ECHOLALIA IN AUTISM: ASSESSMENT AND INTERVENTION

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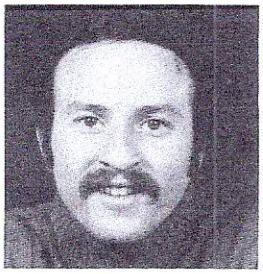

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Language and communication deficits have become a focus of research endeavors and clinical intervention procedures with individuals diagnosed as autistic. Diagnostic schemes for the autistic syndrome specify that language may never be acquired or may be delayed and include deviant or abnormal characteristics when compared to language of normal children (DeMyer, Hingtgen, and Jackson, 1981). Various studies report that 50 to 65 percent of autistic individuals acquire some vocal language (Prizant, 1978); however, it is often not clear whether recognizable speech or rule-governed linguistic behavior is used as evidence of language acquisition. What is clear is that in longitudinal accounts or retrospective histories of verbal autistic children, references to echolalic behavior are pervasive, if not inevitable. For example, in Kanner's (1943) early classic description of 11 autistic children, the eight who had acquired some language were described as echolalic (the remaining three were mute). Since that time, the prevalence of echolalic behavior in verbal autistic children has been estimated at 75 percent or greater (Baltaxe and Simmons, 1981).

The significance of echolalic behavior has been substantiated by the role it plays in the diagnosis of autism (Rutter, 1978) and prognosis for the acquisition of more creative and complex communicative and linguistic skills (Lovaas, 1977). Controversy still remains, however, as to what significance it may have in communicative interactions. Furthermore, the role that immediate and delayed echolalia may play in language acquisition is rarely considered. In this discussion, I will consider these issues in reference to our evolving understanding of immediate and delayed echolalia, and crucial issues will be identified in reference to assessment and intervention strategies for individuals who demonstrate echolalic behavior.

ECHOLALIA DEFINED

In her excellent review of echolalic behaviors in autism and other clinical populations, Schuler (1979) emphasized that terminological problems and the lack of operationally defined criteria have precluded lucid discussions of echolalic behavior. She indicated that

> The term 'echolalia' appears to be used loosely, to refer to some not well specified type of repetition of words and phrases. Distinctions as to degree of repetition and comprehension are usually lacking as well

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> as considerations about the intentionality and context sensitivity of the behavior. (p. 411)

Clearly, the fault does not lie solely with theorists and researchers. Echolalic behaviors, both immediate and delayed, are best described as a continuum of behaviors in regard to exactness of repetition, degree of comprehension, and underlying communicative intent (Fay and Schuler, 1980; Prizant and Duchan, 1981). The confusion in the literature results from a lack of accepted definitional boundaries, which would be difficult to establish and would have to be arbitrarily determined. For example, are intonation and contrastive stress to be taken into account if a conservative definition is selected, that is, echolalia defined as *exact* repetition of segmentals? Researchers who have studied echolalia have, for the most part, limited their attempts at definition by focusing on observable linguistic structure of echolalic utterances as compared to the model utterances (see Fay and Schuler, 1980; Prizant, 1978; and Shapiro, Roberts, and Fish, 1970, for contrasting frameworks). The important issue of terminology and definition will certainly not be resolved here. For the purpose of this discussion, definitions of echolalic behavior will be extracted from the available literature, with the concept of continuum regarded as central to an understanding of echolalic behavior.

The clearest distinction that has been made differentiates two general categories of echolalic behavior based on temporal latency between the original production of an utterance and the subsequent repetition. Stated simply, *immediate echolalia* refers to utterances that are produced either immediately following or a brief time after the production of the model utterance. *Delayed echolalia* refers to utterances repeated at a significantly later time. The process involved with the production of delayed echolalia appears to involve retrieval of information from some type of long-term memory, whereas for immediate echolalia, reflexlike echoic short-term memory is most often implicated (Fay, this issue of *Seminars*; Hermelin and O'Connor, 1970). Other pertinent issues regarding the definitions of immediate and delayed echolalia will now be discussed in specific reference to each category.

Immediate Echolalia

Immediate echolalia has been defined as "the meaningless repetition of a word or word group just spoken by another person" (Fay, 1969, p. 39). Fay noted that the use of the term "meaningless" is a necessary qualifier, although this judgment is most often based on inference. Other definitions of immediate echolalia include "spontaneous and inappropriate repetition of an utterance" (Voeltz, 1977, p. 3) and "*exact* repetition of the last wedge of speech heard" (Philips and Dyer, 1977, p. 48).

Most researchers, especially those who are not students of psycholinguistics, have tended to assume that such repetitive utterances are devoid of communicative intent and signal a lack of comprehension of the model utterance. This position became predominant because of a limited understanding of the relative independence of production and comprehension processes, as well as the absence of a functional-pragmatic approach to research on echolalia. Due to a focus on semantic-syntactic models of language, immediate echolalia has most often been identified as meaningless because such utterances rarely contribute new information in conversation.

