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Phonological Processes in English Speaking Indian Children

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Introduction

All children, of all languages, at the beginning of their linguistic activity share the “same” language, or every child, of every language, speaks from the beginning its own language (Francescato 1968). The study of children’s speech sound error is an important aspect of the larger arena of children’s acquisition of language.

The beginning of phonological development is often associated with child’s first meaningful words. Therefore, specific sound combinations that occur more or less frequently in these initial words have been verified. According to Stampe (1969, 1979) the pattern of speech, that is, its phonological organization is governed by certain “universal phonological processes”. He claims that there is a universal set of natural phonological processes, which are innate. Thus, “A phonological process is a mental operation that applies in speech to substitute for a class of sounds or sound sequences presenting a common difficulty to the speech capacity of the individual, an alternative class identical but lacking the difficult property”. According to him, learning the sound system of a language involves suppressing a number of innate simplifying processes. As these processes are eliminated, the child develops an increased number of contrasts and eventually acquires the full set of sounds of the adult model.

More than 40 different processes have been identified as occurring in child phonology. Only a handful of them occur with any frequency. The processes that occur frequently during the development of language in normal are called as natural processes, while those that occur rarely in normal child phonology are called unusual processes.

The common phonological processes can be categorized into three types: Syllable structural processes, Substitution processes and Assimilation processes. The study of typical phonological development has great relevance for the clinical population and helps to determine whether a child is phonologically disordered and needs professional help. Hence a good understanding of normal phonological development is essential. Studying normal phonological acquisition will lead to an understanding of delayed or disordered phonological development and eventually to more efficient and effective ways of approaching management.

The period of phonemic development that roughly corresponds to 1 year 6 months to 4 years is the most relevant, as this is the period in which the child establishes the basis of the system. At the end of this period, the child is expected to suppress most of the simplifying processes. Thus by the time a child is 3 years 6 months to 4 years old, one can, with reasonable confidence, determine whether any intervention is required.

A few studies on phonological processes in Indian languages have been done (John 1998, Jayashree, 1999, Sameer. 1998, Sam 1999, Barathy 2001 Ranjan 2001 and Santosh, 2001) and comparisons made with western literature. However, the developmental pattern of phonological process in English speaking Indian children has been not studied.

Aim of the Study

The aim of this study was to obtain the developmental data on phonological process in 3-5 years old English speaking Indian Children.

Method

Total 60 subjects were taken for study, 30 subjects were in the age range of 3-4 years and 30 in the age range of 4-5 years.

The subject selection criteria were children speaking English at home and school and the exclusion criteria were with no history of speech and language disorder, neurological disorder or psychological disorder. Picture articulation test in English (Nambison, 2003) was used for the data collection. Different processes studied were Cluster reduction (CR), Diphthong reduction (DR), Vowel change (VC), Initial consonant deletion (ICD), Final consonant deletion (FCD), Medial consonant deletion (MCD), Strident Deletion (StD), Deaffrication (DCA), Assimilation (AS), Fronting (FR), Weak syllable deletion (WSD), Gliding (GL), Apicalization (API), Demunization (Demn), Vowel Harmony and Stops replacing glide (SRG).

Results and discussion

The results are detailed in the below.

TABLE 1 - Normal development of phonological processes in the age range of 3-4 year old Indian children speaking English.

	CR	DR	VC	ICD	FCD	STD	B of V	Deaff	AS	Front	Glide	Stop replace glide	Affricate	Vowel hormony
1	√				√	√					√			
2	√	√		√	√	√			√		√			
3	√				√	√			√		√			
4	√				√	√		√	√					
5	√				√		√		√					
6	√	√	√	√	√	√			√					
7	√		√		√	√								
8	√		√		√	√	√							
9	√	√	√	√	√	√			√					
10	√			√				√						
11	√				√	√			√	√				
12	√				√	√			√					
13	√				√	√		√	√					
14	√	√		√	√									

15	√				√	√								
16	√				√	√								
17	√				√	√								
18	√				√	√		√	√					√
19	√				√	√			√					
20	√				√	√								
21	√				√	√			√			√		
22	√				√	√								
23	√				√	√							√	
24	√				√	√			√					
25	√	√	√		√	√					√			
26	√				√	√			√				√	
27	√				√				√					
28	√				√				√					
29	√		√		√	√								
30	√		√	√				√						

