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Phonological differences and the phonological Problems of Igbo Learners of Chinese

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Abstract *The educational collaboration between China and Nigeria is one of the most important issues facing China and Nigeria whereby Nigeria receives a great support from the Chinese government to enhance Chinese teaching and learning. Apart from the Chinese Primary and Secondary school located in Abuja, Nigeria, Nnamdi Azikiwe University Awka is the first tertiary institution to offer programs in Chinese language and culture. In 2006, the Confucius Institute was officially opened to run Chinese studies. This Institute intends to achieve two major purposes: first, to impart the Chinese language and culture into Nigerians; and secondly, to build an intricate relationship between Nigerians and the Chinese through academic exchange programs. Many students have shown in interest in the learning of Chinese language at Nnamdi Azikiwe University. Most of these enthusiastic learners are Igbo L1 speakers. The aim of this paper is to undertake a contrastive analysis of the phonologies of Standard Chinese and Standard Igbo with the former as the target language. The results presented here come from a year case study of the Chinese program of the Confucius Institute located at Nnamdi Azikiwe University, Awka, Nigeria. In doing this, the study investigates the sound systems, syllable structures and tonal systems of Igbo and Chinese. It is established that although the two languages are tone languages, differences in the segment inventories constitute a major pronunciation problem to the Igbo learners. By looking into the classroom interactions, the study suggests that there should be a concrete syllabus designed for teaching Chinese which should have linguistics, specifically, phonology as its basis. This calls for the deployment of Chinese teachers with linguistics background. These teachers should be aware of the differences pointed out in order to tackle the pronunciation problem.*
Keywords *- Phonological differences, phonological problems, Igbo, Chinese*

I. INTRODUCTION

This paper examines the phonological problems that native Igbo speakers of Nigeria encounter while learning the Chinese language. Duanmu (2006) notes that Chinese is the first language of over one billion speakers. There are seven dialect families of Chinese (each in turn consisting of many dialects), which are often mutually unintelligible. However, there are systematic correspondences among the dialects and it is easy for speakers of one dialect to pick up another dialect rather quickly. The largest dialect family is the Northern family (also called the Mandarin family), which consists of over 70% of all Chinese speakers (Duanmu 2006). Standard Chinese (also called Mandarin Chinese) is a member of the Northern family; it is based on the pronunciation of the Beijing dialect. There are, therefore, two meanings of Mandarin Chinese, one referring to the Northern dialect family and one referring to the standard dialect. To avoid the ambiguity, this study uses Standard Chinese (SC) for the latter meaning. SC is spoken by most of those whose first tongue is another dialect. In principle, over one billion people speak SC, but in fact less than 1% of them do so without some accent. This is because even Beijing natives do not all speak SC (Duanmu 2006).

Igbo belongs to the West Benue-Congo sub family of the proto Benue-Congo language family. The Igbo people occupy what is politically known as the southeastern part of Nigeria. The Igbo language is spoken in the core Igbo states - Abia, Anambra, Ebonyi, Enugu and Imo - as well as in some parts of Bayelsa, Delta and Rivers states all in the southern region of Nigeria. There are about thirty million native speakers of Igbo. Igbo has many dialects. Ikekeonwu (1987) presents a classification of the Igbo dialects into clusters using both phonological and grammatical criteria. On the basis of these criteria, she grouped Igbo dialects into five clusters namely: The Niger Igbo, Inland West Igbo, Inland East Igbo, Waawa Igbo/Northern Igbo and Riverain Igbo. Each cluster has main dialects. She identified twenty main dialects with many other satellite dialects. However, the variety adopted for this study is the Standard Igbo (SI).

This study is motivated by the strong academic collaboration existing between the Nnamdi Azikiwe University, Awka, Nigeria and the Xiamen University, China. The Confucius Institute at Nnamdi Azikiwe University, Awka offers Certificate and Diploma programs in Chinese Studies. The B.A. degree program in Chinese started in 2013 at the institute. Many students from Nnamdi Azikiwe University, who completed their Certificate and Diploma programs at the Confucius Institute, go over to China in an exchange academic program

to further their education. Many other students (the authors of this paper inclusive) have enrolled in either the Certificate or Diploma programs but they are experiencing difficulties in attaining proficiency in spoken Chinese. Among the enrolled students of the Confucius Institute, Igbo students are about 90% of the total number.

