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Review Article

Examining the Echolalia Literature: Where Do Speech-Language Pathologists Stand?

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Purpose: Echolalia is a common element in the communication of individuals with autism spectrum disorders. Recent contributions to the literature reflect significant disagreement regarding how echolalia should be defined, understood, and managed. The purpose of this review article is to give speech-language pathologists and others a comprehensive view of the available perspectives on echolalia.
Method: Published literature from the disciplines of behavioral intervention, linguistics, and speech-language intervention is discussed. Special areas of focus include operational definitions, rationales associated with various approaches, specific procedures used to treat or study echolalic behavior, and reported conclusions.
Conclusions: Dissimilarities in the definition and understanding of echolalia have led to vastly different approaches to management. Evidence-based practice protocols are available to guide speech-language interventionists in their work with individuals with autism spectrum disorders.

Echolalia is among the most recognizable characteristics of autism spectrum disorders (ASD), and it has long been the source of controversy across several clinical and research disciplines (Schuler, 1979). Now that many speech-language pathologists (SLPs) have individuals diagnosed with ASD on clinical caseloads, it is time to revisit echolalia and answer some important questions: What are this profession's current beliefs about echolalia as a characteristic of ASD, and how were those beliefs developed? Do SLPs conceptualize echolalia as a functional adaptation that reflects a gestalt learning style and leads to more generative communication in people with ASD, or is echolalia viewed as a maladaptive, functionless behavior that should be extinguished or decreased? Are certain types of echolalia worthy of preserving or shaping, and are others disruptive and stigmatizing? What are the best clinical practices associated with echolalia, and are they evidence based? How can SLPs collaborate with other professionals to ensure optimal communicative development when echolalia is present?

The purpose of this review article is to explicate the recent literature on echolalia, to embed it in the context of earlier knowledge, and to make practicing SLPs aware that a radically divergent range of ideas exists within the wider corpus of research produced by professionals in other fields. Clinical SLPs may be surprised to learn, for example, that there is a long tradition of behavioral investigations and practices focused on the extinction or reduction of echolalia; this line of research is burgeoning today. Also, interactional linguists have recently applied the conventions of conversation analysis (and other forms of discourse analysis) to transcripts that include echolalia; their data analyses revealed important insights, patterns, and characterizations of echolalia as a key communicative adaptation, a cognitive tool, and a self-regulatory tool. Moreover, SLPs have shared evidence-based principles and practices concerning echolalia in the academic literature as well as in conference presentations and other clinical publications. Because SLPs often work collaboratively with professionals from other disciplines, it is valuable to understand diverse perspectives and terminology. This review article compares and contrasts these bodies of information in terms of (a) how echolalia in ASD is defined and conceptualized; (b) procedures used to study echolalia in ASD; (c) beliefs about the functions of echolalia in ASD, communicative and otherwise; and (d) how echolalia may be addressed by interventionists and family members. It is interesting and somewhat discouraging to note that this is not a new endeavor. Schuler (1979) wrote that our "limited understanding of echolalic behavior may be caused partially by confusion of terminology and lack of detailed descriptions of the behaviors observed, confounded by the differences in philosophy and methodology of the various disciplines involved" (p. 411). This statement has been virtually echoed by many others

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over the years, but at present the controversy has not been resolved.

Perspectives on the Origins and Functions of Echolalia in ASD

What is the origin of echolalia? The first and simplest answer is that all people echo—that is, there are many social interactions during which it is acceptable to produce "borrowed" speech (Tarplee & Barrow, 1999). We quote one another. We mimic. We do comedic impressions. We act out dialogue in plays. Counselors reflect back the utterances of clients (Stribling, Rae, Dickerson, & Dautenhahn, 2006). We frequently use literal and partial repetitions as turn-taking devices to maintain conversational discourse (Schuler, 1979).

Children who are developing typically certainly imitate the utterances of others in a variety of ways (Blanc, 2012; Fay, 1967a; Peters, 1983). The quantity and quality of verbal repetition differs across individuals. Schuler (1979) suggested that different types of imitation may correspond to different aspects of language acquisition. For example, she speculated that immediate imitations might be particularly important for learning new vocabulary, whereas the repetition, expansion, and recombination of phrases could be a necessary process in the development of syntax. Children often repeat long strings of borrowed discourse during social-dramatic play with other children and in private during bedtime monologues (Baltaxe & Simmons, 1977; Dore, 1989; Tarplee & Barrow, 1999; Winsler, Feder, Way, & Manfra, 2006). These behaviors are known to be forms of rehearsal that contribute to the development of narrative skills (Dore, 1989). Schuler (1979) called for researchers to systematically compare the many forms of typically occurring repetition with various types of echolalia.

The work of linguist Ann Peters was recently illuminated by Blanc (2012), and it may be critical to the understanding of echolalia. In *The Units of Language Acquisition,* Peters (1983) provided compelling evidence that all children begin language development by capturing units of varying sizes from the ongoing speech stream in their environment and then attaching meaning to the units. The prevailing belief in speech-language pathology is that children capture small units—single words—and that each word has a meaning. Single words are combined into two-word utterances, followed by constructions of increasing length, and the child is on the path to linguistic competence. This progression reflects an analytic processing style, and it is familiar to anyone with a child language background. Nevertheless, Peters showed that some children acquire language in a different, but equally valid, way. Instead of single words, they capture longer units from the ongoing speech stream in the environment. Their units are sentence-length strings marked by intonational contours, and they are said to possess a gestalt processing style (Blanc, 2012; Peters, 1983). Although these units are long, only one unit of meaning is attached. For example, an utterance such as "timetotakeabath" may mean "bath," and "donttouchthefan" may mean "fan." To complicate matters, when little gestalt processors express their longer units, their motor speech abilities cannot keep up, and adults may perceive the output as unintelligible, prelinguistic jargon (Blanc, 2012; Peters, 1983). The previous examples may be articulated along the lines of "tynadegabaf" and "donduhduhpa." These children eventually begin to isolate individual, recognizable words from their gestalt units. Adults may recognize these as first words, when, in reality, gestalt processors have already done "an immense amount of language work and know quite a bit about the world" (Blanc, 2012, pp. 50–51). There is a history of SLPs applying this perspective to the origins of echolalia in ASD, but perhaps the idea of gestalt processing in children with typical development should be revisited and reinforced.

