little bit of prompting. Affirmation was evident.

Subj	Resp.	Resp. time/ delay/ No delay	Loudness Loud/ soft/ Whispered	Prompt -ing full/ Partial	Auto	Reduced	Expanded	Mitigated echolia	Category of words omitted	Functions -Regulatory -Turntaking -Affirmation
S4	No response for two stimuli.	Most of a time immediate response delay of 5-10 sec for 3/30 Imitation.	Most of a time loud echoes, sometimes came out with whispered, this was corrected by prompting to speak loudly.	Prompt -ing for 1/30 which was a full prompt .	28/30 = 93.3 %	2/30 no specific pattern of reduction	Nil	Nil	Nil	Accurate Turn taking was evident with little bit of prompting. Affirmation was evident.
S5	Present	Delay was present for 20/30 for about 10 – 20 sec.	Loud echoes were observed at times softer echoes.	No prompting.	30/30 = 100%	Nil	5/30 = 16.6%	Nil	Nil	Accurate turn -taking and affirmation. Other function were not evident.
S6	Present	The response was immediate and good.	Echoes were loud.	No prompting.	30/30 = 100%	Nil	7/30 = 23.3%	Nil	Nil	Accurate turn -taking and affirmation. Other function were not evident.
S7	Present	The response was immediate .	Loud echoes were observed.	No prompting.	30/30 = 100%	Nil	6/30 = 20%	Nil	Nil	Accurate turn -taking and affirmation. Other function were not evident.

**Table – 3 Echo Distribution (Quantitative Analysis of 30 Echolalic Utterances)**

Subject	Total no. of target echolalic utterances	Total no. of echolalia ? / 30x100	Total no. of complete echolalia ? / 30x100	Total no. of partial echoes ? / 30x100	Words per echo score total words / total echolalia
S1	30	30/30 x 100 = 100%	100%	Nil	100%
S2	30	100%	100%	Nil	100%
S3	30	100%	100%	Nil	100%
S4	30	28/30 x 100 = 93.3%	26/30 x 100 = 86.6%	2/30 X 100 = 6.6%	93.3%
S5	30	100%	100%	Nil	100%
S6	30	100%	100%	Nil	100%
S7	30	100%	100%	Nil	100%

A descriptive comparison of speech and language characteristics and echo distribution across the seven subjects revealed the following observations.

It is clear from **Table – 1** that all the subjects showed an indication of better comprehension than expression. They could comprehend complex commands but failed to come out with even simple utterances spontaneously. At times they used gestures to express themselves that needed lot of prompting. Gestures indicating comprehension like eye pointing to the object, gaze fixation, etc was noted. Mean length of utterance (MLU) of females was comparatively better than MLU of males.

All the subjects showed normal articulation. Youngest subject who was 6 years old had also shown normal articulatory movements. These findings support absence of articulatory abnormalities in autistic population as seen by (Schuler, 1980). However, this does not agree with (Shyamala, 1989) who found articulatory abnormality in ten year old autistic also.

**Table – 2** shows description of echolalic utterances in speech of autistic children. The vocal characteristics revealed normal findings in S2, S3 & S5 while others showed deviance. S1 exhibited high pitched voice, cries, grunts, etc. S4 exhibited soft voice, S6 exhibited slow rate of speech and high pitched voice and S7 exhibited sudden loud outbursts of sounds, words and were over emphasized. The presences of vocal

abnormalities find support from the studies by Baltaxe & Simmons (1985); Fay & Schuler (1989); Shyamala (1989) and Shyamala & Indu (1991).

Immediate response to given stimulus was noticed in S5 and S6, others at times came out with some delay in the response where they needed little prompting. The average delay time that was noticed was of 5 – 10 sec.

Subjects showed loud echoes, which needed occasional prompt like in S4. With increase in age the need for prompting reduced except for S1 where he did not need prompting at all though he was the youngest. These findings indicate that echoing could be very automatic and needs no extra effort in terms of echopraxis.

