COPING WITH PHONOTACTICALLY INADMISSIBLE TARGET LANGUAGE SEQUENCES: THE CASE OF KISWAHILI LEARNERS

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1.0 INTRODUCTION

Contrastive Analysis is a theory of second language learning that compares and contrasts two languages in order to establish the areas of similarity or difference between them (Wardhaugh 1970:123). The differences are seen as the ones that constitute learning difficulty (negative transfer) while the similarities are hypothesized to constitute ease in language learning (positive transfer). The controversy surrounding the employment of Contrastive Analysis (CA) as a predictive tool of second language learning problems is well documented (James 1971, Fisiak 1980, Wardhaugh 1970). One bone of contention, among the many that are known, has always been the extent to which CA can predict accurately the problems that an L1 (first language) speaker is likely to encounter as he or she learns an L2 (second language). Most critics of CA point out that the theory lacks predictive accuracy, i.e. it predicts learning problems which do not occur. The proponents of CA has never claimed to be able to predict all problem. They further hold that CA claims no more than ability to predict behaviour that is likely to occur with greater than random frequency.

In spite of the controversy surrounding the predictive accuracy of CA and indeed its theoretical assumptions (Dulay and Burt 1972), CA appears to be still an important tool in language pedagogy.

Focusing on the pronunciation of Standard Kiswahili consonant clusters by sixty adult learners of six different linguistic (ethnic) backgrounds of Kenya, this paper attempts to show that CA in spite of all its known weaknesses still appears to be useful in the language teaching situation.

2.0 THE SAMPLE

In order to study how learners from different linguistic backgrounds respond to an aspect of second language phonology, sixty subjects were selected from six different ethnic and linguistic backgrounds of Kenya. There were ten subjects from each language group. There were thirty women and thirty men. They were between twenty one and twenty eight years of age. They were all primary school teacher-trainees mainly from three colleges in Kenya[1].

The subjects were in their second year of study. Kiswahili was one of the languages that they were learning and which they were going to teach upon completion of their course. Besides Kiswahili, they had also learnt, and were still learning English at

the time of the experiment.

Teacher-trainees were chosen as subjects for this study because it was assumed that they were a relatively homogeneous group of learners who were at the same level of education and relatively exposed to the same learning conditions. Moreover, teacher-trainees were chosen because, being adults, it was assumed that cognitive factors, e.g. age, were not going to be crucial variables in determining the outcome of the study.

In order to make the sample more homogeneous, the choice of the subjects was also based on the following additional criteria.

a)   That the subjects spoke their L1 in their childhood and still spoke it at the time of the experiment.

b)   That the subjects learnt Kiswahili in both primary and secondary school.

c)   That the subjects had lived consistently where their L1 is spoken before going to college.

d)   That the subjects did not speak other languages besides the L1, Kiswahili and English.

The above information was collected by the use of a questionnaire (see Appendix A).

2.1 The Language Groups

The language groups from which the subjects were chosen are linguistically divided into two main groups. These are, the Bantu (consisting the Kikuyu, Kamba and Bukusu) and the Nilotic group (consisting the Luo, Nandi and the Maasai). For more information on Kenyan languages see Whiteley (1974), and Tucker and Bryan (1966)). These linguistic groups were chosen because they represent different linguistic classifications and are, therefore, representative of varied phonological systems from which general tendencies can be observed and generalisations made.

3.0 DATA COLLECTION

The test material for this study consisted of Kiswahili words with consonant clusters. The test materials were chosen on the basis of a preliminary test that had earlier been conducted by the investigator[2]. This is in following Corder (1981:61) who maintains that the range of choices or judgements and selections task should be based upon what is known of the learners' language.[3]

Data were obtained in a series of interviews during which subjects were individually recorded by the investigator in a quiet room, using a neck-suspended microphone connected to a recorder, as they performed several tasks, Several tasks were used in order

to make sure that the results were reliable and not an artefact of just one task. This is because it has been shown (Beebe 1987) that different elicitation styles (tasks) may influence the results differently.

