

## **Phonological Process in Tamil Speaking Monolingual and Bilingual Children - A Comparative Study**

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### **Abstract**

The study investigated the phonological processes in groups of monolingual Tamil speaking children (N=50) and bilingual Tamil and English-speaking children (N=50) in the age range of 3-4 years. Data collection was done in schools of the rural and urban areas of Trichy. Speech samples were collected using a picture description task and a general conversation task. These speech samples were analyzed by three Speech Language Pathologists. The results revealed that there were differences in the number of phonological processes occurring among the monolingual and bilingual children and variations in the phonological processes were also seen. The number of phonological processes was more in bilinguals when compared to the monolinguals. The phonological processes like stopping, deaffrication, alveolarization, and depalatalization were exhibited only by bilingual Tamil and English-speaking children and were not found among monolingual Tamil speaking children. Similarly, the phonological processes like fronting, velar assimilation, prevocalic voicing, medial consonant deletion and weak syllable deletion were seen only in monolingual Tamil speaking children and not in the Tamil and English-speaking bilingual children. In addition to these, the phonological processes like backing, gliding, affrication, labialization, cluster reduction, epenthesis, final consonant deletion and initial consonant deletion were common in both.

**Key words:** phonological process, monolingual, bilingual, Tamil, English

### **Introduction**

Phonological organization of speech is governed by certain “universal phonological processes” termed as phonological process (Stampe, 1969; 1979). A phonological process is a mental operation that acts as an alternative for a group of sounds or sound sequences which are difficult to produce. It can also be explained as patterns of sound errors produced by typically developing children for simplifying speech while learning to talk. According to Samayan (2015) phonological processes are not random but predictable in nature. “One fact about phonological development on which linguists of virtually all theoretical persuasions can agree is the systematic nature of the child’s simplification and restructuring of adult words” (Macker & Ferguson (1981)). As Oller (1974) explicitly puts it, “the sorts of substitutions, deletions, and additions which occur to child language are not merely random errors on the child’s part but are rather the result of a set of systematic tendencies.”

The occurrence and persistence of phonological process varies across age range. Normative data regarding usage of phonological processes was done by Preisser, Hodson, and Paden (1988). In a cross-sectional study, they examined phonological process usage in children between 24 and 29

months, the most commonly observed processes were cluster reduction, liquid deviation (which included deletions of a liquid in a consonant cluster), vowelization, and gliding of liquids. Next most common were patterns involving the strident feature.

Roberts, Butchinal, and Footo (1990) observed a group of children between 2.5 and 8 years in a quasi-longitudinal study, that is, children were tested a varying number of times over the course of the study. They reported a marked decline in process usage between the ages of 2.5 and 4 years. They also reported percentage of occurrence of 20 or more for cluster reductions, deletion of final consonants, syllable reductions, liquid gliding, fronting, stopping, deletion of medial consonants, and deaffrication. By age 4, only cluster reduction, liquid gliding and deaffrication had a percentage of occurrences of 20 percent or more. They also reported that at 2.5 years the percentage of occurrence was less than 20 percent for the following processes: reduplication, assimilation, and deletion of initial consonants, addition of a consonant, labialization shifts, metathesis, and backing.

Stoel-Gammon and Dunn (1985) reviewed studies of process occurrence and identified those processes which typically are deleted by age 3 and those that persist after 3 years. They stated that unstressed syllable deletion, final consonant deletion, consonant assimilation, reduplication, velar fronting, diminutization, and prevocalic voicing are the processes disappear by the age of 3 years. The processes persisting after 3 years are cluster reduction, epenthesis, gliding, vocalization, stopping, depalatalization, and final devoicing.

Phonological process found to be varying between languages and within languages across different age groups. According to Bharathy (2001), in Tamil speaking children between the age range of 3-4 years phonological processes like cluster reduction, epenthesis, stopping for liquids and fricatives, nasal assimilation, voicing assimilation, initial consonant deletion, unstressed syllable deletion, affrication and deaffrication can be seen. In addition to this, literature also suggested that the phonological processes like backing, lateralization, medial syllable deletion, gliding, intervocalic deletion, fronting and palatalization persisted in Tamil speaking children of the same age group.

