

Identification of Phoneme Inventory in Babbling by Malayalam Native Infants

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Stages of Language Acquisition

At the same time infant's speech perception is developing, the speech production also starts over first twelve months. Infant's first vocalizations are 'wild sounds'. Reflexive and vegetative sounds also appear in the first six weeks, 'Cooing' around six weeks, 'Babbling' around seven months. An early period of 'marginal babbling' then develops to 'canonical babbling' and then 'variegated babbling' around ten to fourteen months followed by first word around twelve months. These stages are universal and continuous.

Methodology

The data is a naturalistic speech data collected directly from child. The study was carried out by maintaining the proper recording using high quality recorder. The child normally got the complete environmental support and he has normal capacity to acquire language. The study aims at identifying the phonemes based on the production level of the infants in Malayalam language acquisition.

1. CRY (0:0-0:2 months)

Cry is the mode of communication. Child is unable to control tongue, lips, jaw and muscles. At this stage infants cry identified as reflexive and vegetative sounds such as coughing, burping, swallowing, grunts, discomfort sounds like wet, pain, etc.

2. COOING STAGE (0:2-0:4)

Cooing stage is generally as from three to five months. In this stage child often produce coo's or comfort sounds when having face to face interactions with a caregiver. Before cooing, i.e., zero to eight weeks there is only cry, no speech sounds. About three months crying changes to cooing and smiles when talked to. Infant can produce vowel-like sounds. This this stage child is in vocal play.

Production of Vowels in Cooring Stage

	a	e	i	o	u	ə	Semi-vowel (y/w)
Case1:A	✓	✓	X	✓	✓	✓	✓ (y)
Case2:B	✓	✓	✓	X	X	✓	✓ (y)
Case3:C	✓	✓	X	X	✓	X	X
Case4:D	✓	✓	X	✓	X	✓	X
Case5:E	✓	✓	X	✓	✓	X	X (w)
Case6:F	✓	✓	X	X	✓	X	X
Case7:G	✓	✓	X	X	✓	X	X (w)

BABBLING (0:4-1:4)

Babbling is a pre-linguistic skill that happens prior to the development of language and speech.

1. Marginal babbling

Marginal babbling is identified as four to six months. This stage contains CV or VC patterns. It is considered as a type of pre-canonical vocalization along with cooing.

e.g. /taaa/

/teee/ (Case1:A)

/baaa/ (Case2:B)

/maaa/ (Case3:C)

2. Canonical babbling

Canonical babbling is identified as from six months to ten months. In this stage infants began to use a variety of sounds and sound combinations.

2.1 Reduplicated Babbling

In reduplicated babbling, infants repeat the same syllable over and over.

/ba ba ba .../ (Case2:B)

/me me me.../ (Case5:E)

/pa pa pa...../ (Case4:D)

2.2 Non-Reduplicated Babbling

Sounds are more varied. Rather than producing the same syllable over and over, infants will start to combine different sounds and syllables.

Case1:A /bakka/

- Case2:B /acca/
 Case3:C /mme/
 Case4:D /ccecca/
 Case5:E /əmmi/
 Case6:F /atta/

Canonical babbling with jargon speech

After canonical babbling infants babbling slowly start resemble with adult speech even though he may not be using real words. This babbling refers as jargon. This will continue through second year.

- Case1:A /bakka/ ‘pappa’, /ko/ ‘hen’
 Case2:B /cāyi/ ‘sari’, /pātta/ ‘pappadam’,
 Case3:C /pānə/ ‘fan’, /ka/ ‘car’
 Case4:D /kōyi/ ‘hen’, /bellam/ ‘water’
 Case5:E /bāba/ ‘bappa’, /ōtto/ ‘Auto’
 Case6:F /ayə/ ‘that’, /chōyə/ ‘rice’

Production of Consonants in Marginal babbling.

	p b	t d	k g	c ch	m n	/ñ/ ű	R r	S h	/l/ RR
	ph bh	d dh	kh gh	ç th	ñ ñ	l l	v y	ś ş	f
Case1:A	X X	✓ X	X X	X X	X X	X X	X X	X X	X
	X X	X X	X X	X X	X X	X X	X X	X X	
Case2:B	X ✓	X X	X X	X X	X X	X X	X X	X X	X
	X X	X X	X X	X X	X X	X X	X X	X X	
Case3:C	X X	X X	X X	X X	✓ X	X X	X X	X X	X
	X X	X X	X X	X X	X X	X X	X X	X X	
Case4:D	✓ X	X X	X X	X X	X X	X X	X X	X X	X

	X X	X X	X X	X X	X X	X X	X X	X X	X X	
Case5:E	X X	X X	X X	X X	✓ X	X X	X X	X X	X X	X
	X X	X X	X X	X X	X X	X X	X X	X X	X X	
Case6:F	X X	✓ X	X X	X X	X X	X X	X X	X X	X X	X
	X X	X X	X X	X X	X X	X X	X X	X X	X X	