The data were elicited from subject for approximately one hour. Before the recording began, and in order to minimize learner anxiety, learners were told that the researcher was interested in making new textbooks and tapes and was, therefore, concerned with knowing which sound combinations are easy or difficult to pronounce by various gorups of speakers. They were further told that the recording was not a test and that they would receive no grade.

The first task of the study involved the reading aloud of a word list of Kiswahili words with consonant clusters; this task also included artificial words. The second task involved the reading aloud of short Kiswahili sentences. The sentences were specifically written to elicit the pronunciation of consonant clusters that are the focus of the study. Along with the word list and sentences, the subjects also read two Kiswahili passages of roughly three hundred words each. The passages were selected from comprehension books that are used in the lower grades of secondary schools and teacher-training colleges in Kenya. They were however, adapted specifically for this study.

In all the tasks, there were two hundred clusters. Some examples of test materials are shown in Appendix B.

One recognises the limitation of using a formal reading style. Tarone (2979:184), for example, suggests that the most systematic interlanguage data should be collected informally as the informants go about their normal duties. Firstly, learners are unable to frequently use 'avoidance' as a strategy. It has been found out (Freeman et. Al 1991:26) that learners will often not reveal to researchers their entire linguistic repertoire; rather they will use only those aspects in which they have the most confidence. By constraining the learners to use the reading method, the learners will be unable to avoid difficult items in a test because the method focuses them squarely on what is being tested. Thus, it places some necessary constraints on the elicitation tasks. Secondly, the reading method appears to facilitate better quantification of the results and therefore fulfils one of the essential requirements of a good test which is scorability.

4.0 DATA ANALYSIS

The data were tape recorded and subsequently transcribed. The transcription was done by two judges. One of the judges was a Kiswahili native speaker while the other one was the researcher himself. The native speaker judge was a second year student at Kenyatta University in Kenya and was familiar with phonetics. This judge was used because it has been observed (Weinreich 1953:13) that a linguist can be a victim of his own primary sound system when he or she listens to other peoples' pronunciation. Thus in order to take care of the shortcomings of the investigator who is not a Kiswahili native speaker and in order to generally make the data analysis exercise more reliable, a second judge was used in the transcription of the data.

Each judge transcribed the data individually. The results were later checked across the two transcriptions.

After the transcription, percentages of error were calculated. A group score method (Dulay and Burt 1974:44-5) was used to compute the main error rates per language group. (The method bears this label because, a group of learners belonging to one linguistic group are assigned one score).

Before we discuss the results of the experiment, it appears in order to briefly say something about consonant clusters in the L2 and the L1s that are the focus of the study.

5.0 CONSONANT CLUSTERS IN THE L2 AND THE L1

5.1   Standard Kiswahili

Although Kiswahili which is a Bantu language has predominantly an open syllable structure (e.g V,CV etc.) there are many consonant clusters in the language (Polome 1967). The peak of a syllable in Kiswahili could, for example, be a syllabic pre-consonantal nasal, as shown in (1) below:

(1)
m-vi	`grey hair'
n – ta	`wax'
n-ne	`four' e.g houses
m-bwa	`dog'
m-cwa	`ant'
m-to	`river'
n-ci	`country'

A number of other consonant clusters in Kiswahili are also possible, some of them thanks to borrowing from Arabic and English (cf. 2).

(2)
pl, pr
bt, bd, bl, br
tl, tr
dl, dr
kt, ks, kl, kr
gl, gr
ft
sl, sr
mp, mt, md, mk, mg, mf, ms, mz, mj, mc, mn, ml, mr, rt, ld etc.