One of the major problems leading to non-achievement of the desired proficiency is phonological problem - the problem of pronunciation. The two languages under investigation are tone languages but the differences in their phonemic inventories constitute a major pronunciation problem to the Igbo learners. Also, while Chinese is a contour tone language, Igbo is a register tone language. In specific terms, the paper asks the following questions: Although Chinese and Igbo are tone languages, what differences and similarities are found in their tonal systems? In what manner are Chinese sounds and tones articulated by Igbo learners of Chinese?

It is on this backdrop that this paper examines the phonologies of Chinese and Igbo, and points out the areas where Igbo learners of Chinese experience difficulties. The paper recommends ways of overcoming the phonological problems.

II. THEORETICAL FRAMEWORK

According to Gast (2013:1), "contrastive analysis investigates the differences between pairs (or small sets) of languages against the background of similarities and with the purpose of providing input to applied disciplines such as foreign language teaching and translation studies." The main idea of contrastive analysis, as propounded by Robert Lado in his book *Linguistics across cultures* (1957), is that it is possible to identify the areas of difficulty a particular foreign language will present for native speakers of another language by systematically comparing the two languages and cultures. Where the two languages and cultures are similar, learning difficulties will not be expected, where they are different, then learning difficulties are to be expected, and the greater the difference, the greater the degree of expected difficulty. On the basis of such analysis, it is believed, teaching materials could be tailored to the needs of learners of a specific first language (Lennon, 2008). Chinese and Igbo languages and cultures differ in many aspects. Therefore, learning difficulties are expected from Igbo learners of Chinese.

Lado goes further to assert that individuals tend to transfer the forms and meanings, and the distribution of forms and meanings of their native language and culture to the foreign language and culture - both productively when attempting to speak the language and to act in the culture, and receptively when attempting to grasp and understand the language and the culture as practiced by natives. . . . [It assumes] that the student who comes in contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult. In agreement with Lado's assertion, Igbo learners of Chinese find it easy to articulate those Chinese speech sounds that exist in Igbo.

The theoretical framework, contrastive analysis, is useful in the study of phonetics because the pronunciation of the target language's words is paramount. Bastug (2011) notes that phonetics is a basic component part of language. It is unique in its role as a component part of language, because it permeates both the vocabulary and grammar of a language. It is an essential element in all utterances. One of the mediums of evaluating a learner's proficiency in a target language is speaking. Therefore, for a learner to achieve the expected proficiency, the learner needs to be proficient in pronunciation, and phonetics is all about pronunciation. Phonetics equips a learner with the knowledge of phonetic symbols with which one will be able to transcribe any language one hears. Sounds and suprasegments of a target language need to be well articulated by the language learner. Pronouncing Chinese words involves saying the sounds and tones of the Chinese language correctly. Therefore, for Igbo learners of Chinese to be proficient in the Chinese language, they must pronounce the Chinese words correctly. In addition, the sound segments and suprasegments of the target and source languages will be examined pointing out their similarities and differences. Their similarities facilitate language learning while the teacher gives more time to the teaching of the differences, though contrastive analysis cannot predict all learning difficulties.

III. REVIEW OF RELATED LITERATURE

Eme and Odinye (2008) compared the Standard Chinese and Igbo consonant inventories and discovered that while Chinese has 21 consonants, Igbo has 28. They also noted that there were certain phonemes in Igbo that were lacking in Chinese and vice versa. For instance, Igbo has these phonemes /ɣ ʤ ɲ ŋ ŋw j w kp gb kw gw / which Chinese lacks, Chinese has aspirated segments /p^h t^h k^h ts^h $tɕ^h$ $tʂ^h$/ and retroflex segments /ʂ tʂ $tʂ^h$ ɻ / which do not occur in Igbo. These differences in the two languages' consonant inventories were likely going to pose production difficulties to L2 learners. However, the study did not examine the other aspects of the languages' phonology and the combination of the speech sounds in order to identify actual pronunciation difficulties. To fill this gap, this present study identifies the pronunciation challenges encountered by Igbo learners of Chinese.