Variations from "pure echolalia" (Fay, 1967) or "rigidly congruent echoes" (Shapiro, Roberts, and Fish, 1970) have been identified as "mitigated echolalia" (Fay, 1967) denoting utterances that are produced with some modifications, including deletions, additions, and/or substitutions of words, or change in intonation, stress patterns, or paralinguistic features. An additional structural type of echolalia includes utterances in which most segmentals are neutralized or underarticulated. Such utterances may still be recognized as

immediate echoes due to faithful reproduction of prosodic features and some segmental elements (Prizant, 1978).

DELAYED ECHOLALIA

Delayed echolalia has been defined as the "echoing of a phrase after some delay or lapse of time" (Simon, 1975, p. 1440) or "context deviant productions" in which "unrestructured old forms" are used in new situations (Shapiro, 1977, p. 611). The qualifier "mitigated" can also pertain to delayed echoic utterances in which changes are introduced. It is sometimes difficult to determine if an utterance is a delayed echo unless the observer has knowledge of the history of the use of the utterance, including its original production. In fact, research on delayed echolalia is virtually nonexistent due to the difficulty of tracing the history of usage and identifying the original occurrence of model utterances, which helps to distinguish delayed echolalia from creative productions. A way to circumvent this problem of identifying delayed echoic utterances is to use clues, such as "misuses" of first and second (I-you) or first and third (I-he) pronominal forms. Utterances that are markedly stereotypic and grammatically sophisticated when compared to emerging spontaneous forms also are indicative of delayed echoic patterns (Prizant and Rydell, 1981). Although Fay and Schuler (1980) expressed some uncertainty about the relationship between delayed and immediate echolalia, observations of the "birth" of delayed echolalia as emerging from utterances that were initially repeated immediately have been reported (Prizant, 1978). There is no evidence, however, that utterances *must* initially be repeated immediately for long-term retention. Delayed echolalia involving such things as television commercials and parental reprimands provides evidence to the contrary (that is, exposure to language with subsequent memorial processing may be all that is necessary for delayed echoic utterances).

ECHOLALIA AS VIEWED FROM DIFFERENT PERSPECTIVES

Prior to a discussion of clinical issues, different orientations to the phenomenon of echolalia need to be identified. Approaches range from descriptions of echolalia as a communication disorder to considerations of echolalia as a coping strategy to functional descriptions of echolalic behavior. Each approach will be discussed briefly in reference to relevant literature and research. The first two approaches (that is, echolalia as a disorder, echolalia as a coping strategy) are primarily descriptive of immediate echolalia. The discussion of functional considerations will pertain to immediate and delayed echolalia. Inherent in this diversity of viewpoints are the issues of the presence or absence of comprehension and communicative intent underlying echolalic productions.

ECHOLALIA AS A COMMUNICATION DISORDER

Researchers who compare autistic communicative behavior to that of normal children often consider echolalic behavior to be a disorder in itself. From this point of view, echolalia (most frequently immediate echolalia) is discussed as one type of behavior, with few or no distinctions made as to differing manifestations within the category. In this literature, it is common to find echolalia described as "a common language disorder in psychotic children" (Carr, Schreibman, and Lovaas, 1975, p. 331), or as an undesirable and socially nonfunctional behavior (Coleman and Stedman, 1974; Lovaas, 1977). Due to its abnormal appearance and a belief that it signals a child's inability to respond appropriately, researchers have applied a variety of behavior modification procedures to the "remediation" of echolalia. Such procedures range from the use of the command "Don't echo" (Lovaas, 1977) to replacement of echolalia with utterances such as "I don't know" (Schreibman and Carr, 1978).

What is strikingly lacking in this literature is an appreciation for individual differences apparent in echolalic behavior, as well as a concern for the dynamics of echolalia, that is, situational determinants, usage in natural interactions, and relationship to language acquisition. From this orientation, echolalia is rarely considered in reference to the expression of communicative intent, or in reference to the cognitive and linguistic growth of autistic individuals.

Echolalia as a Coping Strategy

Although many researchers have been advocating the extinction or replacement of echolalic behaviors, a few have questioned the assumptions underlying this position. For example, Fay (1973) eloquently stated his rationale for a different approach to echolalia of autistic children.

> If a doubt remains as to whether echolalia reflects the last failure of human connections or a struggle to maintain them, the child deserves the benefit of that doubt. A return to mutism, either by choice or by well-meaning clinical intervention intent only upon echo abatement, marks the last failure. (p. 487)

Fay (1973), Shapiro (1977), and Caparulo and Cohen (1977) have discussed the value of immediate echolalia using functional descriptors, such as social interaction, desire for social closure, and a primitive attempt to maintain contact. These authors appear to have derived this orientation by considering echolalic symptomatology within the context of the cognitive-linguistic functioning of the child, rather than as isolated behaviors that are to be judged on the basis of how abnormal they appear. Schuler (1976) indicated that considerations of communicativeness need to be addressed when discussing immediate and delayed echolalia; that is, echolalia is best described as a continuum of behaviors ranging from noncommunicative to communicative.