It has been found that the patterns of phonological processes are different in monolingual and bilingual children since there exists linguistic differences in phonological acquisition. Goldstein and Washington (2001) carried out an initial investigation of phonological patterns in typically developing 4 years old Spanish-English bilingual children. The results indicated that the children exhibited different patterns of production across the two languages and showed different patterns compared to monolingual children of either language. However, there were no significant differences between the two languages on percent of consonants correct, percentage of consonants correct for voicing, place and manner of articulation, or percentage of occurrence of phonological processes. There are also evidences supporting that there exist no differences in phonological skills between languages. A study by Campbell and Sais (1995) on Italian-English bilingual preschool children shows their competency was nearly equal in both the languages.

### **Need for the Study**

India is a country with vast diversity of languages and more than half of the population consists of bilinguals. Most of the bilingual children can be classified as simultaneous bilinguals who acquire their proficiency in both the languages evenly. Tamil – English bilinguals are commonly seen in the southern part of India, precisely in the state of Tamilnadu. Tamil is a very unique and difficult language which has its own distinctive features when compared to English. This current scenario alerts the importance of having separate normative for monolinguals and bilinguals in all the

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**Language in India** [www.languageinindia.com](http://www.languageinindia.com) ISSN 1930-2940 18:5 May 2018

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aspects of speech and language skills. But there are only a limited research focused on the differences in phonological process of monolinguals and bilinguals in Indian context.

### **Aim**

To determine and analyze the phonological process in monolingual and bilingual Tamil speaking children within the age range of 3 to 4 years.

### **Method**

#### ***Participants***

A total of 100 typically developing monolingual Tamil speaking (N=50) and bilingual Tamil and English-speaking children (N=50) within the age range of 3-4 years participated in this study. Tamil speaking children were selected from the government schools in the rural areas of Trichy. Tamil and English-speaking bilinguals were identified from the Montessori schools which follows English as strict medium of communication and children whose parents uses both languages to communicate with them were selected for the study. The participants were selected with the criteria of being able to both comprehend and express in the languages (Tamil for monolinguals and both Tamil and English for bilinguals), and being able to produce simple sentences (as a picture description task was used). Reading and writing skills were also taken in account.

#### ***Stimuli and Data Collection***

The speech samples were elicited using picture description task and a general conversation task. The samples were recorded and later analyzed by three Speech Language Pathologists. Number of individual phonological process exhibited by monolinguals and bilinguals were calculated and compared.

### **Results and Discussion**

Results reveal that there is difference in phonological processes between bilingual and monolingual children. Gildersleev-Neumann and Davis (1998), Yavas (1998) reported a different developmental pattern of phonological processes among bilingual children in comparison to their monolingual peers which supports the results of the current study.

A total of 13 phonological processes were seen in monolingual Tamil speaking children. Substitution processes like backing (3 children), fronting (23 children), gliding (3 children), affrication (1 child), and labialization (2 children) were noticed. Assimilation processes seen were velar assimilation (1 child), and prevocalic voicing (3 children). Cluster reduction (31 children), epenthesis (17 children), final consonant deletion (7 children), initial consonant deletion (24 children), medial consonant deletion (5 children) and weak syllable deletion (5 children) were observed in syllable structure processes.

Whereas in bilingual Tamil and English-speaking children, a total of 12 phonological processes were seen. Substitution processes like backing (17 children), gliding (4 children), stopping (5 children), affrication (6 children), deaffrication (9 children), alveolarization (2 children), depalatalization (2 children), and labialization (2 children) and syllable structure processes like cluster reduction (38 children), epenthesis (16 children), final consonant deletion (16 children), and initial consonant deletion (5 children) were the ones noted in bilingual group. Assimilation processes were not noticed among the bilingual Tamil and English-speaking children but were seen in monolingual Tamil speaking children.

The phonological processes like stopping, deaffrication, alveolarization, and depalatalization were exhibited only by bilingual Tamil and English-speaking children and were not found among monolingual children. Similarly, the phonological processes like fronting, velar assimilation; prevocalic voicing, medial consonant deletion and weak syllable deletion were seen only in monolingual Tamil speaking children and not in bilingual children. In addition to these, the phonological processes like backing, gliding, affrication, labialization, cluster reduction, epenthesis, final consonant deletion and initial consonant deletion were common in both. However, the number of these phonological processes varied among the two groups. Figure (1.0) below shows the different phonological processes present in monolingual Tamil speaking and bilingual Tamil and English-speaking children.

