

PHONOLOGICAL PROCESSES: THE KEY OF LANGUAGE ACQUISITION

Dr. Smitha K. Nair

Assistant Professor, Department of Linguistics,
Thunchathethuthachan Malayalam University, Vakkad, Tirur

Abstract

Language acquisition which is the natural imbibing of language by children has different stages. It constitutes the phonology, vocabulary, grammar, syntax and pragmatic level of language development. Phonological development is the acquisition of phonological structure, that is, the speech sounds of the language. Acquisition of sound system requires suppression of a number of innate simplifying processes called phonological processes and simultaneously increasing number of contrast sounds. Phonological processes are the systematic simplified adult production of children. About 40 types of phonological processes are identified in English after long term extensive studies. In Indian context study of phonological processes are rare especially in the case of Malayalam. Phonological processes are a common phenomenon during language development. But if these phonological processes are not suppressed appropriate to each age, it is considered as a phonological delay or disability. So the phonological processes relevant to each age should be identified as normative data which is the relevance of this study. In this paper, I attempt to trace out the phonological processes in Malayalam. The subjects include ten children and seventy commonly used basic words were collected using pictures. The utterances are recorded. Analysis could clearly indicate the commonly occurring phonological processes while children acquire Malayalam. It also expands the knowledge of child language phonology.

Key Words : Language Acquisition, Phonology,

Phonological Processes, Babbling, Phonological delay

Introduction

Language acquisition is a process of natural imbibing of language. It starts from the development of phonology and continues through the development of vocabulary, grammar, syntax, semantics and pragmatics. The phonology of a language encompasses all the speech sounds of that language, how sound systems are combined, organized and convey meaning in particular languages. Phonological development refers to the acquisition of a functional sound system intricately connected to the child's overall growth in language. Phonological development of a child includes two important stages. The first one is the Pre-linguistic stage which is the period prior to the acquisition of the first word. It includes different steps such as reflexive crying, cooing, vocal play, and babbling. A baby's first attempts at communicating emotions and needs are through crying. Then the cooing stage starts between two and five months. Babbling stage which starts after or around six months is the key process of phonological development in children. Early sound discrimination skills start to emerge in this stage. The relation between babbling and speech was of great debate. Roman Jakobson's continuity hypothesis says that there is no connection between babbling and later language development. Several studies indicated that better language development was seen in children with good complexity in babbling. Since the discontinuity hypothesis

is not yet proved, babbling is closely linked with language development. Similarly, babbling and meaningful speech overlap in the process of development. There is no borderline between babbling and first word. It is difficult to differentiate both the stages.

Linguistic stage begins at the acquisition of the first word. This stage starts around the first year of age. The relevance of phonological processes comes after this stage. And normally the frequency of these processes is less below the age of two and high in between the age of two and four.

The concept of phonological process was first introduced by Stampe in 1973. According to him, learning of sound system requires suppression of a number of innate simplifying processes and simultaneously increasing number of contrast sounds. A phonological process is a systematic sound change that affects classes of sounds or sound sequences and results in simplification of production (Lowe, 1996). That is, phonological processes are the systematic simplified adult production of children or the changes that children make to the adult model. It is a universal common phenomenon. As the child develops the physiological and motor skills to produce adult like word forms, these processes are suppressed.

Regardless of the language being learned, the research on the normal use and suppression of phonological process indicates that most children use the phonological processes early in their development of the speech sound system.

Phonological process analysis helps to assess children who exhibit multiple speech sound production errors. Phonological analysis emphasizes the rules or processes that children use to produce their simplified version of the adult phonological model. Results obtained from a complete assessment of phonological processes can provide a profile of the underlying rules a child uses and can serve as a basis for planning remediation.

Study of phonological processes gives a comprehensive idea of the phonological development of children. The deviations from the adult form can be marked. If suppression of phonological processes does not occur at the appropriate

age, a phonological disorder may be suspected. So if the phonological processes appropriate to age are marked as a normalized data, a phonological disorder can be noticed and intervened earlier. Delay in language development also can be identified through such studies. Phonological processes in English are well identified. But in the case of Indian languages we know little about the phonological development of children. Especially in Malayalam there are very rare studies and this necessitates the need for phonological process analysis in Malayalam.

Earlier studies

Ferguson and Farwell (1975) compared between children's selection and avoidance patterns of sounds with their production patterns. They described that the children select words with phonological characteristics that are inconsistent with their developing phonological systems and avoid words with characteristics outside their system. This notion of selection and avoidance patterns was further tested by Schwartz and Leonard in 1982. In this experiment, they found that children tended to select words with sounds they could produce and avoid words with sounds outside their repertoire. These findings support the hypothesis that lexical acquisition is based on the phonological characteristics of the adult word and production patterns of the child. These differences relate to patterns of preference for and avoidance of particular sounds has been observed by a number of researchers. However Stoel Gammon and Cooper in 1981 observed that such patterns do not appear in the speech of all children. Stoel Gammon and Dunn (1985) reviewed the studies of occurrences of phonological processes and identified the processes which disappeared by three years of age as unstressed syllable deletion, final consonant deletion, consonant assimilation, reduplication, velar fronting, etc. The processes which persist after three years were identified as cluster reduction, epenthesis, gliding, vocalization, stopping, de-palatalisation and final sound voicing.