Researchers who have been interested in the structural linguistic aspects of echolalic behavior have provided evidence that echolalia is not always just rote repetition, but is at times produced with evidence of intervening rule-governed linguistic processes (Fay, 1967; Shapiro, Roberts and Fish, 1970; Voeltz, 1977). Telegraphic echoing and appropriate grammatical substitutions are often interpreted as denoting some degree of linguistic processing. Descriptive linguistic approaches have helped to broaden the concept of echolalia from reflexlike parroting to a range of behavior that, although clearly repetitive, does not involve only exact repetitions. Shapiro, Roberts, and Fish (1970) observed that children who produced "rigidly congruent" echolalia frequently produced mitigated utterances as well, suggesting that even within a child, various degrees of cognitive-linguistic processing may underlie the production of echolalia. Researchers who have advocated this middle-ground position have provided the impetus for further study of echolalia from a functional point of view, and in terms of a continuum of processing, rather than simply in terms of a pathological and undesirable behavior that needed to be eradicated. However, most researchers continue to view the occurrence of echolalia as resulting from an inability to comprehend language. Furthermore, functional descriptions remain rather nebulous and do not go beyond Kanner's (1943) "affirmation by repetition" or Fay's (1969) "desire to maintain social contact."

Functional Descriptions of Immediate and Delayed Echolalia

For almost a century, informal descriptions of echolalic behavior in clinical populations other than autism have alluded to functionality. In 1877, Arnaud (see Stengel, 1947) commented on two types of immediate echolalia that he observed in an adult patient. One type was an automatic repetition reflecting a lack of

comprehension, but the second type "helped the patient towards understanding the words spoken to him" (Stengel, 1947, p. 598). Stengel also indicated that one of his cognitively impaired patients seemed to repeat in order to facilitate language comprehension. Kanner (1943) described immediate echolalia as serving the function of affirmation in his autistic subjects. It is interesting that this type of immediate echolalia has been widely accepted as indicative of linguistic comprehension and communicative intent, whereas all other forms of immediate echolalia have been most frequently considered as a consequence of a lack of comprehension and produced with no communicative intent.

The first systematic study that attempted to discover specific functions of immediate echolalia was conducted by Prizant and Duchan (1981). Seven functional categories of immediate echolalia were derived, based on videotape analyses of 1009 echolalic utterances of four autistic children. Segmental, suprasegmental, nonverbal, situational features, and response latency were taken into account in deriving the categories. The autistic children were videotaped in naturalistic interactions over an 8-month period and were found to produce echolalic utterances that were interactive as well as noninteractive. Some echolalic utterances were also produced with no evidence of comprehension of the model utterance (37.5 percent), whereas the majority were produced with clear, independent nonverbal evidence of comprehension (62.5 percent). The specific functional categories included nonfocused, turn-taking, declarative, yes-answer, request, rehearsal, and self-regulatory. This study provided evidence for Schuler's (1979) speculations that echolalia encompasses a continuum of intentionality and communicativeness. Table 1 provides a brief description of each of the functional categories.

TABLE 1. Functional Categories of Immediate Echolalia*

Category	*Description*
Interactive	
Turn-taking	Utterances used as turn fillers in an alternating verbal exchange
Declarative	Utterances labeling objects, actions, or location (accompanied by demonstrative gestures)
Yes-answer	Utterances used to indicative affirmation of prior utterance.
Request	Utterances used to request objects or others' actions. Usually involves mitigated echolalia
Noninteractive	
Nonfocused	Utterances produced with no apparent intent, and often in states of high arousal (such as fear, pain)
Rehearsal	Utterances used as a processing aid, followed by utterance or action indicating comprehension of echoed utterance
Self-regulatory	Utterances that serve to regulate one's own actions. Produced in synchrony with motor activity

* From Prizant and Duchan (1981).

Functions of delayed echolalia have also been alluded to in anecdotal accounts of autistic subjects. Wolff and Chess (1965) described two categories of delayed echolalia—"non-communicative repetition" and "communicative repetition." Ricks and Wing (1975) discussed the appropriate use of phrases that a child copies from others, such as "Do you want a biscuit?" used as a request. Baltaxe and Simmons (1975) mentioned the use of delayed echolalia as serving a labeling function, in which a child may use memorized utterances for objects or events, such as "comb your hair" and "brush your teeth" used as labels for combs and toothbrushes, respectively (Prizant, 1978). Kanner (1946) provided many fascinating anecdotes of how delayed echolalia was used by the autistic children he described.

