Phonological development of children with Autism: developmental delay or autism specific deficits?

Motivation: Theories about Autism Spectrum Disorder (ASD) inform normal social and cognitive development, including language. However, in order to determine how these theories relate to language and language acquisition, it must first be determined if there is a difference between the language of typically developing children and children with ASD. Therefore, an important question becomes whether or not children with ASD have a typical but delayed pattern of phonological and phonetic development, or deficits specific to their disorder.

Background: Phonology and phonetics have been considered in much of the previous literature to be typical of the general population but delayed in development (Bartak, Rutter & Cox, 1975 as cited in Tager-Flusberg et al., 2005). The literature states that children with ASD are found to have acquisition patterns that are developmentally typical, but chronologically delayed. However, there is also evidence that the phonological and phonetic development of children with ASD differs from that of typical development. And, thus cannot be explained as developmentally typical, but delayed.

Unusual Chronology: Some children with ASD do not acquire phonemes in the developmentally typical order. That is, their phonemic inventories may include later developing sounds while earlier sounds are absent. This is termed a chronological mismatch (Grunwell, 1981 as cited in Wolk & Edwards, 1993). For instance, the phonemic inventory of the child in Wolk and Edwards (1993) contained the voiced phonemes /z/ and /ʒ/, but the voiceless counterparts /s/ and /ʃ/ were absent. In normal development, the voiceless /s/ and /ʃ/ are acquired prior to their voiced counterparts (Wolk & Edwards, 1993). Furthermore, Wolk and Giesen (2000) found three of four autistic siblings to demonstrate a chronological mismatch. Thus, the phonological development of children with ASD cannot be described simply as a developmental delay, as it does not necessarily follow the typical developmental pattern.

Unusual Sound Structure: Children with ASD have been found to produce unusual sound patterns. For example, it has been well documented that children with ASD demonstrate intonational abnormalities (Tager-Flusberg, Paul & Lord, 2005). Cleland, Gibbon, Peppe, O’Hare and Rutherford (2010) also found that some children with ASD produce non-developmental phonemic errors. They found that some children with ASD backed phonemes, labialized and prolonged phonemes, and palatalized phonemes. Moreover, two children in their study produced /s/ and /z/ with nasal emission. This phonemic error is non-developmental, and is rarely found in children with phonological or phonetic disorders (Cleland et al., 2010). As these sounds are not characteristic of typically developing children, it seems that the phonology of children with ASD contains non-typical deficits.

Methodological Issues: Most of the previous studies collected elicited speech through object naming (Wolk & Giesen, 2000; Wolk & Edwards, 1993; Rapin et al., 2009; Cleland et al., 2010; Bartolucci & Pierce, 1977), in order to isolate specific sounds in various positions within words. This leads to the problem of limited vocabulary. Some children might not know the names of the objects. And, thus, the experimenters are forced to mock the words, which leads to better production of the sounds than is normal of the children’s abilities (Wolk and Edwards, 1993). Moreover, it does not demonstrate the phonemes that the child uses spontaneously in everyday speech. Furthermore, the majority of studies have examined the phonological and phonetic inventories of children with ASD at one period of time (Wolk & Giesen, 2000; Wolk & Edwards, 1993; Rapin et al., 2009; Cleland et al., 2010; Bartolucci & Pierce, 1977; Boucher, 1976), and have not examined the development over time of the phonological inventories of children with ASD, or the developmental patterns that are exhibited.

Questions Raised: The previous studies have not made it apparent whether or not the phonological development of children with ASD is a developmentally delayed process or a specific to ASD. This needs to be addressed by further research. This can be accomplished by performing a longitudinal study of the phonological acquisition of children with ASD, using spontaneous speech. The patterns exhibited by the children with ASD would be compared to those of mental age matched typically developing children in order to determine if the phonology of the children with ASD is atypical. And, the order of acquisition of phonemes by children with ASD would be compared to that of typical development.
References