Carruthers (2006) studied a contrastive analysis of English and Japanese phonology with English as the target language. He examined the pronunciation difficulties encountered by Japanese speakers of English. These difficulties were in two forms namely segmental difficulties and suprasegmental difficulties. For the segmental difficulties, Carruthers noted that in pronouncing English, Japanese learners faced two basic segmental issues: (a) sounds present in English but not in Japanese and (b) differences in the distribution of phonemes and allophones. Thus, Japanese Speakers of English (JSE) were challenged by the English lax vowels and the consonants /Θ/, /ð/, and /v/. Regarding the suprasegmental level, Carruthers stated that constraints of Japanese syllable construction affected the pronunciation of JSE. English permits more syllable types than Japanese, which makes English pronunciation rife with syllable-related challenges. Japanese has only open syllables, represented as (C)V,

and syllabic-n. Syllabic-n, identified here as /N/, is "a nasal sound similar to (but not identical with) English /ŋ/ as in 'sing'" (Avery & Ehrlich, 2002:136 as cited in Carruthers, 2006:21). Meanwhile, English permits V, CV, CVC, CCVC, CCVCC, and others. To deal with consonant clusters, that is, two or more consecutive consonants or vowels in a speech segment, Japanese Speakers of English unconsciously use epenthesis (Avery & Ehrlich, 2002:53-59 as cited in Carruthers, 2006:21).

In addition to the above findings, Barman (2009) presented a contrastive analysis of English and Bangla phonemics with English as the target language. He observed that English has 36 phonemes while Bangla has 37. Of the 36 English phonemes, he noted, 12 were vowels (only pure vowels) and 24 were consonants. On the other hand, of the 37 Bangla phonemes, seven were vowels (excluding nasalized vowels) and 30 were consonants. It was noted that the area of difficulty experienced by Bangla learners of English was the dental fricatives /Θ ð / which were lacking in the Bangla phonemic inventory. Bastug (2011) presented a contrastive analysis of the English and the German Sound System and observed that German students learning English attempted to carry over German phonemic habits into English, which led to using the wrong English phoneme (Kufner 1971:36 as cited in Bastug, 2011:5). This problem concerned English sounds that were absent in the phonological system of German. Comparing the consonant inventories of both languages demonstrated the phonemic differences and the resulting difficulties a German learner of English had to succeed: the English /θ/, /ð/, /ʒ/, /dʒ/, and /w/, which have no counterparts in German (Esser 1977:18 as cited in Bastug, 2011:5). Bastug also pointed out the phonetic problems of English clear and dark [l], and [r] allophones stating that German learners of English confuse the allophones. Concerning aspiration of /p t k/, Bastug observed that the most common difficulty of German students regarding English allophones lied in the aspiration of the voiceless plosives /p/, /t/, and /k/, especially if they were in word final position. Initial and mid positions of these plosives did not cause complications since then the aspiration was similar. However, in word final positions aspiration was generally stronger in German than in English. For instance, the [t] in *Hut* ([hu:t^{h}]) is usually aspirated, other than the [t] in *hat* ([hæt]) which was generally unaspirated. This contrast prompted German students to aspirate overmuch (cf. König and Gast 2007: 16 as cited in Bastug, 2011:10). It is noteworthy that this present study aligns with the previous studies of phonetics and phonology using contrastive analysis framework.

IV. METHODOLOGY

The Igbo learners of Chinese used for this study were male and female undergraduate students and staff of Nnamdi Azikiwe University (who learn the Chinese language in the Confucius Institute at UNIZIK), whose age range was between eighteen years and forty-five years. These learners are multilingual in at least Igbo, English and Chinese languages. 50 students of HSK 2 and HSK 3 at the Confucius Institute, Nnamdi Azikiwe University, Awka, Nigeria were selected for this study. Structured interview was employed to elicit information from the informants (See Appendix for a list of interview questions). The subjects were asked to pronounce some Chinese sounds and words which were written down on paper and their pronunciations of the sounds and words were tape recorded.

For the tone-marking convention, all tones are marked for the Chinese data while all high tones are left unmarked for the Igbo data. The set of symbols used is that of the International Phonetic Alphabet (IPA) revised to 2005, noting correspondences chiefly with the pinyin system for transcription of Chinese text.