Recently, two attempts have been made to describe more specific functions served by delayed echolalia. Based on informal observations, Dyer and Hadden

(1981) discussed six "functional" categories of delayed echolalia, including stereotypic, negativistic, egocentric, time-lag, transferred, and mitigated. Prizant and Rydell (1981) have provided a delineation of functional categories of delayed echolalia based on systematic analyses. Using procedures of data collection and video analysis from Prizant and Duchan (1981), 367 delayed echoic utterances were identified from language samples of three autistic individuals, and 14 functional categories were derived. Whereas all of the subjects in the immediate echolalia study demonstrated all seven functional categories, individual differences in functional usage of delayed echolalia were far more striking. Table 2 presents Dyer and Hadden's and Prizant and Rydell's functional categories of delayed echolalia with short descriptions of each category.

In summary, recent literature and research in autism has begun to acknowledge

TABLE 2. Functional Categories of Delayed Echolalia

Category	*Description*
Interactive*	
Turn-taking	Utterances used as turn fillers in alternating verbal exchange
Verbal Completion	Utterances that complete familiar verbal routines initiated by others
Providing Information	Utterances offering new information not apparent from situational context (may be initiated or respondent)
Labeling (interactive)	Utterances labeling objects or actions in environment
Protest	Utterances protesting actions of others. May be used to prohibit others' actions
Request	Utterances used to request objects
Calling	Utterances used to call attention to oneself or to establish/maintain interaction
Affirmation	Utterances used to indicate affirmation of previous utterance
Directive	Utterances (often imperatives) used to direct others' actions
Noninteractive*	
Nonfocused	Utterances with no apparent communicative intent or relevance to the situational context. May be self-stimulatory
Situation Association	Utterances with no apparent communicative intent, which appear to be triggered by an object, person, situation, or activity
Self-directive	Utterances used to regulate one's own actions. Produced in synchrony with motor activity
Rehearsal	Utterances produced with low volume followed by louder interactive production. Appears to be practice for subsequent production
Label (noninteractive)	Utterances labeling objects or actions in environment with no apparent communicative intent. May be a form of practice for learning language
Stereotypic†	Has "no direct communicative function for the child . . . child often appears to be unaware that speech is present" (p. 333)
Negativistic†	"A means of negating a move towards affect . . . speech as a means of *manipulating* a situation (p. 334)
Egocentric†	Has "a self-regulatory basis . . . *function* is to express some form of control" (p. 335). Used "to motivate or inhibit" action (p. 337)

TABLE 2. *Continued.*

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Category	*Description*
Time-lag†	Utterances used with communicative intent but that recur in language "quite devoid of its original context" (p. 337)
Transferred†	"Phrases relate to the context" and recur "in broadly similar contexts" (p. 341)
Mitigated†	"Slight modifications in an echoed utterance . . . the will to communicate is clearly demonstrated" (p. 342)

* From Prizant and Rydell (1981).
† From Dyer and Hadden (1981).

that echolalic behavior and the processes underlying it are far more complex than had been previously thought, and that immediate and delayed echolalia may serve important communicative and cognitive functions in daily interactions for autistic individuals. The significance of echolalic behavior has also been approached from another angle; that is, the role such behavior may play in language acquisition for autistic individuals.

ECHOLALIA AND LANGUAGE ACQUISITION

Isolated accounts of echolalia as a developmental, progressive phenomenon can be found in literature on both nonautistic and autistic echolalia. Stengel (1947) traced the progression of echolalia in his adult patients with a variety of disorders and concluded that

> the transition from automatic echolalia into almost deliberate repetition argues against the assumption that the automatic echo-reactions are fundamentally different from others. . . . Echo phenomena are examples of automatism in which the transition from the automatic to the almost voluntary and purposeful reactions can be observed. (p. 599)

The significance of Stengel's observations is in his insistence on considering echolalia as a dynamic, and, in some cases, transitional phenomenon ranging from rigid, automatic repetition to goal-directed, intentional behavior.

In specific reference to echolalia in autism, two general positions can be identified regarding its role in the process of linguistic growth. The "majority position," posited by most theorists and researchers, is that echolalia somehow stands outside the realm of cognitive and linguistic growth and may even interfere with such growth (Schreibman and Carr, 1978). This position implies that processes underlying the production of echolalia as opposed to processes underlying creative, spontaneous language are seen as mutually exclusive, and echolalia must be abandoned by the child, or extinguished in training by the teacher or clinician, if a child is to acquire more spontaneous language. As mentioned, echolalia is referred to as a communication disorder in itself, rather than as a consequence of a more pervasive communicative deficit. It is interesting to note that there is no conclusive evidence that efforts to extinguish echolalic behavior of autistic children have resulted in the development of more functional or sophisticated communicative behavior outside training environments. Yet, the presence of echolalic behavior is an important prognostic indicator for further communicative growth (Lovaas, 1977; Howlin, 1981).