5.2 The L1s.

The three Bantu languages (Kikuyu, Kamba and Bukusu) have an open syllable structure. Some of the syllable types found in these languages are: V, CV, CSV (S-Semivowel). It is important to state that these languages do not allow consonant clusters (see Musau 1993). On the other hand, the Nilotic languages (Luo, Nandi and Maasai) permit consonant clusters or consonant sequences some of which are found in Kiswahili (see Tucker and Bryan 1966). This is because these languages have both open and closed syllable structure.

Taking into account the varied structure of the two language families in a far as consonant clusters are concerned, Contrastive Analysis predicts that the learners whose L1s have clusters similar to those that are found in Kiswahili would make few or no errors in the pronunciation of Kiswahili words that have consonant clusters. Conversely, those learners whose L1s do not have consonant clusters that are similar to those found in Kiswahili would have more errors in the pronunciation of Kiswahili clusters.

6.0   RESULTS AND DISCUSSION

Although no levels of significance were computed, the results of the study showed that there were distinct trends in the way the learners from the linguistic families treated Kiswahili consonant clusters. While the learners from the Nilotic group (Luo, Nandi, Maasai) had very few problems in the pronunciation of Kiswahili consonant clusters, the learners from the Bantu linguistic group (Kikuyu, Kamba and Bukusu) made many errors. They modified the L2 consonant clusters to agree with permissible patterns in their L1 (cf. 3).

(3)

L1		Modification %
Bantu:	Kikuyu	15.38
	Kamba	13.57
	Bukusu	21.96
Nilotic:	Luo	1.46
	Nandi	3.07
	Maasai	3.39

In order to achieve permissible sound patterns in the pronunciation of L2 words, the learners of the Bantu family of languages used several methods (see below). It should however be pointed out that they did not all resort to the same methods although the end result was the same. While the Kamba and the Kikuyu used a variety of methods, the Bukusu consistently used only one method, i.e, vowel epenthesis. It is not obvious why this was the case, but this seems to suggest that different language groups however closely related they are may opt for different ways of coping with unmatched L2 segnment sequences.

6.1 Vowel Epenthesis

One of the methods that the learners used to circumvent unmatched L2 consonant clusters was epenthesis. By the use of this method, learners inserted a vowel between two consonants in order to break the consonant cluster and thus achieve permissible order in their L1. The high front vowel /i/ was inserted directly before or after alveolars, dentals, palatals and velars. The back vowels, /u/ and /o/, were on the other hand, used directly before or after labial segments. In some fewer cases, however, the epenthetic vowel was duplicated from one of the vowels in a word. The insertion of an epenthetic vowel between two consonants had the effect of adjusting the syllable structure of the word to a more typical Bantu one (cf. 4).

(4)

L2 Word	Modification	Gloss
Almasi	alimasi/alumasi	`diamond'
(vccvcv)	(vcvccv)	
plani	pulani	`plan'
(ccvcv)	(cvcvcv)	
amri	amuri/amiri	`order'
(vccv)	(vcvcv)	
labda	labuda	`perhaps'
(cvccv)	(cvcvcv)	

Another type of vowel epenthesis and syllabification that may be considered somewhat different from the above one because of morphological reasons involved the insertion of the back vowel /u/ in Kiswahili words of classes 1 and 3 which normally begin with the syllabic nasal [m] (cf. 5).

(5)

L2 Word	Modification	Gloss
Mdudu	mududu	`insect'
(ccvcv)	(ccvcv)	
mto	muto	`river'
(ccv)	(cvcv)	
mkazi	mukazi	`resident'
(ccvcv)	(cvcvcv)	

This type of vowel epenthesis is treated separately because of morphological reasons. The Kiswahili marker for classes 1 and 3 and the third person object singular and also the second person plural is {m-}, (it also has a variant {mw-}). The marker for similar functions in some Bantu languages (including those under focus in this study) is

{mu/o-}. Given this information, it is possible to argue that the epenthesis of a back vowel between the bilabial [m] and a following consonant is a consequence of transfer of the vowel in the L1 marker.

