Linguagem & Ensino, Vol. 5, No. 1, 2002 (75-91)

Interlanguage phonology
Theoretical questions and empirical data[1]

Kevin John Keys
Universidade Federal de Minas Gerais

ABSTRACT: The intention of this paper is two-fold: to present some general questions relating to interlanguage phonology theory and to exemplify these theoretical matters by reference to specific data that has been obtained during the initial phase of a longitudinal study being carried out with learners of English in Brazil.

RESUMO: Este artigo tem dois objetivos: primeiro, levantar algumas perguntas gerais que se relacionam à teoria de fonologia interlingual e, segundo, exemplificar tais questões a partir de dados específicos obtidos durante a fase inicial de um estudo longitudinal que está sendo realizado com aprendizes de inglês no Brasil.

KEYWORDS: interlanguage, phonology, English as an international language.

---

[1] This is a report of a paper presented at the 3rd IATEFL SIG symposium, supported by the British Council, Madrid 7-9 September 2000.

INTERLANGUAGE PHONOLOGY

PALAVRAS-CHAVE: interlíngua; fonologia; inglês como língua internacional

INTRODUCTION

The research reported here is being conducted on many fronts, looking at first language influence on second language acquisition, at the influence of orthographic knowledge on phonological representations, and at the problem of intonational perception and production. The research project is dedicated to improving classroom teaching practice in the area of pronunciation and oral skills generally and is hence committed to the principles (if not always the practice) relating to attainment criteria and evaluative judgments that are implicit in the movement towards Teaching English as an International Language (TEIL) that has long been discussed in these pages and that has been so clearly ventilated in Jenkins (2000).

BRAZILIAN ENGLISH

The phrase 'Brazilian English' is apt to cause a frisson of antipathy in many Brazilian teachers, principally, one imagines, because of the assumption that allowing for a regional variety in this way is an excuse for lazy teaching, a license for an incomplete pedagogical practice. The phrase carries derogative connotations. Nevertheless, there are features of spoken English by speakers of Brazilian Portuguese (BP) that seem fairly common and widespread and that may be attributed to various factors: the influence of the L1, cultural habits and pedagogic traditions, among others. While this sort of anecdotism may have no 'scientific' value, it is clear that such an impression exists for most of the major languages when in contact with English as an L2 target. There seem to be two ways of responding to this

fact: looking at the variation comparatively and seeing what the parameters of intelligibility are for both L1 and L2 speakers of English (the TEIL approach); and analysing the phonological and the phonetic bases that underlie the variation, thus seeking empirical evidence for the phenomenon and data that offer an impartial description of it.

This present paper aims to show how a project with this second intention in mind will develop and what kind of empirical evidence it can throw up; however, as we have stated, the former approach inevitably underlies such a project and indeed, gives it its pragmatic justification.

INTERLANGUAGE PHONOLOGY PRINCIPLE THEORETICA L CONCERNS

For a period, the notion of interlanguage was associated with the Contrastive Analysis Hypothesis (CAH), which simply stated suggested that by comparing the L1 and the target language (TL) it would be possible to identify (or predict) which aspects of the TL a learner (speaker of a specific L1) would have difficulty with. When the CAH proved less than effic ient for a number of reasons, people lost interest in the process of comparing languages to see what the – as it were – working relationship between them might be during acquisition. Currently, various models have replaced the simpler version of the CAH and interest has been re-awakened in that L1-L2 relationship.

In addition, of course, other factors have required attention and these factors are relevant to language learning in general as well as to the development of phonological skills (Major, 1994). The whole notion of 'interlanguage' has re-emerged as a useful way of looking at the different stages of competence that learners demonstrate and interlanguage phonology studies have fitted in with this renewed interest, although it is clear that phonolo gical

skills are different in fundamental ways from the skills of morpho-syntactic and semantic control, as we shall see throughout this discussion.

Age

The first place where this difference between phonological and other skills acquisition can be seen is in terms of the effect of age at initial stages of acquisition. It is clear that language learning can be highly successful in terms of syntax and semantics (where 'successful' means something like 'native-like competence' or, in Jennifer Jenkins' terminology, the level of Bilingual English Speaker, or BES) but rather less so in the area of phonology. This 'Joseph Conrad' phenomenon is well attested: Conrad was born of Polish parents and apparently retained a fearful Polish accent all his life; he also wrote some of the great works of fiction in English of the 20th century. Of course, other socio-psychological factors may be involved which are masked by the fact of the learner's age, such as not wishing to integrate completely with the TL community, or preserving an accent that may carry perceived intellectual status (the 'Kissinger' phenomenon). In any event, there's not much a classroom teacher can do about this factor: her learners are the age they are and started learning at the age they started learning.

Personality

Where the teacher can be influential is with personality variables. These do not affect the underlying *linguistic* nature of the interlanguage, but they do affect the *rate* at which a language is learned and the *ultimate level of attainment.* Variables included here are those of self-esteem, risk-taking, anxiety, empathy, extroversion and motivation, although even this last can be inhibited by other factors. Another variable that has been researched is musicality, although, counter-intuitively, no

correlation has been found between musicality and control over prosodic features (such as intonation).

Transfer

The early CAH attributed all 'non-native deviations' as 'interference' from the L1 and claimed a predictive ability (i.e. that it could foresee where the problems in L2 acquisition would arise). The weaker version of the CAH was *post facto* analytical, explaining what had gone wrong. In neither version was it able to explain why only some Japanese learners of English have /l, r/ problems, for example. A refined version of the hypothesis was based on 'phonological similarity', sometimes known as 'interlingual identificatios' or 'equivalence classifications'. This basically stated that where two languages had elements in common, this would have a facilitating effect. So if there were a grammatical structure in the L1 with a counterpart in the TL, this structure would be acquired more easily and earlier than structures that were very unalike.