We know that individuals with ASD may echo the utterances of others in the environment, or their own utterances, or any audio media (live or recorded). Echolalia is also qualitatively described, quite specifically, in terms of time of occurrence and linguistic elements. The term *immediate echolalia* applies to echoic utterances produced within two conversational turns of the original and resembling the original segmentally and/or suprasegmentally; the resemblance may be rigidly exact (pure) or selectively mitigated (Fay, 1967b; Prizant & Duchan, 1981). The term *delayed echolalia* applies to echoic utterances (a) produced more than two conversational turns after the original and (b) either characterized by a higher level of linguistic complexity than the individual could generate independently or identified as a learned routine by familiar communication partners; these delayed echoes may be pure or mitigated as well (Prizant & Rydell, 1984). Mitigated echoic utterances are viewed as positive signals of language development because they demonstrate the presence of cognitive–linguistic processing in a gestalt style (Fay, 1967a, 1967b, 1969; Prizant & Rydell, 1993). Furthermore, echolalic utterances are differentiated from self-generated utterances produced creatively and independently (Rydell & Mirenda, 1991, 1994). However, as Rydell and Mirenda (1994) pointed out, people with ASD often apply borrowed utterances so appropriately, and with such sensitivity to context, that unfamiliar communication partners may believe that the utterances are original.

It is important to note that immediate and delayed echolalia are components of a larger category: unconventional verbal behavior. (For full descriptions and examples of various unconventional verbal behaviors, see Prizant & Rydell, 1993, or Prizant, Wetherby, Rubin, Laurent, & Rydell, 2006, p. 81.) Thus, to be classified as echolalia, a behavior must involve the production or approximation of words, phrases, sentences, or even much longer chunks of discourse, up to and including the entire dialog of feature-length movies (Suskind, 2014a, 2014b). Nonlinguistic vocalizations (e.g., humming, laughing, crying, whistling, vegetative sounds such as burping, ticlike squeals, grunts, hoots) are not echolalia. Two subcategories under the heading of unconventional verbal behavior that may overlap with echolalia are perseverative speech and incessant questioning. Perseverative speech consists of speech that is repeated persistently over time (sometimes to the

exclusion of other utterances), comprises either delayed echolalia or self-generated language, and may or may not reflect comprehension or communicative intent. Incessant questioning involves repeated queries, either echoic or self-generated, with clear intent to communicate and persisting even though a communication partner has answered (Prizant et al., 2006).

Building on the early work of Fay and Schuler, Prizant and colleagues performed rigorous qualitative analyses of language samples of children with ASD (Prizant & Duchan, 1981; Prizant & Rydell, 1984). In two seminal articles, they reported discoveries of a number of valid functions accomplished via immediate and delayed echolalic utterances. The study on immediate echolalia involved four boys with the diagnosis of autism (Prizant & Duchan, 1981). Video recordings were collected in individual and group settings, both at school and during interactions with family members at home. All immediate echolalic utterances (1,009 total) and their models were extracted and closely examined for structural and contextual characteristics. Each utterance was compared to its model to observe any differences in terms of added, deleted, or substituted segments or suprasegmentals (e.g., rate, volume, intonational contour). In addition, the video recordings were inspected to observe whether each individual was being addressed directly and whether the echolalic utterance was functionally appropriate to the current task. It was of extreme importance that the researchers also looked for any behavioral changes (e.g., gestures, gazes, body positions) that occurred just before, during, or after the echolalic utterance; these were used as indicators to discern whether or not the utterances were produced with evidence of comprehension and/or expectation of a response from the partner. For example, if an echolalic utterance was accompanied by a shift in gaze or body orientation toward the communication partner, the researchers could reason that the individual was at least attending to the partner; likewise, if the utterance was accompanied by gaze at the partner and a relevant gesture, the presence of some level of comprehension could be documented. The four subjects were shown to use immediate echolalia interactively for the linguistic tasks of requesting, provision of information, and answering *yes* as well as for the communicative purpose of maintaining interactions by taking conversational turns (Prizant & Duchan, 1981). In addition, some immediate echoes were determined to be noninteractive in nature yet still functional as devices for rehearsal, learning, and/or self-regulation. Rydell and Mirenda (1994) later used the term *cognitives* to categorize echoes that served important mental functions. Last, a very small number of immediate echoes (3.97%) were described as *nonfocused* because researchers could not detect evidence that the utterances were directed toward a communication partner or that any response was expected. Others have found similar functional categories of immediate echolalia when studying individuals at different age levels, under different contextual variables, and with a range of language capabilities (e.g., McEvoy, Loveland, & Landry, 1988; Rydell & Mirenda, 1994; Violette & Swisher, 1991). Last, in their discussion, Prizant and Duchan (1981) expressed concern that if practitioners didn't discern the underlying functions of echolalic utterances, then the utterances could be treated in the same way that stereotypical body movements have been treated. They pointed out that their findings raised concerns about behavior modification programs designed to extinguish and/or replace echolalia with rotely trained surface structures.

In a follow-up study, Prizant and Rydell (1984) systematically examined delayed echolalia in three boys with ASD. Normal school-based interactions were video recorded and coded for utterance type (i.e., immediate or delayed echolalic utterances, self-generated/creative utterances, and unclassified utterances). The 378 utterances coded as delayed echolalia were further analyzed for syntactic–semantic structure, evidence of interactiveness, evidence of comprehension, and contextual relevance. Fourteen functional categories were then assigned to the utterances by independent judges, and relatively high levels of interrater reliability were obtained. In accordance with Prizant and Duchan's (1981) work, about one half of the utterances had interactive, linguistic functions, including completion of verbal routines, labeling, providing information, calling, affirming, requesting, protesting, and issuing directives. One quarter of the utterances were used for interactive turn taking, and a relatively small percentage were judged to be noninteractive but to have important cognitive functions. Last, 18.5% of the utterances appeared to have no clear function, although many of these were apparently triggered by the presence of a particular environmental element and may simply have been more difficult to interpret (Prizant & Rydell, 1984). The authors suggested that instances of delayed echolalia could vary on a continuum of conventionality from low to high and could fluctuate depending on the communication partner. Some utterances have idiosyncratic meanings related to personal memories; therefore, they may hold meaning for familiar listeners but not for strangers (Prizant & Rydell, 1984).

The authors of the above investigations cautioned against generalizing their findings to all individuals with ASD who use delayed echolalia because (a) both studies involved small numbers of subjects with relatively similar language profiles and (b) even among these small groups of subjects, there was considerable individual variation. Nonetheless, their findings paved the way for future researchers and inspired generations of clinical SLPs to embrace the functional communicative potential of echolalia.