The study employs the descriptive survey research design and percentage method. The pronunciations' of the subjects were recorded and analyzed. Using the Standard Chinese pronunciation, the subjects' pronunciation were marked as correct or incorrect. The number of subjects that pronounce the sounds/words correctly were noted and converted to simple percentage for the purpose of inferential judgement. That is, using the percentage to identify the level of difficulty in pronouncing Chinese consonants, vowels and words by the Igbo learners. When an item scored a high percentage, it suggests that the Chinese speech sound or word does not pose a pronunciation much difficulty to the Igbo learners. Conversely, when an item scored low percentage, it shows that the Chinese speech sound or word poses a pronunciation difficulty to the Igbo learners. For the purpose of analysis, the following cut off points are used.

100% – 75% Very Easy

74% - 50% Easy
49% - 25% Difficult
24% - 0% Very Difficult

Before we move on to present the data and the analysis, we find it pertinent to discuss the phonological differences between Chinese and Igbo. We turn to that in the section below.

V. COMPARISON OF THE CHINESE AND IGBO PHONOLOGIES

This section compares the Chinese and Igbo phonologies, pointing out their similarities and differences.

5.1 Comparison of the Chinese and Igbo Consonant Inventories

5.1.1 Similarities in Chinese and Igbo Consonant Inventories

The consonants that are similar in both Chinese and Igbo are presented in table 1, with examples. These consonants pointed out in Table 1 are found in both Chinese and Igbo consonant inventories.

Table 1**:** *Similar Consonants in Chinese and Igbo with Their Orthographical Manifestations*

Consonant	Chinese	Igbo
/p/	bāo ‘make/wrap up’	pụ̀ta ‘come out’
/t/	dōu ‘all’	tàa ‘chew’
/k/	guì ‘expensive’	kụ̀ọ ‘plant’
/f/	fēn ‘minute’	fèe ‘fly’
/s/	sǐ ‘dead’	si ‘cook’
/m/	máoyī ‘sweater’	mmā ‘beauty’
/n/	nán ‘difficult’	nne ‘mother’
/ŋ/	néng ‘can/be able to’	ngọ̀zị̀ ‘blessing’
/l/	lìshǐ ‘history’	lèe ‘look’
/r/	ràng ‘let’	rìgo ‘climb’

5.1.2 Differences between Chinese and Igbo Consonant Inventories

There are certain consonants that exist in Chinese but absent in Igbo and vice versa. Below is a list of consonants in Chinese that are not present in Igbo. The orthographic manifestations of the consonants are presented in Chinese words

/pʰ/ as in piányi ‘cheap’
/tʰ/ as in téng ‘ache’
/kʰ/ as in kàn ‘visit’
/ts/ as in zěnme ‘how’
/tsʰ/ as in cuò ‘wrong’
/tɕ/ as in jiā ‘family’
/tɕʰ/ as in qián ‘money’
/ʈs/ as in zhèr ‘here’
/ʈsʰ/ as in chē ‘bicycle’
/ɕ/ as in xiě ‘write’
/ʂ/ as in shì ‘room’
/x/ as in huáng ‘yellow’

The following consonants exist in Igbo but not in Chinese.

/b/ as in bère ‘perch’
/d/ as in dàa ‘fall’
/g/ as in ga ‘go’
/kp/ as in kpụ ‘mould’
/gb/ as in gbu ‘kill’
/kw/ as in kwàa ‘push’
/gw/ as in gwa ‘tell’
/ʧ/ as in chi ‘god’
/ʤ/ as in jụ̀ọ ‘ask’
/v/ as in vụ̀ọ ‘uproot’
/z/ as in zìe ‘blow(of nose)’
/ʃ/ as in ị̀sha ‘crayfish’
/ɣ/ as in ghàa ‘sow(of seeds)’

/ɦ/ as in ha 'they'
/ɲ/ as in ǹgàjì 'spoon'
/ŋw/ as in nwaànyị̀ 'girl/woman'
/w/ as in wàa 'break'
/j/ as in ya 'he/she'

5.2 Comparison of the Chinese and Igbo Vowel Inventories

Chinese vowels will not necessarily constitute pronunciation difficulty to Igbo learners. Chinese has five vowel sounds - i y u ə a. Three out of these five vowels (i u a) are in Standard Igbo. So, only two vowel sounds are lacking in Igbo. They are not likely to pose pronunciation difficulty to Igbo learners of Chinese. Conversely, Igbo has eight vowels - i ɪ u ʊ e o ɔ a while Chinese vowel inventory lacks five (ɪ ʊ e o ɔ) of these vowels.