Although more than 40 different processes have been identified as occurring in child phonology, only a handful occurs frequently. Those

processes that commonly occur developmentally in normal children are called natural processes. Processes that never occur, or occur only rarely, in normal child phonology are called unusual or idiosyncratic processes (Stoel-Gammon and Dunn, 1985).

According to Ingram (1974), phonological processes are classified into three groups: syllable structure processes such as deletion of final consonant, cluster reduction, weak syllable reduction, reduplication and epenthesis; substitution processes such as stopping, fronting, deaffrication, gliding, and vocalization etc. and assimilatory processes such as velar assimilation, labial assimilation etc.

The literature on phonological processes and their development are abundant in English, Spanish and other languages; but are lesser in India considering the enormous linguistic and cultural diversity. In the recent past a number of such studies have been attempted in several Indian languages focusing on the normal phonological process usage. The study of normal phonological process was done by Sunil (1998), Jayashree (1999), Ramadevi (2002), Sreedevi, Jayaram & Shilpashree (2005) in Kannada, Sameer (1998) in Malayalam, Bharathy (2001) in Tamil, and Ranjan (1999) and Santhosh (2001) in Hindi. Sameer in 1998 listed the phonological processes of Malayalam as cluster reduction, final consonant deletion, epenthesis, affrication and deaffrication.

The present study is trying to trace out the phonological processes present in the speech of Malayalam speaking children of 2.6 to 3 years of age.

Methodology

Ten children of 2.6 to 3 years of age are selected for the study from day care settings and from home. Some seventy sample words of Malayalam which cover all consonants and vowels of Malayalam occurring in its initial, medial and final positions are selected for testing. The words selected are the common words which are expected to commonly occur in speech and the words are selected from picture books. The data were elicited manually from each child showing the pictures. The recorded data is transcribed and analyzed

sound by sound. Based on the sound changes occurring, the phonological processes are identified.

Result and Discussion

Based on the analysis of the data sound by sound, the phonological processes observed are discussed here with examples,

1. Deletion of Final Consonant

It involves the deletion of a final consonant or final consonant cluster so the final form of the word ends with a vowel. It is common in children between the ages of 1.6 and 3.0; but are rare beyond 3 years of age (Ingram, 1989)

eg: acchan > acca 'father'
 appoppan > appoppa 'Grand father'
 Viral > virə 'finger'

2. Cluster Reduction

Cluster Substitution (CS) occurs when there is a substitution of a cluster member. Cluster Reduction can be subdivided into Total, Partial, and Substitution.

i. Total Cluster Reduction (TCR) involves the deletion of all members of the cluster.

eg: aksaram > accaram 'syllable'
 pakṣi > pacci 'bird'
 Here, the cluster /kṣa/ is completely changed in to /cca/

ii. Partial Cluster Reduction (PCR) occurs when some of the cluster members are omitted but others remain.

eg: pṛaav > paav 'pigeon'
 spuṇṇə > suṇṇə 'spoon'

iii. Cluster substitution

Here some of the cluster members are substituted by other sounds and other members remain the same. It is sometimes treated as a form of partial cluster reduction. It mostly occur while producing loan words.

eg: ṭreyin > treyin 'train'
 ṭrii > trii 'tree'

So the clusters tend to develop in these four stages. First the Deletion of entire cluster, then the reduction of cluster to one member, then the use of cluster with substitution for one of the mem-

bers and finally the correct articulation.

3. Weak Syllable Deletion

This process also called as unstressed syllable deletion or just syllable reduction, describes the deletion of one or more syllables from a polysyllabic word. Typically syllable with the least stress is deleted in the production. The process rarely occurs in children with normally developing sound systems after the age three.

eg: uṭuppə > uppə
ceruppə > ceppə
kuṭikkə > cuccə
aṭukkaḷa > accaḷa

4. Reduplication

Reduplication also called doubling occurs when a child repeats a syllable of a word into a polysyllabic form.

eg: naaya > bow bow
tutu > paaRRa
uu uu > insects, heat etc to indicate fear

5. Epenthesis

Epenthesis is a process that results in the insertion of a vowel between two consonants. Epenthesis might involve insertion of a consonant but the most common occurrence is a vowel between two consonants.

eg: fridj > firj 'fridge'
candran > candiran 'moon'
bras > bərsə 'brush'

6. Stopping

Ingram (1989) describes stopping as the replacement of fricatives or affricates with stop consonants.

eg: masi > maci 'ink'
doōsa > dooca 'dosa'
pensil > pencilu 'pencil'
simham > simgam 'lion'

7. De-affrication

This process involves the substitution of a fricative for an affricate. De-affrication is usually suppressed prior to 4 years of age.

