

## Naturalistic Language Intervention for Verbal Communication in Bengali Children with Autism Spectrum Disorder

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**ABSTRACT:** Majority of children with autism spectrum disorder (ASD) often have difficulties in speech and language that in turn hamper their independency in day to day life. Individuals with ASD having early intervention demonstrate better outcome in their future life. In this regard, the study investigates naturalistic language interventions like milieu teaching procedures to examine their effects on expressive communication among children with ASD. The current study dealt with 73 children from two renowned special schools of Chittagong city of Bangladesh having ASD with speech delay in particular. To observe the response each student got 20 minutes intervention with milieu teaching procedure. Three types of responses were recorded such as spontaneous response, response with support and no response after support. About 21% children demonstrated spontaneous response whereas 49% responded with support and the rest 30% children had no response in milieu teaching procedure. During the study, total 70% children demonstrated positive response that suggested naturalistic language interventions in a classroom environment can be applied to achieve specific language targets of verbal communication. Therefore, implementation of milieu teaching procedure can promote verbal communication in Bengali speaking children of 3 to 10 years old having with autism spectrum disorder.

**KEYWORDS:** Autism Spectrum Disorder (ASD), Naturalistic language intervention (NLI), Milieu teaching procedure, Verbal Communication, Speech and Language.

### 1 INTRODUCTION

Verbal communication is one of the most essential means to share wants and interests among people (Kaiser and Grimm, 2005). At the early stage of development typically developed children demonstrate different gesture, posture as well as vocalizations to communicate with surrounding people (Beuker et al., 2013). In contrast, most of the children with Autism Spectrum Disorder (ASD) suffer from speech and language delays (Zager et al., 2012) which interfere with their social wellbeing. To overcome this delay some intensive interventions can be applied that (a) highlight natural cues for communication, (b) reinforce communicative behaviors with related items, and (c) provide multiple opportunities to communicate across the day (Schreibman et al., 2015). Naturalistic interventions typically refer to systematic instruction embedded into typical activities that include a variety of age-appropriate materials; children are reinforced for attempts or approximations of expressive language targets (Kaiser and Grimm, 2005; Snyder et al., 2015). Many of the interventions share common components such as responsive interaction strategies to promote positive interactions among adults and children, and the use of milieu teaching procedures such as modeling, time delay, and incidental teaching (Lane et al., 2016; Schreibman et al., 2015) for the development of expressive communication in children with ASD. For example, when using milieu teaching procedure, a parent may place a child's preferred toy out of reach and wait a set number of seconds (time delay) for the child to request the same toy. If the child does not request within the time delay, the parent may model how to appropriately request the toy, which the child should repeat. Then parent provides the child access to the preferred item. Although young children with ASD are likely to develop some form of expressive communication to request (Bottema-Beutel et al., 2014), there is an increased likelihood independent verbalizations will involve nonfunctional sounds (e.g., guttural sounds) or words or phrases unrelated to preferred items or activities (e.g., echoic phrases); promoting meaningful and functional expressive communication is critical (Dawson et al., 2012; Reichow and Wolery, 2008).

The objective of this study was to examine the effects of a naturalistic language intervention for improving verbal vocal communication of children with ASD in a classroom environment. Procedures were based on a review of naturalistic language interventions, such as milieu teaching procedures, like incidental teaching, and an evaluation of their common components

used to promote requests for preferred items and activities in children with ASD (environmental arrangement, time delay for an independent response, adult supports, access to preferred items and activities following an approximation of a target response; Lane et al. 2016). The current study explores the efficacy of milieu teaching procedure among 73 children with ASD who have difficulties in their expressive communication, to evaluate the response for the future recommendation of this method.

## 2 METHODOLOGY

This empirical study was conducted among 73 children with ASD between January and March 2018 in two specialized school namely BN Ashar Alo and Proyash in Chittagong city area. The participants were selected with some inclusion criteria such as young children showing characteristics of ASD and having speech and language delay, the older children with ASD, children having other associated disorder and children who have no speech delay were excluded from the sample. Intervention method was applied in each child for 20 minutes and the response was observed and recorded. Different types of stimuli were used for different child according to their weakness such as balloons, chocolates, chips, toys etc. The objects of their interest kept out of reach and waiting for about 3 to 5 minutes for their verbal demand or request demonstrated spontaneous responses in some children. On the other hand, some of the children demanded their preferred object with support (teacher modeled how to request verbally). In contrast, a number of children could not respond at all even with support. Three types of responses were observed and recorded for analysis.

