

Assimilatory Processes in Ibibio Child Phonology

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1. Introduction

Ibibio language is mainly spoken in Akwa Ibom State of Nigeria and her environs by about 5 million speakers (Essien 2000: 5). The language generally has 15 phonemic consonants, 10 phonemic vowels and 5 phonemic diphthongs (Essien 1990: 18). Each variety of Ibibio has its own unique phonetic and phonemic systems. The Western Itam variety of Ibibio which is our focus in this investigation has 14 phonemic consonants and 9 phonemic vowels considering only the single units. We shall consider only the phonetic sounds of the language in the present study.

These assimilatory processes are part of phonological processes which are changes that connect the child's speech to the adult's. They operate on the adult's speech as input data, resulting in the child's output. Thus, the child's output is a result of the short-cut processes he employs to simplify the adult speech while attempting to attain the adult forms of the language. There are three major classifications of phonological processes: substitution, assimilatory and syllable structure processes. Yul-Ifode (2003:2) adds dissimilation as a fourth major process. Out of the four stated phonological processes, we focus on assimilatory processes. The assimilatory processes are vowel harmony, consonant harmony, voicing, nasal assimilation, nasalisation, etc.

Available records show a long tradition of child language studies in different parts of the developed world such as Britain, America, Germany, etc. In Nigeria, however, the frontiers of linguistic research have been largely extended to incorporate this area, only in recent years. Presently, research on child language development constitutes a major field of interest. The call in linguistic circles for societal application and relevance has helped to boost the desire in scholars to probe deeper and break new grounds within developmental linguistics.

Consequently, Nigerian linguists from diverse linguistic groups have carried out researches on children from these various linguistic backgrounds including Igbo, Yoruba, Hausa, Ikwerre, Okrika, Nembe, Urhobo, and other languages in Nigeria. These works are projects, dissertations, seminar papers from different Nigerian Universities, in addition to a few published articles on the subject. The availability of these works in Nigerian universities is a good indication that sooner than later the Nigerian linguistic school is going to witness the emergence of adequate published materials in this area of research. The research at hand is one of the pioneer works in the same direction.

There is the great need for the Ibibio child to communicate effectively in the medium of language, with other members of his speech community. Effective communication can only take place when the information sent out is the same as the information received. Thus, at an early stage of life, where a child is unable to produce these basic sounds of communication, if care is not taken, those apparently minor deviations may become established disorders. This makes communication ineffective. For instance, one's voice quality can suggest one's age, sex and physical state, indicating some voice disorder.

For a child to function well in society, he must be able to communicate adequately. His ability to communicate well means that he has acquired the sounds of his language, and is able to use the language in his everyday to day interaction with other members of his speech community.

It is for this reason that our work, one of the pioneer ones on the Ibibio child, focuses on the segments. Studies of normal child language like ours help to provide the norm from which the language of the abnormal can be studied.

Consequently, there is a great need for linguistic screening in our society, as there is a positive correlation between language difficulties and learning disabilities. Such children are unable to express themselves effectively through the medium of language. To meet this need we must have some screening and assessment packages like test materials, linguistic profiles, therapeutic programmes, etc. We have to start from the basics by providing a test material to be used to screen for language disorders among Ibibio children.

Our investigation aimed at establishing the assimilatory processes employed by Ibibio children of 2 ½ to 4 ½ years in trying to attain the adult target or forms. We tested our subjects on 12 phonetic vowels [e-ɔ̄-i-u-a-o-ɔ̄₁-ʌ-ĩ-ə-ɸ-o₁] and 21 phonetic consonants: [ɲ-w-ŋ-t-f-p-m-n-kp-s-k-d-b-j-R-d₁-ɰ-t₁-d₂-r-b₁]. There is need for us to describe the sounds with some notations for clarity: [ɔ̄₁] and [o₁] are vowels that occur in free variation before the velar nasal [ŋ]. [p] and [b₁] are bilabial consonants used in free variation word finally; [t₁] and [d₁] are used in free variation word finally; while [r] and [d₂] are used in free variation intervocalically. The subscripts on the sounds do not change the quality of the sounds from those of their counterparts without subscripts, but used to identify the sounds as used in different phonetic environments. We used 50 subjects for our work (25 males and 25 females), using imitation method of data collection. They all come from Western Itam community of Akwa Ibom State of Nigeria. Therefore, the variety of Ibibio used in our study is that spoken in Western Itam Community. Our test material consisted of 162 single word items.