Rydell and Mirenda (1991, 1994) explored the relationship between the interaction style(s) of adult communication partners and the verbal behaviors of children with ASD. (Indeed, Fay [1967b] had earlier suggested that there was "a measure of power embodied within the evoking stimulus" and that the "choice of stimuli may preclude certain results" [p. 309]). Two distinct adult interaction styles were identified: (a) a directive style characterized by a larger percentage of high-constraint utterances such as *wh*-questions, commands, and prompts—that is, utterances that control the interaction and place significant pressure

on the person with ASD to respond in certain ways, and (b) a facilitative style characterized by a larger percentage of low-constraint utterances such as comments, affirmations, and reflective questions—that is, utterances that follow the child's lead and do not necessarily obligate a specific response or any response at all. (See Rydell & Mirenda, 1991, for detailed descriptions and examples of these styles.) Results of both studies showed that the spoken interactions of adult communication partners directly affected the types of echolalia produced by children with ASD. The first study (three subjects) showed that adult high-constraint utterances elicited more verbal responses overall, including the majority of the subjects' echolalic responses (Rydell & Mirenda, 1991). The second study (seven subjects) was more detailed and included a functional analysis. Results showed that (a) the majority of immediate echoes followed adult high-constraint utterances and that 29% of those served the function of turn taking (which supports the findings of McEvoy et al., 1988), (b) the majority of delayed echoes followed adult low-constraint utterances, (c) delayed echoes were more likely to be produced with evidence of comprehension compared with immediate echoes, and (d) only 5% of the echolalic utterances were considered nonfunctional (Rydell & Mirenda, 1994). Even though the number of subjects was relatively small, this work clearly added to the knowledge base supporting the functionality of echolalia. Also, the authors advised clinical SLPs to use low-constraint utterances when targeting initiations for the purposes of commenting and requesting information and for "… promoting more sophisticated communicative attempts that are related to greater comprehension" (Rydell & Mirenda, 1994, p. 734).

The American Speech-Language-Hearing Association's (ASHA) position on echolalia clearly and emphatically reflects the research discussed throughout the above section and underscores the evidence that echolalia may be a bridge to self-generated utterances (ASHA, 2006). This has been the prevailing attitude toward echolalia in speech-language pathology over the past several decades and was summarized very well by Sussman (1999) in the Hanen Centre's gently written guide for parents of children with ASD, *More Than Words*:

> Echolalia is a good sign. It shows your child's communication is developing. Soon he may begin to use these repeated words and phrases to communicate something to you. For example, after he repeats what you say, he may look at you or move closer to an object. Or he may remember the words you use to ask him if he wants a drink, and later use these memorized words to ask a question of his own. The words your child learns from echolalia open the door to meaningful communication. (p. 21)

Recent Linguistic Analyses of Echolalia

In recent case studies from the discipline of interactional linguistics, echolalia has been examined in the context of echophenomena, a supercategory that encompasses many types of repetition, including those produced for various purposes by individuals without disabilities (Stribling, Rae, & Dickerson, 2007; Wootton, 1999). This group of researchers examines echolalia in its natural habitat, much like anthropologists study social phenomena. Transcribed echolalic utterances are their puzzling artifacts, and their results consistently illuminate echolalia's less-than-transparent functions (also see Suskind, 2014a, 2014b). Within this body of literature, echolalia tends to be defined in a complex manner, with extended commentary on specific echolalic types (i.e., immediate vs. delayed); degree of completeness and faithfulness to model utterances in terms of lexical makeup, syntax, and prosody (Dobbinson, Perkins, & Boucher, 2003); presence of concomitant nonverbals (e.g., gaze, gesture, affective expressions); presence of mitigation; contexts (both physical and linguistic) in which it occurs (Stribling et al., 2006; Wootton, 1999); elements of systematicity and orderliness (Sterponi & Shankey, 2014); the roles and reactions of communication partners (Stribling et al., 2007); and aspects of functionality (e.g., Tarplee & Barrow, 1999).

These linguistic analysis studies are neither experimental nor treatment oriented. Rather, their focus is on gaining deeper understanding of how and when echolalia is used by people with ASD and what functional purposes—communicative and otherwise—it may serve. Examples of stated rationales from these studies are grouped in Table 1 for the purpose of visual comparison. The procedures are qualitative in nature; audio and video data are collected during typical interactions at school and home. These data are transcribed and microanalyzed according to the conventions of discourse analysis models including conversation analysis, a qualitative methodology for discovering the organizational aspects of human interactions as managed by participants (Sacks, Schegloff, & Jefferson, 1974). The coded data subsequently are searched for consistency and themes, and key extracts are further explicated. For the purposes of this review article, five linguistic analysis studies (described below) were chosen to exemplify the essence of interactional linguistic research on echolalia in ASD.

Local and Wootton (1995) and Wootton (1999) examined echolalia produced by "Kevin," an 11-year-old boy with ASD, over the course of a total of more than 4 hr of recordings of typical group and individual interactions at home and school. The first study focused primarily on Kevin's pure, immediate echoes (i.e., those consisting of exact repeats of all or some of the words used in the prior utterance), which composed about 25% of the total sample of Kevin's talk (Local & Wootton, 1995). Three subsets of pure echoes were described: (a) those deemed communicatively appropriate; (b) those that seemed communicatively misplaced yet served recognizable interactional purposes; and (c) those the authors termed *unusual echoes* because they were not believed to have a correlate in the speech of children who are developing typically and appeared, on the surface, not to serve any interactional purpose. It was revealed that virtually all of Kevin's pure echoes were preceded by high-constraint adult questions (as described by Rydell & Mirenda, 1991, 1994). The unusual echoes were found to

Table 1. Examples of the rationales of linguistic analysis studies of echolalia.

Study	Rationale
Local & Wootton (1995); Tarplee & Barrow (1999)	"[I]nvestigated the different ways in which these echoes can participate in the interaction process" (p. 157)
	"[T]o illustrate some of the ways in which this echoing serves as an interactional resource for the speakers concerned" (p. 451)
Wootton (1999)	"[F]ocus … on how the child designs and uses these echoes, especially in comparison with the remainder of his talk" (p. 361)
Dobbinson et al. (2003)	"[E]xtends the study of the interactional significance of echolalia to formulaic utterances" (p. 299)
Stribling et al. (2006)	"[T]o explore the nature and function of apparently echolalic fragments of talk produced by a child with an autistic spectrum disorder" (p. 3)
Stribling et al. (2007)	"[T]o investigate the interactional organization of repetition practices found in the talk of an adolescent girl with an [autism spectrum disorder]" (p. 427)
Sterponi & Shankey (2014)	"[T]o show that the child configures echoes in various ways using a range of segmental and suprasegmental features that mark them as alterations of the model utterance or as revoicing of another's utterance" (p. 279)

function as a first response device that Kevin used in situations when he was not able to quickly formulate a response; the authors concluded that the child was acknowledging the adult's question and marking it as significant (Local & Wootton, 1995).