Production of Consonants in Canonical babbling.

	p b	t d	k g	c ch	m n	/ñ/ ñ	R r	S h	/l/ RR
	ph bh	d dh	kh gh	ç th	ñ ñ	l l	v y	ś ş	f
Case1:A	✓ ✓	✓ ✓	✓ X	✓ ✓	✓ ✓	✓ ✓	X X	X ✓	X ✓
	X X	✓ X	X X	X X	✓ X	X ✓	✓ ✓	X X	X
Case2:B	✓ ✓	✓ ✓	✓ X	✓ ✓	✓ X	✓ ✓	X X	X ✓	X ✓
	✓ X	✓ X	X X	X X	✓ X	X ✓	X ✓	X X	X
Case3:C	✓ ✓	✓ ✓	✓ X	✓ ✓	✓ X	✓ ✓	X X	X ✓	X ✓
	✓ X	✓ X	X X	X X	✓ X	X ✓	X X	X X	X
Case4:D	✓ ✓	✓ ✓	✓ X	✓ ✓	✓ X	✓ ✓	X X	X ✓	X ✓
	X X	✓ X	X X	X X	✓ X	X ✓	X ✓	X X	X
Case5:E	✓ ✓	✓ ✓	✓ X	✓ ✓	✓ X	✓ ✓	X X	X ✓	X ✓
	✓ X	✓ X	X X	X X	✓ X	X ✓	X ✓	X X	X
Case6:F	✓ ✓	✓ ✓	✓ X	✓ ✓	✓ X	✓ ✓	X X	X ✓	X ✓
	✓ X	✓ X	X X	X X	✓ X	X ✓	X ✓	X X	X

1. /v/ is constantly deleted or shifted to the medial position at the early stages of babbling.

E.g.

Case1:A

/vimānam/ > /dīvāna/ 'airplane'

/pūvə/ > /pi/ 'flower'
/vēnda/ > /mēnda/ 'won't'
/veḷḷam/ > /bellam/ 'water'
/vadi/ > /badi/ 'stick'
/pāvam/ > /pām/ 'poor'
/kaduva/ > /kadaba/ 'tiger'
/vaḷa/ > /bala/ 'bangle'

Case2:B

/vimānam/ > /kimānam/ 'airplane'
/veḷḷam/ > /miyam/ 'water'
/vayaRə/ > /bayarə/ 'belly'
/dēvūṭṭi/ > /nīyūṭṭi/ 'deevutty'

Case3:C

/vimānam/ > /bimānam/ 'airplane'
/vēdana/ > /mēna/ 'pain'
/vaṇḍi/ > /mandi/ 'vehicle'

2. /ŋ/ identified in initial position and /n/ in medial and final position.

Case1:A

/ñāna/ > /ṅāna/ 'I'
/āna/ 'elephant' is possible.
/māñña/ > /mānna/ 'mango'
/kaṇṇə/ > /kannə/ 'eye'

Case2:B

/enna/ 'what'
/vaṇḍi/ > /mandi/ 'vehicle'

Case3:C

/veeṇda > /meenda/ 'don't want'

Case4:D

/vaṇḍi/ > /mandi/ ‘vehicle’

Case5:E

/kaṇṇə/ > /kannə/ ‘eye’

Case6:F

/maṇṇə/ > /mannə/ ‘soil’

3. /s/ is absent

/siddu/ > /diddu/ ‘name’

/saikil/ > /kākkələ/ ‘cycle’

/biskæt/ > /bikkattə/ ‘Biscute’

Conclusion

Infants cry is from zero to one month and the cooing stage is generally identified as from two to four months. It is commonly identified /a/ and /e/ in all cases. /i/ sound is only identified in case2:B. It is identified that /i/ ‘short or long’, unrounded high front vowel absent in cooing. /i/ is possible in canonical babbling. This delay satisfies the theory of vowel production. In addition to pure vowel sounds, the semi vowel /y/ is clearly identified in case1:A and Case2:B. And /w/ in 5:E and 7:G

There is nearly three to four words in marginal babbling and about fifty-five words are identified in canonical babbling.

Identification of consonant inventory in Babbling by Malayalam native infants

STOPS	FRICATIVES	NASALS	OTHERS
p b	v	m	
t d		n ñ	l y
k c		ṅ ṇ	h RR

The sound that occurs during the acquisition of language tells about language development and its role in human beings and the knowledge of acquisition of normal children helps us to know

the deviations in normal language. And help us to diagnose and treat language in children. Ruddell (1970) states that 'Not all children are sophisticated users of their native language'. Children with various kinds of language disturbances as infants and toddlers seems to be handicapped in later years with variety of language disorders in reading and writing.

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