Our problem in Nigeria is that there is no norm set like in developed communities for screening children for language disorders. Such a norm would include identifying the expected standard of normal language development for the children at specifically different ages. For this, test materials and linguistic profiles for screening and identification of language disordered children are provided. Following this, therapy is administered where necessary. In the Nigerian society at large and in the Ibibio community in particular, there is the need to establish a linguistic norm from which variations can be studied. As a starting point, we decided to establish a norm from which all others can be addressed. This, therefore, is the problem before us. As in most cases, we start with phonology. However, in the course of our research, we faced the following difficulties.

The socio-cultural and religious background of the community placed the researcher in some difficulty. The community was highly superstitious of the recording of the speech of their children, thinking that it was to be used for some diabolical purpose. In order to disabuse their minds of their fears, we needed to establish some rapport with the parents and the children beyond mere greetings and phatic communion.

To make progress in data collection, the researcher had to use some field assistants: some four elders who functioned as intermediary between the researcher and the parents.

One general area of hindrance to the progress of this work was in knowing the actual age of the subjects that were needed for the work. This was because many of the parents did not record the birth dates of their children, estimated to be between 2½ and 4½ years. To ascertain their ages, we insisted with the aid of the community native midwife, and other elders, on seeing the children's birth certificates, inoculation cards and family birth records. We also used information from the native midwife and other parents whose children were born at the same period as theirs. It, therefore, made the exercise very cumbersome for the researcher. This, of course, would not be an expected problem in such countries where adequate records are kept, particularly with the use of computers.

Urbanisation of the rural community has led to more rural children going to school early. Children register in the nursery schools at about two to three years. This conditioned our period for data collection, as the search for subjects had to be done before the beginning of a new session when children register at school, and in the middle of terms when it was too late for children to be registered in particular sessions. At other times, the researcher had to wait a few months for children to be of age for our study. Consequently, it was a bit difficult to get Ibibio monolingual children of this age. Another area of difficulty was the lack of instruments to test the quality of the subjects' sound production. In this regard, the sounds were articulatorily tested.

On the whole, our work was quite capital intensive, considering all that was involved in the fieldwork.

In the examples that are presented in the sections that follow, the assimilatory processes used by our subjects are shown. Since we have a large sample size, each table will show only the speech data of the subjects who use these processes. These assimilatory processes can involve both vowels and consonants. The denominators show the number of times a sound or sound classes occurred in our data before the change took place.

2. Data Presentation and Interpretation

At this point, therefore, we go straight to present and interpret our data, using a qualitative (descriptive) approach. The model of data presentation is adapted from Yul-Ifode (2000 and 2003).

2.1. Assimilatory Processes

Assimilation is the “influence exercised by one sound segment upon the articulation of another, so that the sounds become more alike or identical (Crystal 1997:30). Assimilation can be partial or complete, it can be regressive, progressive (anticipatory), or coalescent (reciprocal). It can be unidirectional or bidirectional. It can also be contiguous or separated by some other segment (Yul-Ifode 1999:145-149). Examples of assimilation abound in our data as presented in examples 1 to 9.

2.1.1. Substitution and Homorganic Nasal Assimilation

Homorganic nasal assimilation is a regressive type of assimilation which assimilates a nasal consonant to the feature of place of articulation with the conditioning sound (Yul-Ifode 1999:146). In our data, there is first the substitution of a nasal consonant for a vowel. The nasal assimilates to the next consonant in place, becoming homorganic with the following consonant, as shown in the following examples.

The first row of numbers designates subject numbers and we have subjects 1 to 50 in our study. The second row of figures represent the ages of the subjects. The sounds represented on each column are the sounds used by the subjects when an assimilatory process has applied. Under frequency, the denominator (number below the line) represents the total number of occurrence of a particular sound/sound class which may undergo some phonological change or changes (assimilatory processes), while the numerator (numbers above the line) represents the actual number of times that the sound/sound class changed.