The second study focused only on delayed echoes that were used in noncommunicative ways (Wootton, 1999). Wootton estimated that delayed echolalia composed about 50% of all of Kevin's speech output and that most of the delayed echoes were directive and reprimandlike (e.g., "You do not touch anyone's work, Kevin"; p. 362), taken from adult models in the past. It was noted, however, that Kevin's delayed echoes were never merely repetitions of adult models. Rather, they were characterized by unique intonation features that never occurred in his immediate echolalia or nonechoed speech; for example, an echo might be produced in a series of accentuated "beats" at one time, with unusually high or low pitch at another time, and with prolonged sounds and a melodic contour at a third time. Within his delayed echoed phrases, Kevin would delete words from the original, add words to the original, or change words within the original (e.g., by repeating or prolonging one of the syllables). Also, Kevin reliably positioned his delayed echoes at points in the discourse when his communication partner had indicated that the interaction was ending. The researcher reported that Kevin's adult communication partners would often ignore the delayed echoes but sometimes would try to respond to them in attempts to re-engage the child. These attempts were almost always unsuccessful. Wootton (1999) proposed that although Kevin was clearly following the behavior of his communication partners, he was "in the position of having to manage and coordinate two worlds of involvement, one at the interface with other people, the other focusing around those concerns which are articulated through his delayed echoes" (p. 380).

Tarplee and Barrow (1999) studied echolalic utterances produced by "Kenneth," a boy with ASD age 3 years 9 months, during routine mother–son interactions. It was common for this mother to initiate and lead instructional activities (e.g., matching and labeling letters and numbers) and for Kenneth to respond in some way to her elicitations. The researchers determined that although most of Kenneth's echolalic utterances could be tracked back to his favorite animated dinosaur movie, there was compelling evidence that a large percentage of the echoes had interactive functions. First, the researchers observed that Kenneth almost always paired his echolalic utterances with gaze toward his mother but rarely looked at her during other kinds of talk. Moreover, Kenneth would often initiate an echolalic sequence and sustain his gaze toward his mother (and sometimes add a smile or a touch) until she would repeat the echoed phrase back to him; they would engage in call-and-response–style *AABBCC* sequences together, with Kenneth initiating and his mother reciprocating (Tarplee & Barrow, 1999). Further, there were a number of instances in the data wherein the mother would initiate the first half of one of their echo sequences and then leave a silent space for Kenneth's response. The researchers noted several reliable outcomes to the mother's initiations: (a) If Kenneth did not respond quickly, the mother would repeat the second part of the sequence herself; (b) if Kenneth did respond, the mother would smile with pleasure; and (c) when Kenneth answered his mother's initiations, he would not repeat the same part of the sequence as his mother—rather, he would say the next element of the sequence and then the mother would repeat (*ABB*), placing Kenneth back into the initiator role. The researchers were able to show that both Kenneth and his mother clearly used echolalic utterances in interactive ways: Kenneth used them to initiate social interaction and to prompt his mother to respond, and the mother used them to gain her son's attention and to share reciprocal interactions with him.

Stribling et al. (2007) investigated echolalia produced by "Helen," a 16-year-old girl with ASD, during 6 hr of routine interactions with familiar adults at home and school. The researchers identified two distinct types of repeated output in Helen's contributions: (a) prior-turn repeats (PTR), in which Helen would echo elements of the prior speaker's turn (immediate echolalia), and (b) within-turn repeats (WTR), in which Helen would double- or triple-repeat one of the elements that she had just echoed (i.e., a form of palilalia; Stribling et al., 2007). They discovered that Helen used PTR and WTR both separately and together to perform a range of interactive functions. They found that Helen virtually always used PTR when comments or questions were addressed directly to her and not to other people in the

environment. Her productions of WTR virtually always occurred at points in an interaction when contributions from Helen would be relevant. The researchers proposed that Helen was functionally using her echolalia to participate in interactions as completely as possible, given her restricted lexicon and syntactic skills. Combining her echolalic productions with gaze, gestures, and body positions, she was able to take her turns in conversations, show her communication partners that she was attending and responding to them, and execute repairs, requests, and responses to questions.

Sterponi and Shankey (2014) looked at the echolalia of "Aaron," a 5-year-old boy with ASD, in the context of 16 hr of video-recorded data collected during 1 month of routine interactions with familiar people in the home. The researchers divided episodes of echolalia into the categories of immediate and delayed. Immediate echoes were further subdivided according to their position in the surrounding discourse (e.g., after Aaron's speech was corrected). The researchers noted that most of Aaron's immediate echoes were measurably different from their models in terms of rate and prosody and were typically accepted by communication partners as meaningful contributions (Sterponi & Shankey, 2014). Aaron's delayed echoes were differentially subdivided on the basis of source. Self-echoes were repetitions of his own expressions involving his strongest enthusiasms—germs, bugs, and time. The researchers discovered that these occurred reliably when tension was building because adults asked Aaron to do a nonpreferred task, and these echoes were always produced in a high-pitched, croaky voice, often accompanied by giggling. Other-echoes were described by the researchers as *ventriloquizations* (a term borrowed from Tannen, 2007) or reanimations of a communication partner's prior contributions. Often, these ventriloquizations were predictive in nature, voicing what the partner would likely have said next, with the expectation of receiving validation from the partner. There were also impersonal echoes of rule statements, described as echoing "the voice of authority" rather than a specific person (Sterponi & Shankey, 2014, p. 287). The authors commented that all of these reciprocal sequences of talk, in which Aaron successfully participated with delayed echoes, projected a sense of "emotional closeness and interactional attunement" (Sterponi & Shankey, 2014, p. 294).

In summary, linguistic analysis studies of echolalia in ASD are oriented toward understanding the many nuances and functions of the phenomenon, with a focus on emotional connection and closeness. It is an approach in which, in the words of Stribling et al. (2006), the individuals' productions are "seen more optimistically as an adaptive response to the constraints of their learning difficulties rather than as an insurmountable barrier to accessing social interactions" (p. 5). Although it is not possible to generalize the results of case studies to the larger ASD population, taken as a group these thoughtful investigations lend support to the conceptualization of echolalia as an important functional adaptation that contributes to the formation of social–emotional attachment and relationships.