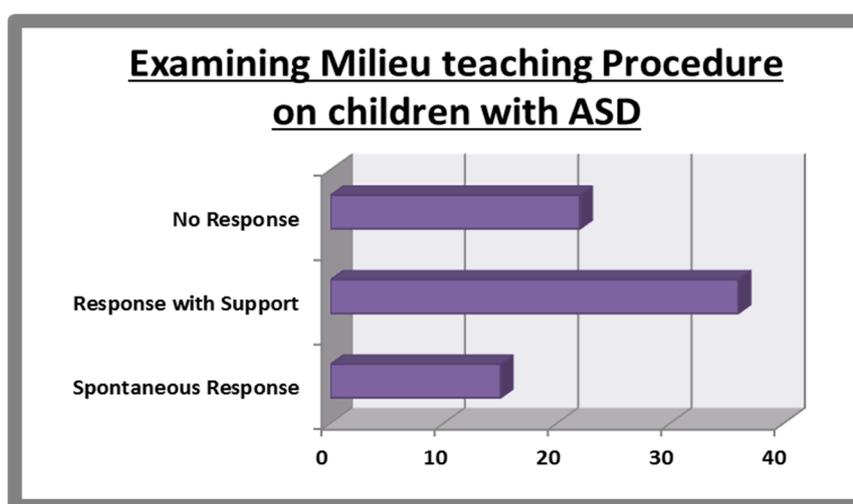
## 3 RESULT

Three types of responses namely spontaneous response, response with support and no response after support were recorded as follows:

*Table 1. Responses in Milieu Teaching Procedure*

Type of Responses	Number of children (Out of 73)	Percentage (100%)
Spontaneous responses	15	21
Response with support	36	49
No response after support	22	30
<b>Total</b>	<b>73</b>	<b>100</b>

Out of 73 children only 21% with ASD responded spontaneously in milieu teaching procedure whereas 36 among them i. e. 49% responded after modeling by the teachers. But unfortunately, 30% of the children with ASD could not respond at all after providing all the support. However, the result of the study is depicted below:



*Fig. 1. Result of Naturalistic Language Intervention in Verbal Communication*

It was observed from the score of the examination that nearly two-third of the children demonstrates positive response in the Milieu Teaching Procedure. The response score of the Milieu Teaching Procedure was found more than half of the total

score value. So, considering the positive result it can be recommended that the application of Milieu Teaching Procedure can promote expressive communication in children with ASD. Though it was a cross-sectional study the rate of no response is relatively more, a longitudinal study is also suggested for the further validity of this method.

#### **4 DISCUSSION**

The current study discussed the effects of special-educator implemented naturalistic language intervention in a classroom environment for Bengali speaking children with autism spectrum disorder. There were only two researches on naturalistic language intervention implemented by teachers in a preschool classroom which suggested the application of this method for trial-based request and spontaneous verbalization of children with autism spectrum disorder. In 2013 Christensen-Sandfort and Whinnery in their study *verbalization in response to an environmental arrangement strategy* applied milieu teaching procedures to teach children to request a preferred item during structured (circle time) and unstructured (playground) classroom activities. But in that study participants had only one target response. On the other hand, *Promoting Expressive Language in Young Children with or At-Risk for Autism Spectrum Disorder in a Preschool Classroom*, was the second study done by Lane et al in 2016. This study was conducted among four children showing sign symptoms of autism spectrum disorder for a long period to achieve five target responses. The results suggested an increased trial-based verbalization for comment and request can be achieved by teacher implemented naturalistic language intervention in a pre-school classroom.

When targeting verbalizations using a naturalistic intervention, teachers and practitioners should consider prerequisite skills that may increase the likelihood children will be benefited from the intervention, such as determining if the child is verbally imitative and readily initiates to and manipulates age-appropriate items (cf. Lieberman and Yoder 2012). The current study was conducted in two renowned specialized schools of Chottogram city where the special educators were skilled enough to handle the children. Moreover, the children had a history of having speech therapy which in turn gave added advantage to the study. In addition, special educators or parents should use the items according to the weakness of the child so that initiate spontaneous verbalization. On the other hand, they should create an appropriate environment with active participation of the child (such as a preferred toy keeping on a high shelf). Furthermore modeling or prompting by the person communicating with the children with ASD inspired and promote the verbal expression. Some studies illustrated that language expansion by the special educators or parents facilitated the expressive communication.

In addition, this empirical study targeted specific words rather than the use of complex communication forms (e.g., phrase or small simple sentences). There were some researches promoting speech in children with ASD targeted specific words (e.g., Christensen-Sandfort and Whinnery 2013; Koegel et al. 2010), In contrast, others targeted the use of broader communication forms (e.g., Ingersoll et al. 2012; Schreibman et al. 2009). So further research is needed to find out the effects of targeting specific words oblige complex communication forms like phrases or sentences.

As the study was cross-sectional, each child got only 20 minutes to respond, therefore about 30% children were not responding to the intervention. For this reason, a longitudinal naturalistic language intervention along with a behavioral approach might demonstrate more positive response. Additional study can be carried out to observe the result of naturalistic language intervention on children with ASD for a long period of time that might increase the reliability of the present study.

#### **5 CONCLUSION**

Children with sign-symptoms of ASD usually demonstrates capacities of verbally express their demands mismatched with their same age group. In addition, this delay in their speech and language development negatively impacts their social wellbeing. In this regards the current study was carried out with a view to improve their verbal communication by implementing a naturalistic language intervention. Environmental arrangement and milieu teaching procedure was applied among 73 children with ASD who have speech delay. The result of this empirical study demonstrated that natural language intervention by the special educators during typical classroom environment might be beneficial to some children for tapping the motivation for spontaneous verbalizations in the presence of preferred food or toys in children with ASD. Finally, this study indicated the necessity of additional studies to have a more reliable result.

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