5.3 Comparison of the Chinese and Igbo Syllable Structures

SC and SI allow open syllables. Examples are presented in table 2.

Table 2*: Examples of SC and SI words with open syllables*

Chinese		Igbo	
bèi	'recite'	aka	'hand'
huā	'flower'	ezē	'tooth'
kuài	'fast'	ụzọ̀	'road'
qiú	'ball'	ogè	'time'

The differences that are found in SC and SI syllable structures are presented in Table 3.

Table 3: *Differences in SC and SI syllable structures*

Chinese	Igbo
Closed syllables e.g. qìshuǐr 'soft drink'	No closed syllables
Consonant clusters e.g. shàngwǔ 'morning'	No consonant clusters
Weak syllables do not have tones e.g. ba 'a particle placed at the end of a sentence to indicate a suggestion, request or order'	All syllables have tones

5.4 Comparison of the Chinese and Igbo Tones

It is discovered that SC and SI make use of level tones. The tones are marked on vowels. However, there are areas where Chinese tone system differ from that of Igbo. The differences are presented in table 4 below.

Table 4: *Differences in SC and SI Tones*

Chinese	Igbo
There are four distinctive tones on full SC syllables. The four distinctive tones are high, rise, low, and fall.	Three tones are found in SI. They are high (◌́), low (◌̀), and downstep (ꜜ).
All tones occur freely.	The high and low tones occur freely while the downstep tone has a restricted occurrence. The downstep tone cannot occur syllable initially, and it must be preceded by a high tone.
Mora is the underlying domain of tone.	Syllable is the underlying domain of tone.

VI. DATA PRESENTATION AND ANALYSIS

This section gives a rundown of the learners' pronunciations which are judged as correct or incorrect by the researchers. The number of learners that pronounce each sound/word correctly are noted as well as the percentage. Any sound or word that score below 50% is assumed to be difficult for Igbo learners of Chinese. Whereas any one that scores above 50% is assumed to be relatively easy for the learners. The data are presented in Tables 5-7 below.

Table 5: *Pronunciation of Chinese Consonants*

S/N	Consonant	No. of learners with correct pronunciation	Percentage %	Remark
1	p	50	100	Very Easy
2	t	50	100	Very Easy
3	k	50	100	Very Easy
4	p^h	13	26	Difficult
5	t^h	13	26	Difficult
6	k^h	13	26	Difficult
7	ts	38	76	Very Easy
8	tɕ	21	42	Difficult
9	ʈʂ	21	42	Difficult
10	ts^h	38	76	Easy
11	$tɕ^h$	21	42	Difficult
12	$ʈʂ^h$	21	42	Difficult
13	f	50	100	Very Easy
14	s	50	100	Very Easy
15	ɕ	6	12	Very Difficult
16	ʂ	37	74	Easy
17	x	6	12	Very Difficult
18	m	50	100	Very Easy
19	n	50	100	Very Easy
20	ŋ	50	100	Very Easy
21	l	50	100	Very Easy
22	r	50	100	Very Easy

Table 6: *Pronunciation of Chinese Vowels*

S/N	Vowel	No. of learners with correct pronunciation	Percentage %	Remark
1	i	50	100	Very Easy
2	y	50	100	Very Easy
3	u	50	100	Very Easy
4	ə	50	100	Very Easy
5	a	50	100	Very Easy