The "minority position," which has emerged recently, attempts to understand echolalic behavior within the context of a child's cognitive and linguistic growth. Baltaxe and Simmons (1975) were probably the first to consider echolalia as a possible factor in further language acquisition. Philips and Dyer (1977) hypothesized that echolalia is a necessary stage of language acquisition and indicated that "autistic children, having missed out at the infant echolalic stage" (p. 55) are faced with a double jeopardy situation because adults do not reinforce their echolalic behavior "which

is, to an extent, normal" (p. 53). This position is important in that it alludes to the transitional nature of echolalia; however, some specific points in the argument are spurious. For example, not all children go through periods of frequent imitation (Bloom, Hood, and Lightbown, 1974), and there is no evidence that a lack of adult reinforcement causes autistic children to remain echolalic.

The most feasible argument concerning the role echolalia may play in language acquisition was first posited by Baltaxe and Simmons (1977) and has since been expanded upon in greater detail (Prizant, 1978, 1982a, in press; Voeltz, 1977). Based on their study of an echolalic autistic adolescent, Baltaxe and Simmons (1977) suggested that verbal autistic children may acquire language by using an alternative strategy. That is, they may have to break into the linguistic code by analyzing repeated language "chunks" into constituent components, rather than by moving from single-word utterances to two-word utterances and beyond. More recently, Baltaxe and Simmons (1981) have further explicated their argument by providing evidence of a deficit involving perception and production of prosodic features of language in autistic children. They view this deficit as the underlying cause of echolalic behavior because it makes it difficult for autistic children to analyze and segment running speech into constituent elements (that is, words, phrases, clauses). Therefore their units of language may be phrases, clauses, sentences, or whole conversations. Language for them may be segmented by obvious perceptual cues (for example, a pause at the end of an utterance) rather than on the basis of more meaningful linguistic and prosodic cues.

Prizant (1978) focused on the acquisition of communicative function and intent rather than language structure and suggested that echolalic behavior may play a role in autistic children's acquisition of knowledge of the functions that can be served by language (see Tables 1 and 2). For cognitively higher functioning individuals, basic communicative functions are eventually served by the acquisition of more spontaneous and creative forms (acquired partly through the analysis of echolalia), whereas lower functioning individuals may remain primarily echolalic, with repetition and inflexible memorized patterns remaining available as the only "language-like" communicative tools.

More recently, we (Prizant, 1982a; in press) considered echolalic behavior within the larger context of cognitive processing of autistic individuals and explained echolalia as resulting from a gestalt strategy in the acquisition of language. The literature on normal language acquisition suggests that language learners fall on a continuum ranging from analytic processors to gestalt processors (Peters, 1980). Analytic processors acquire language with an appreciation of basic constituent structure and move through stages of increasing complexity (that is, single words to two- and three-word utterances, and beyond). Gestalt processors acquire language by learning and using multiword units that are eventually analyzed into their constituent components. Normal children typically demonstrate patterns reflecting each processing style, with some variability along the continuum (Peters, 1977).

It appears that autistic children may be limited to an extreme form of a gestalt processing style. In a gestalt processing mode, language, environmental experiences, and social interactions may be processed as whole units that can be understood only when perceived in the same way as first experienced. An extreme gestalt processing mode can help explain the inability of autistic persons to understand and cope with unpredictable change, to induce rules of hierarchical systems, to acquire subtle social skills, as well as to acquire a flexible and generative language system. Communicative and linguistic skills are especially likely to suffer due to the rapidly changing and contextually sensitive adjustments and repairs that are necessary for successful ongoing interactions.

Clearly, speculations about gestalt

processing modes and alternative strategies for language acquisition need to be supported by further research, and scrutinized through thoughtful examination of available literature and, most important, careful observation of autistic persons. These approaches to echolalia specifically, and communicative behavior in general, represent a significant departure from deficit models and behavioral checklist approaches to autism. They represent attempts to understand the behaviors of autistic persons in reference to their patterns of cognitive and communicative development, as well as individuals' strategies for coping with their inherent processing constraints. Such approaches also have the potential for providing new insights regarding communication assessment and intervention, to which the discussion now shifts.

ASSESSMENT AND INTERVENTION ISSUES

If we acknowledge that echolalic behaviors should be viewed as a dynamic and integral part of an autistic individual's total functioning, rather than simply as isolated and deviant behavioral characteristics, assessment and intervention approaches should reflect this orientation. Following this line of reasoning, echolalic behavior should be considered from two perspectives; first, in reference to and as one aspect of an individual's total system for communicating intentions (which may also include other verbal, vocal, and nonverbal means). Second, echolalia should be considered in reference to a child's language development history, evidence of progressive change in echolalic behavior, and functional usage. Both perspectives demand that echolalic behavior be viewed on a continuum of relatively automatic to more intentional production.

Individual differences are abundant in patterns of echolalic behavior and communicative behavior of autistic persons (Prizant, 1982b). "Cookbook approaches" to assessment and intervention, by definition, ignore such idiosyncratic patterns. Therefore the following discussion of assessment and intervention will provide guidelines and directions, rather than "cut and dried" procedures. Furthermore, the current state of the art is such that statements regarding assessment and intervention cannot be made without some note of caution. We need a great deal more information about echolalia based on research involving systematic observation of autistic individuals in a variety of communicative interactions. Thus, the following guidelines should be construed as tentative. They are based on recent research, clinical interactions with autistic persons, and observations and discussions with their families, teachers, and language clinicians.