But while the morphological factor may have contributed to the presence of the vowel in the above mentioned consonant sequence, this should not be treated as the only motivating factor. It appears plausible, too to argue that these types of clusters are first and foremost a violation of the L1 segment sequence, and that the learners in trying to cope with this unfamiliar consonant sequence had to desyllabify the nasal, and epenthesize a vowel as they did with other clusters involving the labial [m] which are not related to the above mentioned classes (cf. 6).

(6)

L2 Word	Modification	Gloss
Namna	namuna	`type'
(cvccv)	(cvcvcv)	
jamvi	jamuvi	`mat'
(cvccv)	(cvcvcv)	

The learners' choice of a back vowel and not any other vowel for epenthesis in the above examples may be explained by the consonant environment, i.e., a labial consonant [m] influences the choice of a labial vowel [u].

6.2 Vowel Prothesis

Besides the use of vowel epenthesis, the learners also used vowel prothesis to avoid L2 segment sequences that were inadmissible in their L1. The prothetic vowel was used in the production L2 bisyllabic words beginning with a syllabic nasal (the words involved were those which have monosyllabic word stems). The introduction of the prothetic vowel had the effect of changing the syllable structure of a word (cf. 7).

(7)

L2 Word	Modification	Gloss
n-ci	i-nci	country'
(ccv)	(vccv)	
n-zi	i-nzi	`fly'
m-bu	u-mbu	`mosquito'
(v-ccv)		
m-bwa	u-mbwa	`dog'
(ccsv)	(v-ccsv)	

In the above examples, a prothetic vowel was introduced initially and the rest lof the word was produced as one syllable. To be sure, it is not all biasyllabic words beginning with syllabic nasals that were modified by the use of a prothetic vowel, in some cases the learners used an epenthetic vowel (cf. 8).

(8)

L2	Modification	Gloss
n-ci	nici	`country'
n-zi	nizi	`fly'
(cvcv)	(ccv)	

6.3 Consonant·Deletion

The learners also resorted to segment deletion in order to cope with L2 consonant sequences. By the use of this method, the learners deleted one consonant in a cluster of two consonants in order to achieve a permissible L1 sequence. The consonants that were most frequently deleted were liquids and nasals (cf. 9).

(9)

L2 Word	Modification	Gloss
Fursa	fusa	`chance'
(cvccv)	(cvcv)	
korti	koti	`court'
(cvccv)	(cvcv)	
hulka	huka	`personality'
(cvccv)	(cvcv)	
karne	kane	`century'
(cvccv)	(cvcv)	

It is not in every instance that a CV structure was achieved after the deletion of a consonant in a cluster. In some cases a consonant was deleted and then replaced by a vowel, or diferently stated, a consonant was changed into a vowel. Often the lateral was replaced by (or changed into) a back vowel (cf. 10).

(10)

L2	Modification	Gloss
elfu	eofu	`thousand'
(vccv)	(vvcv)	
mfalme	mfaume	`king'

(ccvccv)	(ccvvcv)	
almasi	aomasi	'diamond'
(vccvcv)	(vvcvcv)	

In other cases a consonant was deleted and the vowel next to the deleted one was lengthened in compensation (cf. 11).

(11)

L2 Word	Modification	Gloss
Elfu	e:fu	'a thousand'
(vccv)	(v:cv)	
malkia	makia	'queen'
(cvccvv)	(cv:cvv)	

6.4 Metathesis

Another method that the learners used in order to come to terms with the L2 sequences was metathesis. With this strategy, the learners interchanged phonological /AB/ to phonetic [BA] in a word (cf. 12). This phenomenon was not rule-governed and appeared sporadic. It, however, tended to involve words with consonant clusters. Theoretically speaking, there are several motivating factors for the occurrence of metathesis (see Ultan 1988:39). In this study, however, motivation for this strategy seemed to come from uncertainties of phonotactically inadmissible L2 sequences. Although the rearrrangement of segments in some instances did not result in more familiar sequences for the learners, it was nevertheless an attempt to graple with an unfamiliar segment sequence.