Differentiating Echolalia From Vocal Stereotypy

A significant number of studies have been published describing treatments focused on the abatement of echolalia and other unconventional verbal and vocal behaviors produced by individuals with ASD. In these behavioral investigations, the term *vocal stereotypy* (VS) is commonly used, and operational definitions often include immediate and/or delayed echolalia together with other unconventional vocal behaviors. This should be concerning to SLPs for several reasons. First, it is noteworthy that verbalizations are often not distinguished from vocalizations. For example, one study included "humming, singing parts of songs, delayed echolalia, and repeating text/narrative fragments from previously viewed videos or previously read books" as examples of VS (Taylor, Hoch, & Weissman, 2005, p. 242), whereas another study defined VS as ranging from "high-pitched yelling or whining to whistling, laughing, making burping noises, and making blowing sounds" (Liu-Gitz & Banda, 2010, p. 80). Many definitions of VS group unconventional vocalizations and verbalizations together and treat them equally, as in "any instance of noncontextual or nonfunctional speech [including] singing, babbling, repetitive grunts, squeals, and phrases unrelated to the present situation" (Ahearn, Clark, MacDonald, & Chung, 2007, p. 266). Second, most definitions of VS hinge on the feature of unrelatedness to the current context. This is problematic for SLPs because although echolalic utterances may appear noncontextual on the surface, they may have idiosyncratic meanings that can be discovered over time with familiarity and/or careful study (Blanc, 2012; Suskind, 2014a, 2014b). Consider, for example, an individual who repeatedly utters the phrase "Let's open the presents" in contexts where there are no gifts. Communication partners may realize that this seemingly acontextual phrase is expressed, in lieu of a self-generated expression, when the individual is happy and excited. A third concerning aspect of VS definitions is the frequent inclusion of unintelligibility as a qualifying characteristic (e.g., Athens, Vollmer, Sloman, & Pipkin, 2008). It is known that a significant percentage of individuals with ASD experience motor speech challenges, especially when attempting multisyllabic words or complex syllable structures (ASHA, 2006); therefore, equating unintelligibility with VS is questionable. Fourth, definitions of VS often include repetitiveness as a central characteristic, and there is wide variation in terms of how many repetitions qualify an utterance as VS (e.g., Cassella, Sidener, Sidener, & Progar, 2011; O'Connor, Prieto, Hoffman, DeQuinzio, & Taylor, 2011; Rapp, Patel, Ghezzi, O'Flaherty, & Titterington, 2009). Fifth, it is a concern that operational definitions of VS differ appreciably from study to study and even across multiple reports involving the same researcher (e.g., Enloe & Rapp, 2014; Rapp et al., 2009, 2012). Last, a consideration somewhat outside the scope of the current topic but still worth mentioning, is that definitions of VS appear to be based on the assumption that all unconventional vocalizations are voluntary rather than associated with comorbid

neurologic tic disorders or medication side effects. It is known that attempts to suppress involuntary vocal tics are stressful and consume cognitive resources (Canitano & Vivanti, 2007). See Table 2 to visually compare examples of operational definitions used in behavioral research.

The majority of articles on VS report abatement protocols. Common rationales for these treatments are (a) that VS interferes with the education of the target child or classmates and (b) that VS limits opportunities for the target child to interact with peers (e.g., Athens et al., 2008; Rapp et al., 2009). Often, parents and teachers are concerned that VS is stigmatizing or at least makes the individual appear different from his or her peers (e.g., Haley, Heick, & Luiselli, 2010; Rapp et al., 2009). It is important to note that, like the linguistic analyses above, most of these investigations are case studies of single subjects and cannot be generalized to the ASD population. Various behavioral approaches to abatement have been studied; a few, selected on the basis of relatively recent publication, are discussed below.

Discrimination Tasks and Stimulus Control

Some of the behavioral treatment studies have implemented training to teach children to discriminate conditions such as when it is considered an appropriate time to engage in VS and when to remain silent. For example, Haley et al. (2010) described a behavioral intervention designed to decrease the VS of "Sean," an 8-year-old boy diagnosed with ASD and attending a regular education class in a public elementary school. Treatment materials included a red card printed with "Sean Quiet" and a green card printed with the child's name and "Sean Okay to Speak Out." The procedure included a 10-min pretraining session before each intervention session, during which Sean was verbally taught that it was okay to speak when the green card was showing but that he should be quiet when the red card was presented. During the 30-min treatment session, each card was present for 15 min. If Sean produced VS when the red card was present, the researcher or classroom paraprofessional picked up the card and held it about 6 in. from his face. The reported result of the treatment was a reduction in the behavior when the red card was present (Haley et al., 2010). Similar discrimination tasks involving red and green stimuli have been used in a number of behavioral treatment studies on VS (e.g., O'Connor et al., 2011; Rapp et al., 2009)

Overcorrection

Anderson and Le (2011) tested four treatments in attempts to decrease VS in "Bob," a 7-year-old boy. One of the treatments was an overcorrection procedure that involved an adult physically guiding the boy to extend his index finger to his lips (a "shush" gesture) 100 times after each VS utterance. Each implementation of this procedure lasted for 30 to 40 s, and it occurred across 20 sessions. (The authors noted that Bob did not forcefully resist this procedure.) The authors concluded that, of the four procedures they tried, overcorrection was the only one that abated the behaviors designated as VS.

Matched Stimulation

Because VS is viewed as noncommunicative, some researchers have used forms of matched stimulation, purportedly to provide stimuli that would be equally acceptable to the individual with ASD and perhaps replace the behaviors defined as VS. In Anderson and Le's (2011) aforementioned study of "Bob," sound files of children's music, rock music,

Table 2. Examples of operational definitions of vocal stereotypy.