ASSESSMENT GUIDELINES

Schuler (1979) stated that

> No conclusions about . . . echolalic-like behaviors can be drawn without systematic and detailed descriptions of these behaviors across various conditions . . . Careful functional analyses of individual cases have to be performed before any decisions are made as to intervention techniques to be applied. (pp. 429–430)

Following the spirit of these comments, factors that must be considered when evaluating echolalic behavior will now be outlined. Initially, factors relevant to both immediate and delayed echolalia will be reviewed, followed by a consideration of issues more specific to each type of echolalia. The ultimate goal is to develop a functional profile of a child's echolalic behavior relative to this total system of communication.

Interactiveness. Some determination must be made as to whether echoic utterances are produced with some apparent awareness of an interactive partner. In our research (Prizant and Duchan, 1981; Prizant and Rydell, 1981), we found that some echoes were produced with little apparent concern that another person had

heard the utterance. These tended to be either very automatic repetitions produced for self-stimulatory effect or during high states of arousal (such as nonfocused echoes), or echoic utterances that served cognitive rather than communicative functions (such as rehearsal, self-regulatory, labeling to self). The majority of delayed and immediate echolalia was produced interactively and served such functions as turn-taking, calling, requesting, labeling (declarative), affirming (yes-answer), protesting, and directing others' behavior (directive).

The interactiveness of echoic utterances can be determined on the basis of the following behavioral evidence: (1) body posture or orientation; (2) gaze behavior, including eye contact and gaze checks; (3) accompanying gestures, including pointing or showing; and (4) aspects of the utterance, including loudness, or multiple repetition of utterances if the cointeractant did not respond as desired.

Comprehension. Another very important dimension involves whether an echoic utterance is produced with any evidence of comprehension. This can be determined by examining an individual's nonverbal interactions with objects and people during or following the production of an echoic utterance, as well as any spontaneous utterances following the echoic utterance. The following factors should be taken into account: (1) gestures or movement, including reaching, pointing, showing, open hand requests, movement to an object or an action performed on an object; (2) an utterance semantically contingent on prior discourse (produced after an echoic response); (3) behaviors indicating the expectation of further action by the cointeractant (for example, gaze check or subsequent verbal or nonverbal requests); and (4) timing of the echoic utterance in relation to gestures and movement.

When considering comprehension, it must be remembered that cues within the environment (such as common objects with functional familiarity), or cues provided by other people (such as gestures) may help an autistic child to respond *as if* he understood the language directed to him (Prizant, 1982b). We need to make a determination as to whether an individual is demonstrating any comprehension of the language he is repeating (lexical items, semantic-syntactic relations); thus, familiar actions upon common objects, or correct responses following gestural cues should not be used solely as evidence of linguistic comprehension.

Timing of the Utterance Relative to Behavioral Changes. If an individual demonstrates comprehension of echoed utterances, it is important to consider whether the repetition led to a correct response and served as a processing aid, or whether the echo was intended to function as a communicative act in itself (labeling, requesting). Frequently, utterances serving cognitive functions which lead to further processing (rehearsal echoes) or which help to regulate motor behavior (self-regulatory/self-directives) are produced with low volume and do not appear interactive. However, for many young autistic children, it is sometimes difficult to make a clear determination of interactiveness, because appropriate modulation of loudness is typically more erratic.

Rigidity of Repetition. Another concern is whether echoic utterances are rigid reproductions of model utterances, or whether some structural rule-governed change is imposed. Evidence of structural change, such as pronominal adjustments, telegraphic echoing, verb tense changes, and intonational changes, may be indicative of some degree of linguistic processing and may signal emerging linguistic competence (Schuler, 1979). In general, utterances produced with evidence of comprehension and clear communicative intent are more likely to reflect structural changes that suggest intervening linguistic processing. Obviously, structural change is determined more easily for immediate echolalia; however, if one is familiar with a child's linguistic behavior, determinations of structural change for delayed echolalia are also possible.

Other Factors-Immediate Echolalia. Response latency, that is, the amount of time between the model utterance and the echoed response, may also be useful as an indicator of extent of processing. Prizant and Ferraro (in preparation) found significant differences in response latencies of immediate echolalia at three levels of processing. Differences were found among echoes produced noninteractively with no comprehension (nonfocused) versus echoes produced interactively with no comprehension (turn-taking) versus echoes produced interactively with comprehension (declaratives, requests). More "automatic" forms were repeated quicker, whereas response latency was greater for more intentional and meaningful forms.

Finally, *context sensitivity* of immediate echolalia may provide information about a child's perception of and reaction to interpersonal communicative demands. We found that all of our subjects echoed more frequently in dyadic interactions than in group interactions, suggesting that interactive pressure may be a factor in a child's echoing utterances as an alternative to not responding at all (Prizant, 1978).