Example 1

Change	19	24	28	34	39	Gloss
	3yrs	3½yrs	3 ½ yrs	4yrs	4 ½ yrs	
íbɔ́k→mbɔ́k			m-			‘medicine’
ídāŋ→ndaŋ				n-		‘arrow’
ékáikpád→ŋkaikap		ŋ-				‘sole’
énāŋúkɔ̀wàk→nnaŋukwak					n-	‘bicycle’
ùkánà→ŋkana	ŋ-					‘oil bean’
Frequency	$\frac{1}{45}$	$\frac{1}{92}$	$\frac{1}{60}$	$\frac{1}{60}$	$\frac{1}{92}$	

2.1.2. Nasalisation

Vowel nasalisation is more common in the speech of these subjects, where nasals [m n ŋ ŋ] condition oral vowels, although there are no nasalised vowels in the Ibibio language. Examples of nasalisation of vowels are presented in example 2 that follows.

Example 2

Change	4	7	38	44	Gloss
	2½ yrs	2½ yrs	4 yrs	4 ½ yrs	
ikpāŋ→ikpā̃ŋ	-ã-				‘spoon’
ábāŋ→abã	-õ				‘water pot’
údádíkāŋ→udadikãŋ		-õ-			‘matches’
ìtɔ̀ŋ→itõ	-õ				‘neck’
ùmɔ̀wòndéŋèn→umõéŋē				-õ-ē-ē-	‘eye glass’
úfādmkpɔ̀→ufatmkpõ			-ĩ-		‘scissors’
Frequency	$\frac{3}{117}$	$\frac{1}{88}$	$\frac{3}{13}$	$\frac{3}{180}$	

A case of fricative nasalisation involving [f] also occurs in the speech data of Subject number 38. We deduce from our data that fricative nasalisation is an idiosyncratic condition. One wonders why subject no. 38 would nasalise [f] between vowels.

2.1.3. Nasal Assimilation

Nasal assimilation has been reported to be the commonest type of assimilation in languages. There are two types of nasal assimilation: the homorganic nasal and the nasalisation of oral vowels and other oral sounds (Yul-Ifode 1999:146).

Unlike the homorganic nasal assimilation that had earlier been described where it affects vowels, example 3 involves consonants.

The data reveals homorganic nasal assimilation involving a nasal before an oral stop. It constitutes a progressive, complete, contiguous and unidirectional assimilation, except the 6th example that is bidirectional. The process in question operates in the speech of all the five age groups. A few traces of the process before the stops [b d] are found in the speech sample of 2 ½ to 4 years old, but with absolutely none affecting [b] among the 4 ½ year-olds. This process is, therefore, not a common feature of the Ibibio child phonology.

Example 3

Change	6	7	8	11	12	14	15	16	19	20	21	33	36	45	49	Gloss
	2½	2½	2½	3	3	3	3	3	3	3	3½	4	4	4½	4½	
m̀báŋ→m̀maŋ	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀	-m̀				'check'
ńdítód→ńmítód					-ǹ			-ǹ		-ǹ	-ǹ					'garden egg'
ńdífibèné→ńmífibèné														-ǹ	-ǹ	'wall'
áádán→ńdán													-ǹ			'oil'
ńmúèèné→ńjueèné												-ŋ̀				'ant'
ńmúèèné→ńjweèné									-ŋ̀							'ant'
Frequency	1	1	1	1	2	1	1	2	2	1	2	2	1	1	1	
	21	21	21	21	62	21	21	62	62	41	62	62	41	41	41	

2.1.4. Voicing

Voicing is an assimilatory process which operates in children's speech, such that voiceless sounds become voiced or become their voiced counterparts. The voicing is conditioned by the voiced sounds that occur around them. It is observed in our data that voiceless plosives [t k kp] and voiceless fricatives [f s] undergo the voicing process between vowels or between nasal and vowel. However, the Ibibio language does not have these voiced sounds but examples of voicing in our subjects' data are presented in examples 4 to 8.