Study	Operational definition
Taylor et al. (2005)	"[A]ny audible vocalization not related to the context. Such vocalizations included humming, singing parts of songs, delayed echolalia, and repeating text/narrative fragments from previously viewed videos or previously read books." (p. 242)
Ahearn et al. (2007)	"[A]ny instance of noncontextual or nonfunctional speech [including] singing, babbling, repetitive grunts, squeals, and phrases unrelated to the present situation" (p. 266)
Athens et al. (2008)	"[L]oud, repetitive, noncontextual verbalizations (e.g., saying 'banana' when this was not contextually appropriate) and repetitive, loud, unintelligible vocalizations (e.g., 'ahhh')" (p. 291)
Miguel et al. (2009)	"[A]ny instance of noncontextual or nonfunctional speech [including] sustained vowel sounds, varying pitches of a sound and spit swooshing at an audible level" (p. 884)
Rapp et al. (2009)	"[A] vocal response that was (a) not appropriate to the context (e.g., reciting phrase from movies while in school) or (b) indistinguishable (i.e., could not be identified as a word or phrase) or repetitive (more than three repetitions of a word or phrase within 10 s)" (p. 89)
Liu-Gitz & Banda (2010)	"[A]ny instance of vocalization that was non-contextual or non-functional" (p. 80)
Anderson & Le (2011)	"[T]he non-contextual emission of laughter and repetitive sounds and words, excluding all vocalizations during crying or tantrums" (p. 136)
Cassella et al. (2011)	"[N]oncontextual vocalizations, as well as contextual vocalizations repeated within 3 s of a similar vocalization (e.g., saying 'ball' repetitively when seeing a ball)" (p. 170)
Lanovaz et al. (2011)	"[A]contextual audible sounds or words produced by the vocal apparatus (e.g., tongue, lips, nasal cavity, vocal cords)" (p. 648)
O'Connor et al. (2011)	"[N]on-communicative vocalizations (e.g., saying 'horse' repeatedly in a high-pitched voice)" (p. 234)
Rapp et al. (2012)	"[T]he emission of acontextual audible sounds or words for 2 s or longer" (p. 545)
Enloe & Rapp (2014)	For subject 1: "[A]ny audible vocalization including humming, whistling, and partial phoneme utterances"; for subject 2: "[A]ny vocalization including whispers and 'sound effects'" (p. 377)

or a 5-min recording of the child's own VS "were played at maximum volume from the onset of each session" (p. 138) through headphones attached to an MP3 player. (The authors both listened to the stimuli this way and determined that this would be a comfortable listening level for most adults.) This procedure occurred for 74 sessions, independent of any behavior by the child, and there were no consequences for VS (Anderson & Le, 2011). The authors reported that the child's VS would diminish during the recordings, especially during the recording of his own VS; however, the behavior would return as soon as the stimuli were removed (Anderson & Le, 2011). A similar study by Lanovaz, Sladeczek, and Rapp (2011) produced the same results.

Punishment and Response Cost Interventions

In other recent behavioral treatment studies, mild forms of punishment have been applied in efforts to reduce behaviors categorized as VS. For example, in a set of studies conducted by Rapp et al. (2009), the subjects were three boys diagnosed with ASD who exhibited VS. Procedures involved the use of verbal reprimands (e.g., "No movie talk" and "Quiet time"), red and green cards, and access or removal of a preferred toy. The authors concluded that it is sometimes possible to bring VS under stimulus control using forms of punishment (Rapp et al., 2009). In another study, children's music and videos were presented at the beginning of each session and would be terminated contingent on the child's production of VS (Anderson & Le, 2011). The stimulus would be re-presented after 5 s of no VS. This procedure was carried out for 36 sessions, and results showed that VS continued at the same level after the intervention.

Response Interruption and Redirection

An application of response interruption and redirection (RIRD) procedures for reducing VS was described in Cassella et al. (2011). During treatment, if a subject engaged in VS, the researcher would say the subject's name, gain eye contact as a confirmation of attention, and give one of a pool of 10 verbal commands that required nonvocal responses (e.g., "Touch head"). Although this procedure reportedly caused a decrease in VS during the study, there was no generalization to novel settings and no improvement in "appropriate" vocalizations (Cassella et al., 2011). In another study, when the subject engaged in VS, the teacher would interrupt immediately and ask a series of simple questions related to the child's interests (but not to the current task), such as "What is the weather today?" and "Who do you like in *Toy Story*? (Liu-Gitz & Banda, 2010). Again, the RIRD was deemed effective for reducing VS in the experimental condition. In a third study, RIRD procedures were implemented with and without the drug sertraline (Zoloft), which had been prescribed by a physician to treat the subject's VS and other repetitive behavior (Miguel, Clark, Tereshko, & Ahearn, 2009). When the child was taking the medication, the RIRD treatment was implemented; every time the child engaged in VS, the investigator would stop, remove any items, and demand that the child engage in a vocal imitation task wherein previously mastered vowel and consonant–vowel syllables such as "ah," "oh," "ma," and "bee" were presented until the child responded correctly three times with no VS (Miguel et al., 2009). As the medication was faded under physician's supervision, the RIRD treatment continued. Two weeks after the medication was withdrawn and was no longer a physiological factor, there were follow-up sessions of RIRD only. The child's VS was shown to decrease only during the RIRD experimental conditions, and the drug was found to be ineffective in controlling the behavior (Miguel et al., 2009).

Differential Reinforcement of Other Behaviors

In an investigation by Taylor et al. (2005), a differential reinforcement of other behaviors procedure was implemented to address behavior classified as VS in a 4-year-old girl. The researchers first determined that the child's VS would decrease when engaging with preferred auditory toys such as singing plush animals, an electronic keyboard, and books with sound buttons; also, they determined that VS would persist as she played with less preferred nonauditory toys (e.g., blocks, dolls, art supplies). In the treatment sessions, a 1-min timer was set and the child was given the nonauditory toys. She was told that if she played quietly until the timer rang, she would be allowed to play with the auditory toys ("music" toys). The word *quiet* was attached to the timer. If the child engaged in VS during the time interval, the researcher would say, "No, that's not quiet. I have to reset your timer" (Taylor et al., 2005, p. 245). If the child did not engage in VS during the allotted time, the researcher would say, "That's great playing quietly!" and the child would be allowed to play with the auditory toys for 30 s, after which the toys were removed and the rule about playing quietly was restated. This sequence was repeated throughout each of approximately 35 treatment sessions, and the child reportedly learned to inhibit her VS during the auditory toy condition (Taylor et al., 2005). In their discussion of the limitations of the study, the authors noted that they did not specifically address the effects of their treatment on the child's appropriate vocalizations, and they could not eliminate the possibility that the child simply learned to be quieter (Taylor et al., 2005).

In summary, there are numerous published reports of behavioral treatments designed to extinguish or reduce VS, which, by most operational definitions in the current literature, includes immediate and delayed echolalic utterances. In these investigations, echolalia is consistently viewed as nonmeaningful, inappropriate, noncontextual, and noncommunicative. It is critical that SLPs understand the philosophical conflicts that may arise in collaborative intervention situations. Moreover, SLPs should be prepared to provide colleagues and family members with clear, empirical information about echolalia in ASD, its origins and functions, how it differs from VS, and possible flaws in the ways VS is defined. Family members should certainly be fully informed

before being asked to consent to any treatment protocol. SLPs and other interventionists undoubtedly would wish to know a full range of evidence-based intervention strategies (see clinical applications in the next section) and to avoid extinguishing behaviors that may lead to more effective communication and, indeed, may be communicative in and of themselves.