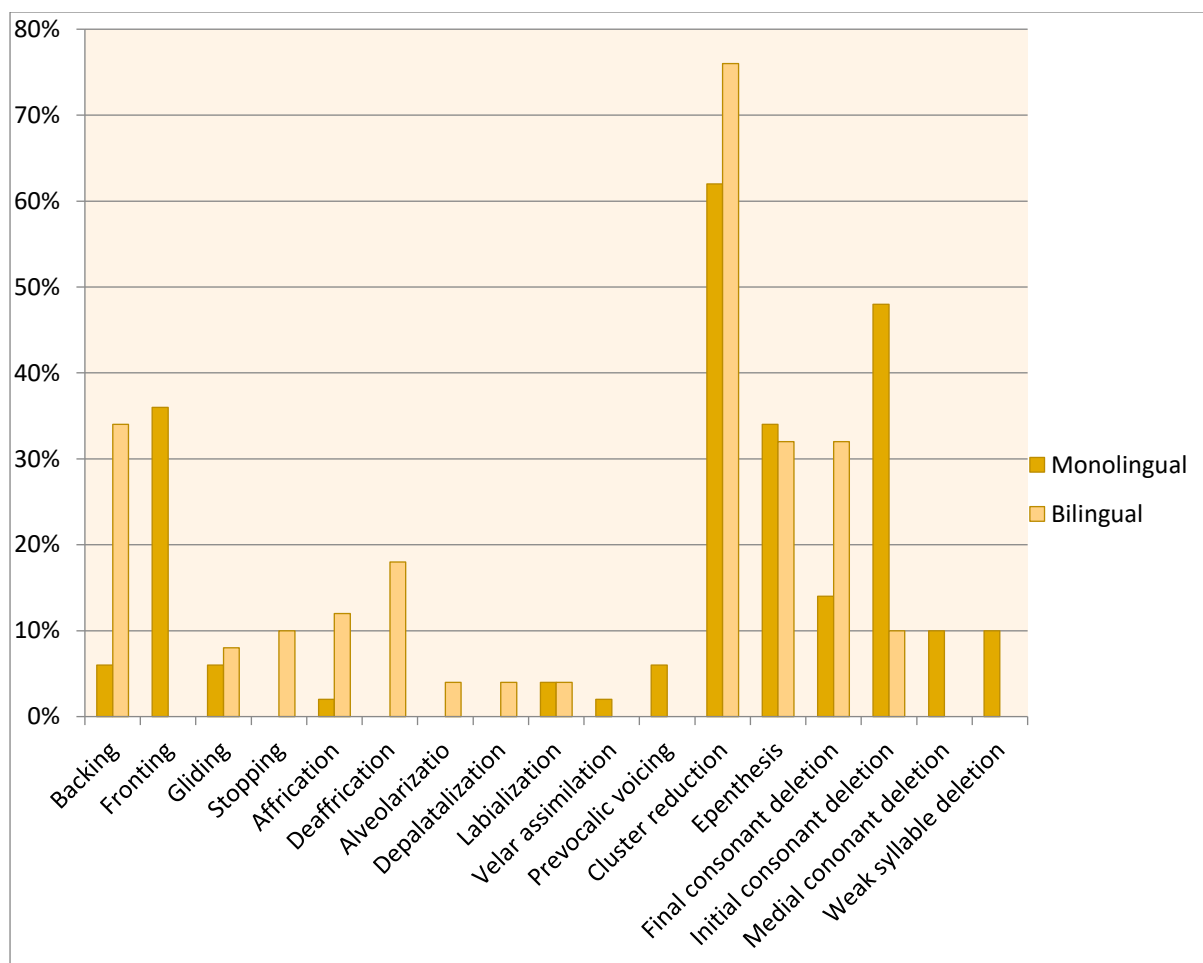


Figure 1.0. *Phonological processes seen in monolingual Tamil speaking and bilingual Tamil and English-speaking children Substitution processes*

Table (1.0) below depicts the different substitution process observed in monolingual and bilingual children. About 34% of bilinguals showed backing errors where as it was noted only in 6% of monolinguals. Majority of bilinguals were having errors like gliding, stopping, affrication, deaffrication, alveolarization, depalatalization, labialization. Fronting was the only error noticed majorly (36% of children) in monolinguals on comparison. Fronting was seen only in monolingual children. Whereas, the phonological processes like stopping, deaffrication, alveolarization, and depalatalization was seen only in bilingual children.