Table 7: *Pronunciation of Chinese Words*

S/N	Word	No. of learners with correct pronunciation	Percentage %	Remark
1	chángcháng	0	0	Very Difficult
2	dōngxi	0	0	Very Difficult
3	shàngwǔ	0	0	Very Difficult
4	xiǎng	5	10	Very Difficult
5	cānjiā	0	0	Very Difficult
6	chuān	24	48	Difficult
7	dàngāo	46	92	Very Easy
8	diàn	47	94	Very Easy
9	bù	50	100	Very Easy
10	gēn	0	0	Very Difficult
11	huì	50	100	Very Easy
12	qǐng	19	38	Difficult
13	ba	50	100	Very Easy
14	bāo	0	0	Very Difficult
15	dōu	0	0	Very Difficult
16	guì	50	100	Very Easy

17	fēn	0	0	Very Difficult
18	sǐ	43	86	Very Easy
19	máoyī	47	94	Very Easy
20	nán	37	74	Easy
21	néng	35	70	Easy
22	lìshǐ	40	80	Very Easy
23	ràng	32	64	Easy
24	piányi	48	96	Very Easy
25	téng	44	88	Very Easy
26	kàn	44	88	Very Easy
27	zěnme	21	42	Difficult
28	cuò	17	34	Difficult
29	jiā	38	76	Very Easy
30	qián	15	30	Difficult
31	zhèr	20	40	Difficult
32	chē	0	0	Very Difficult
33	xiě	6	12	Very Difficult
34	shì	37	74	Easy
35	huáng	36	72	Easy
36	bèi	50	100	Very Easy
37	huā	38	76	Very Easy
38	kuài	47	94	Very Easy
39	qiú	6	12	Very Difficult
40	qìshuǐr	8	16	Very Difficult
41	bōli	0	0	Very Difficult
42	bóbo	50	100	Very Easy
43	lǎba	39	78	Very Easy
44	tùzi	50	100	Very Easy
Note: The reasons why some of these words were incorrectly pronounced are varied. The reasons range from segmental (difficult consonants and vowels), tone and syllable structure.				

VII. DISCUSSION OF FINDINGS

In this section, we shall discuss the reasons why some sounds and words were difficult for the Igbo learners of Chinese to pronounce and also why some were easy for them. The reasons are discussed under consonant cluster simplification, coda simplification, tonal simplification and easy pronunciations.

7.1 Consonant cluster simplification

There are words involving consonant clusters in Chinese. For instance, 1-3 in Table 7 contain consonant clusters. Igbo learners insert vowels in order to break the clusters thereby pronouncing the words incorrectly. This is so because Igbo does not allow consonant clusters. There is a transfer of what is obtainable in Igbo to Chinese. So, for the word *shàngwǔ*, Igbo learners will insert 'i' in between 'n' and 'g' in order to simplify the cluster; for the word *chángcháng*, they will insert 'i' in between 'n' and 'g' and in between 'g' and 'c' in order to simplify the cluster. It is important to note that quite a good number of them could produce the clusters because of the influence of the English language that allows consonant cluster

7.2 Coda simplification

Igbo has only open syllables while SC permits both open and closed syllables. The implication for learning here is that Igbo learners tend to ignore codas in SC words or insert vowels after codas for ease of pronunciation. For instance, *fēn* & *gēn* are pronounced *fénì* & *génì* respectively. This is a case of L1 interference. The Igbo syllable structure is transferred to Chinese. However, a reasonable number were able to overcome coda simplification as a result of their training in English pronunciation.

7.3 Tonal simplification

Many non-native Chinese speakers have difficulties mastering the tones of each character, but correct tonal pronunciation is essential for intelligibility because of the vast number of words in the language that differ only by tone (i.e. are minimal pairs with respect to tone). In table 8, it is observed that the learners were unable to pronounce the Chinese words that bear mid tones in the syllable initial position (SIP). For example, *dōngxi, cānjiā, gēn,* etc. They substituted the mid tone with the high tone. This is because the mid tone (which is referred to as step tone) in Igbo does not occur at the SIP. In Table 7 Nos 5,14,15 contain the mid tone at the

syllable initial position. Since the mid tone does not occur syllable initially in Igbo, Igbo learners substituted the mid tones with high tones, and this resulted in wrong pronunciations.