Example 4

Change	29	Gloss
	3 ½ yrs	
m̄kpɔ̄itié → m̄kpɔ̄idie	-d-	'chair'
Frequency	$\frac{1}{27}$	

Example 5

Change	14	15	19	21	38	40	Gloss
	3yrs	3yrs	3yrs	4yrs	4yrs	4yrs	
ndékóbû → ndégèbû	-g-						'prawns'
àkʌk → ɔgʌk		-g-					'money'
èkɪd → egɪd		-g-					'axe'
úkɔd → ugɔd		-g-					'wine'
énâηúk wâk → enaηug wak			-g-				'bicycle'
àfɔηúk ttd → əfɔηugɪd				-g-			'trouser'
àkwɔɔη → egʔwɔɔη					-g-		'snail'
úkɔd → ugɔd						-g-	'leg'
Frequency	$\frac{1}{51}$	$\frac{3}{51}$	$\frac{1}{51}$	$\frac{1}{51}$	$\frac{1}{51}$	$\frac{1}{51}$	

Example 6

Change	3	10	19	29	Gloss
	2½ yrs	2½ yrs	3yrs	3 ½ yrs	
èkpú → agbu	-gb-				'rat'
→ egbu			-gb-		
ékpê → egbe		-gb-			'lion/masquerade'
àkpáη → agbuη			-gb-		'container'
íkɔɔη → igbɔɔη			-gb-		'cocoyam'
èkpàd → egbat			-gb-		'bag'
úkɔɔɔdɛ → ugɔɔɔɔɔ ɔde			-gb-		'padlock'
òkpókóró → ogbokor o			-gb-		'table'
àkpɔikɔi → gbɔgbɔi			-gb-		'motor cycle'

Example 6 continued

Change	3	10	19	29	Gloss
	2½ yrs	2½ yrs	3yrs	3 ½ yrs	
íkpa→igba			- gb-		‘care’/‘skin’
ékpó→egbu			- gb-		‘ghost’/‘masquerade’
m̀kp̀kp̀m̀→ngben gbem				-gb-gb-	‘bat’
Frequency	$\frac{1}{31}$	$\frac{1}{31}$	$\frac{9}{31}$	$\frac{2}{31}$	

Example 7

Change	11	19	20	23	30	Gloss
	3yrs	3yrs	3yrs	3½ yrs	3½ yrs	
ńs̀t̀ŋ→nz̀t̀ŋ	-z-					‘gum’ (tooth)
és̀àŋ→ezàŋ			-z-			‘walking stick’
ís̀t̀p→iz̀t̀p				-z-	-z-	‘kernel’
ùs̀àn→zàn		-z-				‘plate’
Frequency	$\frac{1}{14}$	$\frac{1}{14}$	$\frac{1}{14}$	$\frac{1}{14}$	$\frac{1}{14}$	

Example 8

Change	4	10	18	29	33	40	44	Gloss
	2½ yrs	2½ yrs	3yrs	3½ yrs	4yrs	4yrs	4½ yrs	
m̀f̀v̀v̀d→mv̀v̀d	-v-	-v-						‘frog’
→m̀v̀v̀d			-v-					
úf̀v̀k→uv̀k	-v-							‘house’
úf̀àdm̀kp̀v̀→ uv̀adm̀kp̀v̀					-v-			‘scissors’
úf̀á̀kéj̀o→ vùá̀kej̀o					-v-			‘umbrella’
á̀f̀v̀ŋ̀id̀em→ av̀v̀id̀em							-v-	‘dress’
m̀f̀i→m̀v̀i				-v-				‘periwinkle’
úf̀im̀id̀em→ uv̀im̀id̀em					-v-			‘fan’
á̀f̀é̀ré→av̀é̀re						-v-		‘soup’
á̀f̀òŋ→av̀òŋ							-v-	‘clothe’
Frequency	$\frac{2}{13}$	$\frac{1}{13}$	$\frac{1}{13}$	$\frac{1}{13}$	$\frac{3}{13}$	$\frac{1}{13}$	$\frac{2}{13}$	

Examples 4 to 8 reveal that the voicing process cuts across all the 5 age groups. The process is found to involve sounds in medial position. The highest frequency of voicing is found in the speech

data of subject no. 19 who is a 3 year old subject, who's [kp] is consistently replaced with [gb]. Voicing could be said to be a common feature of the Ibibio child phonology, because all the age groups use the process of voicing, although it is more common among the 2 ½ and 3 years old. This suggests that the process gets suppressed with age.