Eg: cevi > tevi 'ear'

cakka > takka 'Jack fruit'

8. De-aspiration

It is a common feature in Malayalam that the aspirated sounds get de aspirated. The reason for its occurrence may be dialectal. Also studies have indicated that aspiration is acquired in later stages, after their non aspirated cognates.

Eg: phalam > palam 'fruit'
Bhumi > puumi 'earth'

9. Fronting

Two forms of fronting have been identified: Velar and Palatal. Velar fronting involves the replacement of a velar consonant [k, g, ŋ] by a more anterior consonant (typically alveolar). Palatal fronting (sometimes called as de-palatalization) is the replacement of a palatal by a sound made further forward in the mouth (Lowe, Knutson, & Monson, 1985). Grunwell (1987) indicate that occasionally children will replace velars and palatals, and that this too, is a form of fronting. Fronting occurs more often in word -initial position than in word final position.

Eg: kooli > cooyi, tooyi 'hen'
keekk > ceecca, teett 'cake'
ciippə > tiippə 'comb'
gustiə > dusti 'fight'

10. Gliding

The replacement of liquids by glides is called gliding. It starts at the age of 2 ½ years. But is most commonly seen in 3- and 3 ½ - year old children. There is a greater incidence of gliding for prevocalic /r/ than or /l/ (Dyson & Paden, 1983). The most common substitute for /r/ and /l/ is /y/. Gliding is a common process in the speech of disordered children.

Eg: tala > taya 'head'
kaalə > kaay 'leg'
viral > vialə 'finger'
maram > mayam 'tree'

11. Vocalization

Vocalization or vowelization affects syllabic consonants. In vocalization, a full vowel is substituted for syllabic liquids or nasals.

Eg: peeppar > peepp 'paper'

muṭṭaayi > ittaayiə 'sweet'

12. Velar Assimilation

Velar assimilation results when an alveolar sound changes to become more like a velar consonant, in the presence of a velar consonant.

Eg: jirakam > jikakam 'cumin seeds'
takkaali > kakkaali 'tomato'

13. Labial Assimilation

Labial assimilation occurs when a non-labial consonant is replaced by a labial consonant in the presence of a labial consonant. The most common form occurs when the alveolars change to labials. This process would reflect within an age range from 1-4 years.

Eg: bootṭə > booppə 'boat'
sooppə > pooppə 'soap'

14. Metatheses

This process includes displacement of phonemes.

Eg: jirakam > jikaram 'cumin seeds'

Conclusion

The present study aimed to find out the phonological processes in Malayalam speaking children of 2.6 to 3 years of age. About fourteen phonological processes such as Deletion of final consonant, Cluster reduction, Weak syllable reduction, Reduplication, Epenthesis, Stopping, De-affrication, De-aspiration, Fronting, Gliding, Vocalization, Velar assimilation, Labial Assimilation and Metathesis. If the phonological processes of this age range are marked with a huge data and samples, it can be used as a normative data to assess the phonological delay in development which is the objective of this study. More of studies have to come in this field with more samples and

test words in all the age groups from 2 to 5 years of age. Identifying the phonological processes in all these age groups can mark the phonological development of children and can function in phonological disability conditions.

Acknowledgement

I would like to express my deep sense of gratitude to the Director, teachers and staff of All India Institute of Speech and Hearing where I could collect the data and could go through the new lights of language acquisition and delay. I wish to acknowledge the small children, who are the subjects participated in this study.

References

- Charlesworth, Rosalind. (2010). *Understanding child development*. USA: Wadsworth.
- Ingram, D. (1989). *Phonological Disability in Children* (2nd ed.). San Diego: Singular Publishing Group, Inc.
- Jakobson, R. (1968). *Child Language. Aphasia and Phonological Universals*. The Hague: Mouton.
- Lewis, M. M. (1951). *Infant speech: A study of the beginnings of language*. London: Routledge & Kegan Paul.
- Lois Bloom & Margaret Lahey. (1978). *Language development and language disorders*. Newyork: John wiley and sons.
- McReynolds, L. V., & Elbert, M. (1981). *Criteria for Phonological Process Analysis*. *Journal of Speech & Hearing Disorders*, 46, 191-196.
- Sreedevi, N., Shilpashree, & Jayaram, M. (2005). *Development of phonological processes in 2-3 year old children in Kannada*. In proceedings of the 6th ICOSAL, Osmania University, Hyderabad. ■