Two specific opportunities for collaborative intervention between SLPs and behavior specialists arise. First, whenever there are questions about the nature of any seemingly disruptive or stigmatizing vocal or verbal behaviors, SLPs and behavior specialists should work together to conduct a functional analysis and form a consensus on the results. Second, when special societal conventions require all participants to be quiet for limited periods (e.g., religious services, library visits, live performances), it is important that individuals with ASD are able to attend with their families and are not denied access due to their utterances. Adaptations of the experimental behavioral methodologies described above may be helpful in this instance. SLPs and behavior specialists should also collaborate with families to teach individuals (a) the rules of each target situation, (b) communicative options during the experience (e.g., Are a few whispers okay? Gestures? Written notes?), and (c) self-regulatory options during the experience (e.g., holding a comfort object, quiet rocking).

Communicative Management of Echolalia in ASD

It is ASHA's clear position that SLPs should take a leadership role in ensuring that individuals with ASD develop a functional communication system that allows for optimal social and educational experiences and promotes independence and self-advocacy (ASHA, 2006). Therefore, clinicians must be aware of existing guidelines for addressing echolalia within communicative treatment contexts. In addition, ASHA emphasizes that individuals with ASD and all collaborating partners (e.g., SLPs, family members, other professionals, peers) must work together to extend communication practice beyond individual instruction or therapy settings and into all phases of daily life (ASHA, 2006). SLP clinicians and researchers have provided useful ideas and materials for assessment and intervention.

In their comprehensive SCERTS model manual for assessing and educating children with ASD, Prizant et al. (2006) provided an explanation of echolalia from a developmental language viewpoint. Distilling foundational work by Fay, Schuler, and others as well as their own more lengthy explanations of the process (Prizant, Schuler, Wetherby, & Rydell, 1997; Wetherby & Prizant, 2000), they suggested that with support and many opportunities to practice language skills, people with ASD are often able to gradually dissect these gestalt forms into smaller and smaller units. Moreover, they may develop the ability to take individual words that were once part of larger gestalt forms and creatively recombine them into meaningful, original sentences (Prizant et al., 2006). The SCERTS collaborators sustained the view of echolalia in ASD as a positive prognostic indicator (Prizant et al., 2006).

Rydell (2012) developed the Learning Style Profile for Children With Autism Spectrum Disorders, an assessment of core learning style differences exhibited by many individuals with ASD. The results of the assessment can be used to construct comprehensive programming that will address these issues in educational contexts (as outlined in Prizant et al., 2006). The reach of the SCERTS model and the Learning Style Profile for Children With Autism Spectrum Disorders goes far beyond the issues of gestalt language development and echolalia intervention, but they both incorporate critical guiding principles for assisting individuals with ASD who exhibit a gestalt learning style and thus use echolalia (see the summary of principles below).

Blanc (2012, 2013) further validated gestalt grammar development in ASD with longitudinal data. She highlighted the natural progression of gestalt language development, which she called the natural language acquisition (NLA) process, consisting of six stages (see Table 3; see Blanc, 2012, for the most thorough explanation). Individuals in Blanc's NLA Stage 1 produce gestalts—word strings echoed verbatim from various sources (often movies; i.e., delayed echolalia). She pointed out that these word strings can vary in length from short phrases to extended monologues and that the longer they are, the less intelligible they may be and the less transparent to listeners (Blanc, 2012). Blanc cautioned that although individuals often use gestalts communicatively, "nothing at Stage 1 can be taken literally" (p. 15) because gestalts are comprehended by the individual as wholes and not tailored for specific situations. They may even be defaults, the only bits of language available. Blanc provided the phrase "And now for our feature presentation" as an example of a gestalt that may communicate eagerness or readiness for a particular event to happen (2013, p. 15).

Individuals in NLA Stage 2 are able to (a) isolate smaller syntactic units from their original gestalts and (b) recombine them to expand their linguistic and communicative power (Blanc, 2012). Blanc called this the "mix and match stage" (p. 18) and observed how these smaller extractions, when combined, may be exponentially more fitting in the here and now. For instance, if a speaker was able to isolate "And now for …" from the previous example and connect it to "pizza, pizza" from another gestalt, the phrase could serve quite communicatively as a request or a comment. Moreover, a fragment such as "And now for …" could be combined with a host of other phrases and deployed meaningfully in various situations.

Further dissection of the smaller units into individual words occurs in NLA Stage 3. Once words are isolated, they can be joined into two-word, original utterances (Blanc, 2012). Blanc emphasized that although these two-word constructions may seem less sophisticated than Stage 1 and 2 utterances in terms of length and syntax, they actually represent the individual's first self-generated utterances. They are equivalent to the two-word combinations produced by toddlers developing language along the better understood

Table 3. The six stages of natural language acquisition.

Stage	Examples
1. Communicative use of whole language gestalts	"Let's get out of here." "Want some more?"
2 - A. Mitigation into chunks	(1) "Let's get" + "out of here"
2 - B. Recombining these chunks	(2) "Want" + "some more?" (1) "Let's get" + "some more?" (2) "Want" + "out of here"
3. Further mitigation: isolation of single words, recombination of words, and generation of original two-word phrases	"Get – more." "Want – out?"
4. Generation of first sentences	"I got more."
5. Generation of more complex sentences	"I wanna go out."
6. Generation of the most complex sentences	"I don't want any more, but you can have mine." "How long do you wanna play outside?" "Do I really have to go out to play today?" "How 'bout if you go out and play instead?"

Note. Adapted with permission of Marge Blanc, copyright owner. Originally published in *Natural Language Acquisition on the Autism Spectrum: The Journey from Echolalia to Self-Generated Language*, Madison, WI: Communication Development Center, p. 23.

analytical trajectory (instead of the gestalt trajectory). Isolating the word *now* from the previous example, listeners could expect forms such as "now pizza," "now play," "juice now," and so on.

NLA Stages 4 through 6 involve grammar development, beginning with simple sentences and extending to very complex sentences (Blanc, 2012). Utilizing detailed examples from clinical practice, Blanc demonstrated how younger children with ASD are often able to achieve the highest levels of generative grammar given adequate exposure, practice, and support. She warned, however, that certain well-intentioned intervention practices, such as abatement programs and teaching scripted, "functional" phrases, can severely impede natural language development processes. Invoking the ancient health care precept "First, do no harm," Blanc encouraged interventionists and caregivers to avoid training routines and methodologies that could be obstacles to an individual's true language and communication potential (Blanc, 2012, p. 265).