(12)

L2	Modification	Gloss
Kasri	karsi	'palace'
(cvccv)	(cvccv)	
silka	sikla	'heredity'
(cvccv)	(cvccv)	
makisio	masikio	'estimates'
(cvcvcvv)	(cvcvcvv)	
skati	sitaki	'skirt'

6.5 Overgeneralization of Segment Sequences

It is important to point out that it is not all segment modifications that could be explained by reference to the L1. There was an instance where the learners of both linguistic groups seemed to make reference to the L2 itself. This occurred with reference to Kiswahili words beginning with the sequence [m+consonant].

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There are many words in Kiswahili that have the sequence [m+consonant] word – initially. This is mainly because classes 1 and 3 nouns have the prefix {m-}. Historically, it is thought (Givon 1974:06) that the Kiswahili prefix mentioned above was {mu/o-} like in other Bantu language with which Kiswahili is closely related. The prefix {mu/o}, however, changed to syllabic {m} in Kiswahili because of a syncopation rule that deleted the labial vowel {u or o} which coarticulates with the labia [m]. The result was the loss of a vowel and the concomitant shift of syllability to the adjacent consonant. This deletion rule made it possible for Kiswahili to have the sequence [m+consonant] word-initially.

This rule, although very extensive, does not apply to all nouns of classes 1 and 3. There are a number of nouns of Bantu origin in Kiswahili that still retain prefix {mu-} (cf.13).

(13)

Word	Gloss
Muhogo	`cassava'
Mume	`husband'
Muwa	`sugar cane'

Besides these words of Bantu origin, there are many more borrowed words in Kiswahili which begin with the sequence [mu] (cf. 14).

(14)

Word	Gloss
muhimu	`important
mujibu	`according'
muhibu	`friend'

In the production of word similar to those shown in 13 and 14, there was a tendency by some learners from the two main language groups to delete the vowel [u] after the nasal [m] in some words as exemplified in 15.

(15)

L2 Word	Modification	Gloss
Muhogo	mhogo	cassava
Muziki	mziki	music
Muhtasari	mtasari	summary

What is happening above appears to be an attempt by some learners to overgeneralize by the use of analogy the [m+consonant] sequence which is prevalent in Kiswahili. This phenomenon can be seen as a kind of rule simplification which is aimed at increasing the generality of an L2 rule through extending its application, and dropping a rule of limited applicability.

CONCLUSION

In this paper we have examined how learners from different linguistic backgrounds respond to an aspect of second language phonology. True to CA predictions, learners whose L1s are phonotactically different from the L2 had problems producing the L2 consonant clusters, they resorted to various strategies to circumvent the pronunciation of such clusters. On the other hand, learners whose L1s are phonotactically similar to the L2, as far as consonant clusters are concerned, made fewer errors in producing the L2 consonant clusters. This tendency seems to be attributable to transfer from the L1s. We have, however, also seen that it is not all learner-problems that can be predicted by CA (see for example the overgeneralization in 6.5).

The general conclusion that can be drawn from this study is that CA with all its shortcomings seems to be an important tool in the language learning situation. CA appears to be still one of the tools that an L2 phonology teacher and curriculum developer can put into use in the organization of teaching. It appears, therefore, that CA's obituary, especially in the learning of phonology is far from being written.

NOTES

1 The teacher training colleges from which they were drawn are: Thogoto in Central Kenya, Highridge in Nairobi, and Machakos in eastern Kenya.
2 The pilot study was conducted in August 1990 at Thogoto College in Central Kenya. The sample consisted of 16 adult students. These were drawn from 8 Kenyan language groups, as follows: Maasai, Somali, Bukusu, Nandi, Kamba, Kikuyu, Luo and Kisii. Subjects were recorded as they read a word list.
3 For more information on learners' language see (Selinker, 1972).

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