7.4 Consonant substitution for difficult consonants

The distinction of SC consonants is between aspirated and unaspirated while that of SI consonants is between voiced and voiceless. This is another area of difficulty since the Igbo learners find it difficult to pronounce the aspirated consonants. Igbo learners experience difficulties in the pronunciation of aspirated phonemes in table 6 above. SI lack retroflex consonants; so, retroflex consonants pose pronunciation problems to Igbo learners of SC. This is evident in the low number of learners who were able to pronounce retroflex consonants correctly. Table 7 No 4 contains a difficult consonant /x/, and this results in the wrong pronunciation of the word 'xiǎng'. (See Tables 5&7).

7.5 Easy pronunciations

The Igbo learners do not have any difficulties in pronouncing the SC phonemes which already exist in SI. Therefore, the percentage score for the pronunciation of phonemes such as /p t k f s m n ŋ l r i y u ə a/ is 100%. Words such as huì, bù, ba, guì, bèi, bóbo, tùzi in Table 7 recorded 100% because they share the segmental, syllabic and tonal features of Igbo

VIII. PEDAGOGICAL IMPLICATIONS OF THE STUDY

A contrastive analysis of Chinese and Igbo phonology can help to identify potential, even likely, challenges for Igbo speakers of Chinese. This proposition is founded on Lado's (1957) claim that learners "transfer the forms and meanings" (p. 2) from their first language (L1) to the second language (L2). His assertion is the basis of the Contrastive Analysis Hypothesis (CAH), which states that a comparison of two languages can be used to "predict areas that will be either easy or difficult for learners" (Gass & Selinker, 2001: 72 as cited in Carruthers, 2006:17).

The Igbo learners of Chinese are advised to pay proper attention to the production of the difficult aspects of SC phonology. For example, the tip of the tongue is curled backwards to articulate with the hard palate for the production of retroflex consonants. They should pronounce these consonants in that manner. For the production of aspirated speech sounds, there is a strong expelled breath between the release of the sound and the onset of a following voiced sound (Laver, 1994; Clark, Yallop & Fletcher, 2007). When this is taken into consideration, Igbo learners of Chinese will be able to pronounce Chinese aspirated sounds appropriately. The learners should strive to pronounce SC tones properly especially, the contour tones. In order to achieve the aim of proper pronunciation of Chinese words, the learners should be equipped with not only audio language materials but also video materials. Steady practice with these language materials will enhance proper Chinese pronunciation.

IX. SUMMARY AND CONCLUSION

Elements of the SC sound system include not only the segments – the vowels and consonants of the language – but also the tones that are applied to each syllable. This is also applicable to SI. Standard Chinese has four main tones, in addition to a neutral tone used on weak syllables while three tones exist in Standard Igbo. The paper observes that the production of SC vowels by Igbo learners does not constitute problems, though there are differences in the vowel inventories. The major areas of difficulty are the consonants and tones. SC's pronunciation involves intonation whose functions include the expression of attitudes and emotions, or highlighting aspects of grammatical structure. Its functions differ from tone, which is used to distinguish words. This is absolutely strange for the Igbo learners whose language is purely tonal. This study suggests a remedial syllabus designed for teaching Chinese which should pay greater attention to linguistics, specifically, phonology. This calls for the deployment of Chinese teachers with linguistics background. These teachers should be aware of the differences pointed out in order to tackle the pronunciation problem. Furthermore, the research findings were based on a preliminary/pilot study (framed with the comparison between Chinese and Igbo).

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APPENDIX: RESEARCH INSTRUMENT

1. How would you pronounce the following Chinese consonants?

p
t
k
pʰ
tʰ
kʰ
ts
tɕ
ʈʂ
tsʰ
tɕʰ
ʈʂʰ
f
s
ɕ
ʂ
x
m
n
ŋ
l
r

2. How would you pronounce the following Chinese vowels?

i
y
u
ə
a

3. Pronounce these Chinese words:

chángcháng
dōngxi
shàngwǔ
xiǎng
cānjiā
chuān
dàngāo

diàn
bù
gēn
huì
qǐng
ba
bāo
dōu
guì
fēn
sǐ
máoyī
nán
néng
lìshǐ
ràng
piányi
téng
kàn
zěnme
cuò
jiā
qián
zhèr
chē
xiě
shì
huáng
bèi
huā
kuài
qìshuǐr
qiú
bōli
bóbo
lǎba
tùzi