Blanc's (2012) NLA assessment protocol is rooted in established language theory and is designed to identify an individual's natural language development stage. The assessment is implemented through careful language sample collection and analysis. In addition, Blanc provided guidelines for constructing treatment goals and detailed descriptions of intervention practices applicable to people with ASD at various ages, developmental stages, and levels of motor speech ability. Perhaps the key element of NLA intervention is the modeling of gestalts that an individual is likely to find useful and be able to quickly mitigate. According to Blanc (2012), the modeling must be engaging, playful, and matched to the individual's intentions. The forms modeled should be easily mitigated, individualized, and developmentally appropriate (e.g., if the client is a child, the grammar should sound like "kid language"). The use of developmental sentence analysis (Lee, 1974) is recommended as an important guide in selecting which grammatical elements to include in modeled gestalts so they can be readily mitigated and immediately useful to the individual (Blanc, 2012). For example, "Let's …." "It's …," and "I'm …" are forms that could become quickly useful and communicative.

Conclusions

Taken as a whole, the literature yielded the following summary set of principles derived from research evidence that can be used by clinicians as a framework for responding to echolalia in intervention:

1. Facilitate verbal initiations. Intervention should be structured so that individuals often initiate communication rather than primarily respond to questions and prompts (Blanc, 2012; Prizant et al., 2006; Rydell, 2012).
2. Carefully observe to assess comprehension, discern underlying functions, and watch for mitigations. Interventionists and partners should look for markers of comprehension such as concomitant gaze, gestures, body orientation, and so on (Prizant et al., 2006). Identify the primary sources of delayed echoes or gestalts in an effort to better understand their functions (Blanc, 2012; Sussman, 1999). Also, attend to mitigations of all types of echolalia because this indicates developmental progress.
3. Facilitate low-constraint interaction styles among communication partners. Interventionists should guard against using too many questions and commands because these high-constraint utterances are known to frequently elicit echolalic responses (Fay, 1967b; Rydell, 2012; Rydell & Mirenda, 1991, 1994).
4. Map language onto concepts the individual already understands. Interventionists and other partners should engage individuals in age-appropriate joint action routines that vary in terms of subjects, actions, locations, and objects. As the individual learns aspects of each joint action routine, words from the

appropriate semantic categories (e.g., agents, actions, objects, attributes, locatives) can be "mapped" onto the existing cognitive concepts. (Rydell [2012] provided an excellent step-by-step explanation of verbal mapping in *Learning Style Profile for Children With ASD*.)

5. Avoid teaching a rote set of "functional" or "survival" utterances. To facilitate true symbolic language, interventionists should not target scripted, inflexible utterances. The utterances in this category are recognizable because they tend to compose a relatively finite set of general-purpose sentences that are deemed important expressions for all minimally speaking individuals. They are typically polite requests, such as "May I have a turn please?" or "May I use the restroom please?" Such utterances may seem longer and more sophisticated than the structures in the individual's current repertoire but may not be well comprehended by the individual and may actually impede the developmental process (Blanc, 2012; Prizant et al., 2006; Rydell, 2012).
6. Model useful gestalts for the individual to "borrow." Interventionists and partners should model carefully selected, individualized, age-appropriate, high-frequency, socially communicative utterances (Blanc, 2012; Prizant et al., 2006; Sussman, 1999). This is not the same as teaching scripted survival language because it involves providing smaller, more flexible linguistic components that individuals may use as building blocks to create original, self-generated, multipurpose utterances (e.g., comments, questions for information, negotiations). Interventionists should target gestalts on the basis of an analysis of each individual's current repertoire; thus, targeted gestalts are likely to differ significantly across individuals. (See the description above in the discussion of the NLA process proposed by Blanc, 2012.)
7. Provide many opportunities to practice, especially with peers. It is critical that individuals with ASD have ample opportunities to practice language use with a variety of partners in natural, social communication settings (Blanc, 2012; Prizant et al., 2006; Rydell, 2012).
8. Consider using adapted behavioral methodologies to teach quiet behavior in specialized situations. All members of society are required to remain relatively silent in certain special environments (see the above section on behavioral approaches). It is imperative that individuals with ASD are not isolated; rather, they should be encouraged to experience these special situations with their families. Interventionists should work with families to identify target situations and implement teaching strategies that facilitate maximum participation without obstructing communicative development.
9. Identify, preserve, and strengthen patterns of social closeness and affiliation associated with echolalia. Deep linguistic analyses have clearly shown that individuals with ASD use echolalia as a means to relationship building (e.g., Sterponi & Shankey, 2014; Stribling et al., 2007; Tarplee & Barrow, 1999). Interventionists should be highly sensitive to the subtle ways echolalia is used within families and other social groups. Strive to facilitate communicative development that will lead to continued, and perhaps enriched, social closeness.

With the information gleaned from three bodies of literature and described above, clinical SLPs should be better prepared to collaborate with other professionals in the service of individuals with ASD and their families. First and foremost, SLPs can confidently insist that echolalia and VS should be defined with extreme caution and never considered synonymous because the term *stereotypy* cannot possibly describe a range of behaviors as diverse and variable as those encompassed by echolalia. This article provides a series of arguments in this endeavor, beginning with the differentiation of nonspeech vocalizations from verbalizations. There is ample evidence that even when utterances seem noncontextual and noncommunicative, they may indeed be meaningful and intentionally communicative. There are clear descriptions of how to use behavioral markers to assist in the unmasking of communicative intent, comprehension, and a variety of functions. There are examples of how utterances judged to have no communicative intent could still serve important cognitive or self-regulatory purposes. SLPs can share evidence-based intervention strategies that may help people with ASD cross the bridge from echolalia into more interactive, self-generated communication.

It seems urgent that SLPs take the lead in facilitating the understanding of echolalia among professionals and family members who desire only the best outcomes for individuals with ASD. The collected information in this review article can be used to positively influence the way echolalia in ASD is perceived by significant conversation partners (e.g., family members, interventionists, and in some cases researchers) because their perceptions determine how they will react to it. Through collaborative consultation, we can discourage the use of abatement treatments to target echolalia as well as the practice of teaching scripted phrases that may inhibit the development of true symbolic communication.

Furthermore, it is key that when clinicians and students acquire knowledge of possible trajectories in language development, the gestalt processing style is included. This would go a long way toward the demystification of echolalia and the formation of positive perspectives on its potential. It may even lead to a fresh wave of research that confirms and extends our current understanding.

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