Only one subject showed reduced echolalia, for (maratinde) the response was (mara). The finding of Buium & Steucher (1974) in his observation of truncated echolalia in autistic group is supported by this result of the present study.

One of the subjects S4 gave no response to one target stimuli where the whole of stimuli was ignored inspite of prompting. This could be attributed to mood shift and swings.

None of the subjects showed mitigated echolalia, which clearly supports the finding of Shapiro, Roberts & Fish (1970) and Shyamala & Indu (1991) that it is seen only in high functioning individuals with higher and advanced language functioning. The subjects in the present study showed poorer verbal functioning.

These subjects showed appropriate pronoun usage in their target speech utterances except for S5 who showed pronominal reversal, who substituted his name for 'I'. Other subjects showed inappropriate usage of pronouns in their spontaneous utterance, which agrees with the studies quoted in the literature citing that these subjects show pronominal reversal and inappropriate deictic function (Bartak & Rutter, 1974; Shyamala 1989).

**Table – 3** Quantitative Analysis of 30 Echolalic Utterances revealed that there was no one to one correlation between echolalia and age / sex / language ability. The scores were randomly scattered i.e., both younger and older subjects had high echolalic scores. Both the subjects with poor as well as better language ability had high echolalic scores. This finding probably indicates a strong need for future well controlled studies with respect to the variables as severity and pragmatics of communication in autistic children.

All the subjects showed whole repetition or complete echo rather than partial repetition except for S4 who showed few partial repetitions, that is to say, they repeated whole of the stimulus as it was given in their response, it may be a sentence or a word. Such complex echoes than partial / truncated / reduced echoes probably indicate greater efficiency even if it is only the automaticity / rote ability that is involved in echolalia.

### **WHAT THE FINDINGS INDICATE**

These two findings indicate that echolalic ability can be present independent of the general language ability. This aspect needs to be further explored in view of the fairly prominent view that presences of echolalia indicate better language abilities (Woolfolk and Lynch 1986).

In the very few functional categories studied in the present study, its noted that turn taking was seen in all of the subjects which agrees with the study done by (Prizant & Duchan, 1981) on echolalic subjects. Self regulation was noticed in them that again agree with the study by (Rick & Wing, 1975) who stated that its delayed in autistic children. Affirmation behavior was also noticed which again coincides with the study of (Prizant & Duchan, 1981) as cited in the review.

### **CONCLUSION**

The present study revealed that autistic children show high percentage of immediate echolalic utterances along with other speech abnormalities like errors in prosody, pronoun, with considerable delayed development of language and non-verbal skills. Pragmatic deficiencies along various functional categories like turn taking and affirmation etc. were also glimpsed. These findings however, need to be explored for greater details with well controlled studies.

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**APPENDIX:**

<b>MALAYALAM WORDS/ SENTENCES LIST IN IPA</b>	<b>GLOSS</b>
varu	Come
kai	Hand
Pu:vu	Flower
ila	Leaf
andz	Five
mu:k	Nose
Toppi	Cap
na:ja	Dog
vi:D	House
paRam	Fruit
ti:vanDi	Train
kaikuLLil	In the hand
me:SajuDe mukaLil	On the table
bassil ninn	From the bus
maratile:kk	To the tree
mu:ta che:chi	Elder sister
kamala varum	Kamala will come
avar o:Di	They ran
rama po:kum	Rama will go
paSukkal uRani	Cows slept
ninaL varumo	Will you come?
pu:cha no:kkunnu	Cat is looking
ra:vile entu tinnu	What did you have in the morning
na:n vara:m	I will come
avar na:Le varum	They will come tomorrow
peppar evide	Where is the paper?
kuttije urana:n	Put the baby to sleep
Si:la inn vannu	Sheela came today
pensil eviDe	Where is the pencil?
pensilum pepparum taru	Give pencil and paper

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