Table 1 Shows 14 different phonological processes that have been found to be occurring between 3-4 yrs of age. The most commonly occurring phonological processes were cluster reduction, final consonant deletion, strident deletion, assimilation. The least occurring processes were diphthong reduction, vocalization, initial consonant deletion, backing of vowel, deaffrication, and gliding. Fronting and backing of vowel was found only in two children and stops replacing glide, affrication, and vowel harmony was found in only one child.

Table 2: Normal development of phonological processes in the age range of 4-5 year old Indian children speaking English.

S.no	CR	DR	VC	ICD	FCD	STD	Backi	Deaff	AS	Front	Glid	Dim	Api
1	√			√	√	√		√	√				
2	√				√	√							
3	√	√											
4	√				√	√		√					
5	√	√	√		√	√							
6	√		√										

7	√				√	√							
8	√				√	√				√			
9	√				√	√			√				
10	√				√	√	√		√		√		
11	√	√		√	√	√	√	√	√	√			
12	√				√	√		√			√		
13	√				√	√							
14	√				√	√							
15	√				√	√							
16	√				√	√							
17	√				√	√							
18	√		√		√	√						√	√
19	√				√	√							
20	√	√			√	√							
21	√				√	√							
22	√				√	√							
23	√				√	√	√	√					
24	√				√	√							
25	√												
26					√	√							
27	√				√	√							
28	√		√	√	√	√			√		√		
29	√				√	√							
30	√				√	√							

A total of 13 different phonological processes have been found to be occurring in the age group of 4 to 5 year old Indian children speaking English. These are the most commonly occurring processes among the children, (as given in table-2) however the frequency of occurrence of phonological processes differed across the age groups. The most commonly occurring phonological processes were cluster reduction, final consonant deletion, and strident deletion. The least occurring process was diphthong reduction, vowelization, initial consonant deletion, backing of vowel, deaffrication and assimilation. Fronting and gliding was present in only two children. Apicalization and diminutization was present in only one child.

Similar finding has been reported after 3 years of age by Stoel Gammon and Dunn (1985). They observed cluster reduction, epenthesis stopping, depalatalization and devoicing even after 3 years of age. In the present study it is seen that as age advances from 4-5 years cluster reduction, final consonant deletion and strident deletion persisted, as clusters are acquired at a later age. Fronting diphthong reduction, vocalization, initial consonant deletion, backing of vowel, deaffrication, assimilation, gliding, apicalization, diminution were found to decrease as age advanced from 4-5 years. A decrease in the occurrence of phonological processes could be because they begin to acquire new phonemes during this period.

This study correlates with the findings of Sameer study (1998), who reported of persistence of cluster reduction and epenthesis while some other processes decrease as age advances. These results also correlate with the findings of Sam (1999). He too observed that cluster reduction deaspiration, devoicing and epenthesis persist as age advances from 4-5 years while some other processes decrease. Similar findings about the increased occurrence of cluster reduction, weak syllable deletion and fronting were reported by Jayashree (1999) in 4-5 year old Kannada speaking normal children along with minimal least occurrence of assimilation.

Summary and conclusion

All children use phonological processes during the acquisition of speech sound. In general research on the normal use and suppression of phonological processes indicate that most children, regardless of the language being learnt use common processes readily available in their development of the sound system. All children tend to use phonological processes during the acquisition of speech sound to simplify the adult target and these processes tend to decrease as the age increases. Some phonological processes may be seen more in one language than other language.

In the present study the phonological processes that persisted in 4 to 5 year old children are cluster reduction, final consonant deletion and strident deletion. The phonological processes

which decreased as age advanced from 3 to 5 years were diphthong reduction, vowel change, initial consonant deletion, backing of vowel, deaffrication, assimilation, fronting, and gliding. The phonological processes which disappear by 4-5 years of age are apicalization and diminution. The phonological processes which were observed at only 4 to 5 years of age are stops replacing glide, affrication, and assimilation.

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