Other Factors—Delayed Echolalia. In contrast to immediate echolalia, which is by definition respondent behavior, delayed echolalia may involve self-initiated or respondent utterances. Prizant and Rydell (1981) found that some functions were realized primarily through self-initiated utterances (for example calling, protests, self-directives, directives), whereas other functions (for example, turn-taking, verbal completion, labeling) were produced in response to others' initiations. Children who initiate communicative acts through delayed echolalia demonstrate a greater appreciation of the instrumental value of language and probably have a better prognosis for further functional communicative growth than children who are primarily responders.

The history of utterance usage is also an important consideration in analyzing delayed echolalia. Frequently, it is difficult to determine the relevance of an utterance to a particular context, even if it is produced with clear communicative intent. Kanner (1946) referred to such utterances as metaphorical language because they have private meanings for an individual. (Metaphorical language may involve delayed echolalia or more creative productions.) By tracing previous occurrences of utterance usage, clinicians, teachers, and parents can work together to determine meanings of utterances that do not appear relevant to the communicative context. For example, one child we studied stated "Do ahh" whenever he had a sore throat (which was frequently). It was a relatively easy procedure to trace the origin of that utterance to situations in which his mother asked him to do "Do ahh." This child continued to use the utterance to provide information to us. In some cases, however, the private meanings underlying delayed echolalia based on more remote associations cannot be ascertained.

In summary, two basic questions regarding echolalia and communicative assessment should be considered. First of all, what can patterns of echolalia tell us about a child's communicative abilities at a particular point in time, and second, how can such patterns be used to evaluate communicative progress and linguistic growth over time?

In response to the first question, the *use* of echolalia can provide information regarding a child's developing knowledge of communicative function, apart from language structure. In other words, through the use of echolalia, a child may be learning what can be accomplished with language, even though he may have limited linguistic knowledge to generate creative utterances. Of course, it is important to do functional analyses of echolalic utterances as well as of emerging spontaneous language to get a complete picture of a child's knowledge of communicative function.

In response to the second question, changes in echolalic behavior over time, in both functional usage and in structural rigidity, can be used to trace a child's emerg-

ing structural and functional knowledge of language. In approaching this problem, echolalic behavior should again be considered in relation to emerging spontaneous forms. For example, important information would include the balance between echolalic language and creative language, identification of patterns of echolalic breakdown which may be a factor in the acquisition of more creative language (Baltaxe and Simmons, 1977; Prizant, 1978), and the appearance of prefabricated patterns, that is, utterances that are partially echolalic and partially creative (Krashen and Scarcella, 1978; Prizant, in press). Our goal is to be able to trace the transition from primarily echolalic language to more creative forms and identify an individual's strategies in making this shift, which may be achieved by only some children with greater cognitive potential. If we are aware of how echolalia fits into the total picture of a person's communicative functioning, we are then better equipped to respond to echolalia in a constructive way in interactions with autistic individuals. (See Chappell, this issue of *Seminars*; Schuler 1980; Peck and Schuler, this issue of *Seminars*; and Prizant, 1982b for more detailed discussions of communication assessments.)

Intervention Guidelines

The ultimate goal for any verbal autistic individual is the acquisition of functional and productive linguistic skills; however, this goal is more realistic for some individuals than for others. The language of many autistic persons may remain predominately echolalic into adolescence and beyond, whereas others may acquire creative language by 8 to 10 years of age with some residual echolalic behavior remaining. Such progress may be attributed to a child's ability to shift from a primarily gestalt mode of information processing to a more analytic strategy, which, in turn, is probably closely tied to an individual's cognitive potential (Prizant, in press). This is not to say that clinicians and teachers cannot influence linguistic growth. On the contrary, the acquisition of functional linguistic skills can be facilitated through communicative interactions with autistic individuals.

Since the great majority of verbal autistic children are echolalic or have gone through extended periods of echolalia (DeMyer, Hingtgen, and Jackson, 1981), one must develop strategies for responding to echoic productions, especially if the presence of echolalia is an important factor for further language growth.

Simon (1975) stated that "much of what the echolalic child hears may sound to him like a musical refrain that defies structural analysis and cannot evoke meaningful associations" (p. 1444). This comment implies that a major task for echolalic children is to "break the code." There are various things that clinicians, teachers, and parents can do to aid them in this task.