Table 1.0. *Number of children demonstrating substitution process across monolinguals and bilinguals*

Phonological processes	Number of children (Monolingual)	Percentage (Monolingual)	Number of children (Bilingual)	Percentage (Bilingual)
Backing	3	6%	17	34%
Fronting	23	36%	-	-
Gliding	3	6%	4	8%
Stopping	-	-	5	10%
Affrication	1	2%	6	12%
Deaffrication	-	-	9	18%
Alveolarization	-	-	2	4%
Depalatalization	-	-	2	4%
Labialization	2	4%	2	4%

Nadiya (2005), reported that the affrication was rarely observed above the age of 4 and commonly seen during 3 years in Tamil speaking children. This is in accordance to the present study where affrication was noticed among 2 % and 12% of monolingual and bilingual children respectively. Deaffrication was found to occur primarily in children below four years of age in Tamil (Barathy, 2001; Nadiya 2005).

Nadiya, (2005) reported that the process of fronting was observed till the age of 4.7 years. According to Barathy (2001) fronting is the common process in Tamil speaking children in the age of 3-4 years which supports the current study finding in which monolinguals showed more fronting errors.

### ***Assimilation Processes***

Table (1.1) depicts the different assimilation processes observed in monolingual Tamil speaking children and bilingual Tamil and English-speaking children. The table reveals that assimilation processes were detected only among monolinguals and not among bilinguals. Assimilation processes observed in the monolingual Tamil speaking children were velar assimilation and prevocalic voicing. No assimilation processes were detected in bilingual Tamil and English-speaking children.

Table 1.1 *Number of children demonstrating assimilation processes across monolinguals and bilinguals*

Phonological processes	Number of children (Monolingual)	Percentage (Monolingual)	Number of children (Bilingual)	Percentage (Bilingual)
Velar assimilation	1	2%	-	-
Prevocalic voicing	3	6%	-	-

The process of voicing was reported in the early stages of speech development in Tamil-Telugu bilingual children (Lakshmi Bai, 2000). Balachandran and Nirmala in 1978 reported

assimilation as one of the major phonological process seen within the age range of 1-5 years. Voice assimilation was reported by the same authors in Tamil speaking children which support the current study findings where monolingual Tamil speaking children showed assimilatory processes. Absence of assimilation in bilinguals can be attributed as the influence of the phonological patterns of English language. This evidence is supported by Wiltshire and Harnsberger in 2006 while stating the phonetic and phonological influences across Tamil and English.

### ***Syllable Structure Processes***

Table (1.2) depicts the different syllable structure processes observed in monolingual Tamil speaking children and bilingual Tamil and English-speaking children. 76% bilinguals showed cluster reduction errors whereas only 62% of monolinguals showed cluster reduction errors. Syllable structure processes like cluster reduction, epenthesis, final consonant deletion and initial consonant deletion prevailed in both monolingual and bilingual children. In addition to this, medial consonant deletion and weak syllable deletion was seen only in monolinguals and not in bilinguals.

*Table 1.2 Number of children demonstrating syllable structure processes across monolinguals and bilinguals*

Phonological processes	Number of children (Monolingual)	Percentage (Monolingual)	Number of children (Bilingual)	Percentage (Bilingual)
Cluster reduction	31	62%	38	76%
Epenthesis	17	34%	16	32%
Final consonant deletion	7	14%	16	32%
Initial consonant deletion	24	48%	5	10%
Medial consonant deletion	5	10%	-	-
Weak syllable deletion	5	10%	-	-

The occurrence of final consonant deletion has been reported in typically developing Tamil speaking children from 3-5 years of age (Barathy, 2001) and in Tamil-Telugu bilingual children (Lakshmi Bai, 2000). However, Nadiya (2005) did not report the occurrence of final consonant deletion in typically developing Tamil speaking children by the age group of 2;6-5 years. Overall, the frequent occurrence or absence of final consonant deletion may be due to the absence of ending words in Tamil source words (Lakshmi Bai, 2000). The more occurrence of weak syllable deletion and medial consonant deletion can be attributed to the differences in syllable structure between Tamil and English. The temporal characteristics of Tamil language is still under debate in the literature which have been variously describes as stress time, syllable time, and mora time whereas that of English language is stress timed. The differences in substitution process between groups can be due to this changes in temporal patterns which has an impact on its phonology.

### **Conclusion**

The study provides evidence for the differences in occurrence of phonological processes in monolingual Tamil speaking and bilingual Tamil and English speaking typically developing children within the age range of 3-4 years. Occurrence of phonological processes was found to be more in

monolingual children when compared to bilingual children. Better phonological skills were noticed among bilinguals when compared to monolinguals was reflected by the reduced occurrences of phonological process in bilinguals. The type of phonological process also differs among the groups.

This alerts for the importance of having different normative data in phonological processes specifically to monolinguals and bilinguals. It will aid in accurate assessment, diagnosis and thereby help in providing effective intervention specific to linguistic variations.

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