On the other hand, the children's use of the voiced sounds: [g], [gb], [v] and [z] which do not exist in the sound system of the Ibibio language constitutes a point to be considered. The possible reasons which may account for this situation may include: language contact, language change, developmental errors and so on. We do not think that the use of the voiced sounds by the children is a result of language contact since the English language which is used by the educated ones in the speech community does not have [gb] in its sound system. The Igbo language that has the voiced labial-velar sound is not used in this speech community. Moreover, the set of subjects used in this work are non-educated and they are monodialectals/monolinguals. It might not also constitute a case of language change since there are no cases where the adults in the speech community do have the voiced sounds in their speech inventory. We are, therefore, of the opinion that it is a result of developmental process, since the subjects at this developmental stage have not yet fully mastered the sound system of Ibibio.

2.1.5. Labialisation

Labialisation is an assimilatory process that occurs when there is extra-lip rounding during the articulation of a sound. Such cases are seen involving [b], [n] and [w], as presented in example 9 below.

Example 9

Change	1	4	6	7	12	13	14	15	16	20	21	23	24	25	31	34	43	44	46	49	50	Gloss
	2½ yrs b ^w	2½yrs yrs	2½ yrs	2½ yrs	3yrs	3yrs	3yrs	3yrs	3yrs	3½ yrs	3½ yrs	3½ yrs	3½ yrs	3½ yrs	4yrs	4yrs	4½yrs	4½yrs	4½yrs	4½yrs	4½yrs	
máŋ → mbwáŋ																						
éþak → eb ^w ak	b ^w				b ^w					b ^w												'cheek'
ében → eb ^w en	b ^w				b ^w					b ^w												'monkey'
ibak → ih ^w ak		b ^w		b ^w						b ^w												'pear'
ibáð → ih ^w áð					b ^w					b ^w												'medicine'
úþak → úþ ^w ak					b ^w					b ^w												'flapia'
éþúð → eb ^w úð					b ^w					b ^w												'hand'
óbu → ab ^w u																						'goat'
ákéþé → akéþ ^w e																						'crayfish'
inúá → íŋwua	ŋ ^w	ŋ ^w	ŋ ^w	ŋ ^w		ŋ ^w		ŋ ^w		ŋ ^w		ŋ ^w	ŋ ^w	ŋ ^w						ŋ ^w		'box'
→ iwúá																						'mouth'
inúén → íŋwuen																						
inúá → íŋwua																						'bind'
iwá → íg ^w a						g ^w																'cassava'
Frequency	4 62	2 62	1 41	2 62	3 21	2 56	1 21	1 41	5 21	2 62	3 62	1 41	1 41	1 41	1 21	1 41	1 41	2 21	2 21	1 41	2 21	

Our study reveals the following assimilatory processes in Ibibio children's speech: homorganic nasal assimilation (of both vowels and consonants), nasalisation (of both vowels and consonants), voicing, labialisation, etc. Among the assimilatory processes in the subjects' speech, the most predominant among the vowels is the homorganic nasal assimilation, while voicing is the most common among the consonants. The voicing process occurred 47 times as a single process and 25 times in combination with medial consonant insertion which is not our focus here. It should be noted that the nasals emerge first in the sound inventory of all age groups of Ibibio children. This could account for the influence of the nasals on other surrounding sounds in the Ibibio child's speech. The result implies that the voicing process should be expected in the Ibibio child's inventory, in his developmental years, although there are no such voiced stops [g gb] and fricatives [v z] in the Ibibio language. The voicing process is found to decrease with age. Different age groups prefer using different voiced sounds as substitutes to their voiceless counterparts. The 2 ½ prefer [g gb v], the 3 year-olds prefer adding [z] to the list, the 3 ½ prefer adding [d z] while they drop [g] from their list, the 4 and 4 ½ years old prefer using only [v].

3. Conclusion

So far, our study has established that assimilatory processes are normal in the speech of normally developing Ibibio children. These processes include homorganic nasal assimilation of both vowels and consonants, nasalisation of vowels and consonants, voicing, and labialisation. The processes are expected to decrease with increase in chronological age. Increased employment of assimilatory processes beyond the age of 5 years should be taken as an indication of language difficulties in the child. This should be of concern both to the language teacher and therapist. We have also established that different age groups of children have different sound preferences, indicating that language specialist needs to establish whether variations in children's speech are cases of disorders or sound preferences.

Our study though the most comprehensive work, so far, on the language/phonology of the Ibibio child (Yul-Ifode and Akpan 2003), should be supported by more of such studies to come up with better assessment and identification packages for studying deviations that may be found in the speech of Ibibio language disordered children or such groups of children elsewhere.

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