Simplify Language Input. Baltaxe and Simmons (1977) have suggested that echolalia may result from a basic prosodic deficit that impairs autistic children's abilities to use prosodic cues in segmenting running speech. Prizant (in press) has suggested that an extreme gestalt processing preference may underlie echolalia as well as other behavioral symptomatology, and Hermelin (1976) has indicated that autistic children's inability to extract consistencies and generate rules for linguistic functioning results in "parrot language." Although these statements approach autistic behavior from somewhat different orientations, the major clinical implications for language intervention seem obvious. Echolalic autistic individuals need help in identifying constituent elements of language if they are to acquire knowledge of language structure and the relationships between meaning and structural components. Simplifying language input is a cardinal rule for any language-impaired child, but may be overlooked more frequently for echolalic individuals because of their comprehension strategies and because their language appears much more complex than it

really is. A child who uses long delayed echoic utterances may actually be at a one- to three-word utterance level of emerging spontaneous language (Prizant and Rydell, 1981). Input language should be at, or slightly above, creative language levels (in this example, two- to four-word utterances), and language directed to the child should refer to objects and various relationships (location, action) observed within the environment. Exaggerated intonation, pause, a slower rate of production, and repetition and redundancy may help autistic persons to segment utterances and may preclude the repetition and memorization of longer and less easily segmented utterances.

Respond to Communicative Intent. If a young child produces immediate or delayed echolalia with apparent communicative intent, such utterances should be responded to with subsequent simplification of the child's utterance approximating his true language level. For example:

Adult: "Do you want some water?"
Child: "Do you want some water?" (while reaching for pitcher of water)
Adult: "Want water. (Child's name) want water."

In this manner, the child realizes the impact of his utterances and is provided with a more appropriate and simplified model. Increasing demands should be made for a child's repetition of reduced model utterances.

Relate Echoic Utterances to Actions and Objects in the Environment. If possible (and it sometimes is not possible), those interacting with autistic persons should attempt to emphasize the relationships between echoed language and environmental referents (objects, actions, people). While providing a simplified model of echoic utterances, demonstrative gestures (such as pointing and touching) and action demonstration can be used to achieve this end. In fact, modeling language in a context of active involvement and in synchrony with relevant action patterns is a powerful teaching strategy for autistic children (Fay and Schuler, 1980).

If echoic utterances are not at all relevant to the situational context, it may be necessary to redirect the child's attention and provide language that is relevant to an activity. Physical guidance may be necessary to achieve this goal.

De-emphasize Correct Pronominal Usage in Early Stages. Due to the cognitive-linguistic demands of shifting reference in pronominal forms, Fay's (1979) suggestion of using proper names in one-to-one interactions is most appropriate. As he also suggests, pronominal contrasts such as I/you can be taught more effectively with peer modeling, with the child observing the use of pronominal contrasts by others. However, this should not be a goal for a very young or severely linguistically handicapped child. (See Fay, 1979, for a more detailed discussion.)

Never Punish or Ignore a Child. If echolalic behavior is intentful or interactive, it may be the only means of communication available. Direct intervention and physical redirection may be necessary for rigid, repetitive self-stimulatory echolalia; however, this type of echolalic behavior usually constitutes a minute portion of a child's verbal output. The challenge that teachers, clinicians, and parents must face with echolalic individuals is helping them to realize that words do represent objects, actions, and relationships, and that language can be used as a tool to affect others' behavior and to express basic needs and desires. Another related challenge is helping echolalic individuals to break into the linguistic code and to begin to acquire more flexible and rule-governed linguistic abilities.

CONCLUDING COMMENTS

To reiterate, individual differences in the behavior of autistic persons is the rule rather than the exception. This statement also pertains to patterns of communicative behavior within the echolalic autistic popu-

lation; thus, assessment and intervention guidelines have had to be stated in general terms, and specific procedures have to be based on an individual child's communicative strategies and abilities (Prizant, 1982b).

Language intervention with autistic persons remains a difficult and, often times, frustrating endeavor. However, recent approaches that attempt to construct cohesive models of communicative behavior in autism certainly offer more hope for a greater understanding of the acquisition of language and communicative skills than deficit checklist approaches. We can hope that an increased understanding of autistic persons will enable parents, teachers, and language clinicians to provide more appropriate living and learning environments, planned for individuals rather than for a disorder.

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ARTICLE SIX

SELF-ASSESSMENT QUESTIONS

1. The most current view of immediate echolalia considers it to be:
   (a) a meaningless parroting
   (b) produced only as a result of a failure to comprehend
   (c) a continuum of behaviors serving many functions
   (d) a and b

2. There is increasing evidence that for some autistic children, immediate and delayed echolalia:
   (a) prevents language growth
   (b) is a negative reaction to the cointeractant
   (c) is caused by arrested ego development
   (d) may represent an alternative strategy in acquiring language

3. An important factor to consider when evaluating echolalic utterances is:
   (a) how interactive they appear
   (b) whether they are produced with evidence of comprehension
   (c) how rigid or faithful the echoic utterance is
   (d) all of the above

4. Echolalic behavior may indicate:
   (a) that a child is regressing rapidly
   (b) what a child knows about the instrumental value of language
   (c) a child's inability to segment utterances
   (d) b and c

5. If a child demonstrates echolalic behavior:
   (a) interactants should extinguish all utterances through behavior modification techniques
   (b) interactants should respond to communicative intent and simplify the child's utterances
   (c) he will probably not benefit from language intervention
   (d) prognosis for further language growth is extremely poor