Once again, though, for phonology this process seems to operate in a contrary fashion: where two phonological elements are seen by the learner as nearly the same, she will settle for the L1-based version of the target phoneme, rath0er than create a new phonemic category for that sound. The more unlike the phonemes of the TL are from the L1, the more easily they seem to be acquired, as the previously established phonemic categories of the L1 are not called in to operation.

Markedness

An advance on contrastive analysis was offered in theories of *markedness* which promoted the view that the more 'marked' an aspect of the TL or the L1 was, the more difficult it would be to gain control over. By 'marked' was meant something like relative degree of frequency and/or simplicity: if a specific

feature of the language was very common, it was seen as 'unmarked', and vice versa; if a feature depended on another feature (where, for example, pro-drop languages imply verb inflection), it was regarded as more 'marked'. So the *markedness differential hypothesis* (MDH) said that the more marked the differences between the L1 and the TL, the greater the difficulty there would be for acquisition. If there were no such differences, the hypothesis made no prediction.

An advance on the MDH that *did* offer to predict L2 acquisition processes was the *structural conformity hypothesis*, which claimed that where there was no great difference in terms of markedness, then language universals would operate and learners would show evidence of this in their production errors. So even languages that show a preference for closed syllables (the minority), a tendency in acquisition would for the learner to demonstrate an open syllable production (CV rather than CVC), producing schwa paragoge, for example (adding a vowel at the end of a syllable ending in a consonant at the end of a word).

Universal Development Factors

Linked to the structural conformity hypothesis is the whole question of universal development factors. These are processes that take place during the acquisition of the L1 (First Language Acquisition – FLA) and recur during Second Language Acquisition (SLA). The argument is that transfer can only occur when there are corresponding structures in the L1 and the L2; otherwise developmental processes operate. For speakers of L1 English, acquiring clicks in Bantu would present the same problems as for native speakers of Bantu, as clicks are not phonemically part of English (though they are phonetically available); when the same learners are learning French, there is a tendency for French dental stops to be substituted with English (i.e. L1-derived) alveolar stops. The first process is developmental; the latter is evidence of transfer.

Style

It is important not to forget the simpler elements of language learning and the question of style, while not complex, may nevertheless be significant for SLA. In general terms, when learners are operating in more formal styles, the target-like quality of their production improves. This may simply be because they are paying more attention to their production ('monitoring' in Krashen's sense). There is also the phenomenon of *interlocutor accommodation*, seen when Chinese-Thai bilinguals sound more Thai-like when talking to Thai speakers and more Chinese when talking to Chinese speakers. Indeed, the whole question of accommodation is seen by proponents of TEIL as fundamental to non-native speakers exchanges in English. Sex is also involved here: female learners will use prestige variants more frequently than males will, and a group of Cambodian men were seen to identify the pronunciation of final –ing as [ɪn] with male L1 speakers of English, and therefore of greater prestige, which they then proceeded to use in formal contexts.

Underlying Representations

In FLA, we can see another distinction between phonological and other language skills. The child language learner learning her L1 will, at the morpho-syntactic level, have a target production in mind that may be unlike adult speech: *Daddy go work* is precisely the intended production because it represents the intermediate stage of the grammar at the moment of speaking; when the child produces [fɪs] for *fish*, however, the production is not matched to the underlying representation (UR), which may well be /fiʃ/ but which the child cannot physiologically perform. The phonological intention does not always lead to adult-like phonological output. In the case of SLA, a non-native target (or UR) will always produce non-native

output; but a native UR will not necessarily produce native output: the speaker knows what to do but cannot manage it.

QUESTIONS OF TRANSFER

If the major process in SLA at the phonological level is *transfer*, we need to be sure about what this concept may involve. A basic definition of transfer is that it represents the use of L1 (L_n) knowledge in some way during the acquisition of L2. This use is evidenced in divergent TL forms, avoidance strategies and the over-production of certain TL elements, among others. One question to be decided is if transfer operates in the same manner if the learning is in contexts of formal instruction (i.e. classrooms) and in informal situations (people living in the TL community but not officially 'studying' the language).

Other unresolved questions relating to transfer include the basic one of *what is it that is transferred*? Is it rules, strategies, linguistic elements? And how is this affected by prior knowledge of more than one language? This last question seeks to know if the previous acquisition of other L2s has any effect (and if so what kind) on the subsequent acquisition of other languages. This relates to the question of the relative availability of Universal Grammar during SLA and also raises the possibility that transfer can be bi-directional: the *facilitation hypothesis* (see 'phonological similarity') suggests that learning of the TL can have a return effect on the L1 (French L1 speakers learning English have been noted to change their phonetic production of some phonemes in the direction of a more 'English-like' quality).

The interaction of transfer and the intermediate state of the interlanguage has led to a discussion of the 'cessation' of learning as evidenced by the failure to acquire an L2 feature: is this a matter of reaching a 'plateau' of interlanguage competence which is difficult to pass beyond, or does it signify a 'stabilization' at that level, otherwise known as *fossilization*?

KEVIN JOHN KEYS

WHAT IS LANGUAGE TRANSFER?

First we will look at some notions of transfer in general (i.e. for all linguistic domains) (Gass and Selinker 1983/1994). The term 'interference' has long been abandoned by those working in the field of interlanguage, Corder being one who rejected it in conceptual grounds (Corder, 1983). His question was, what is being interfered with, actually? His best definition for the concept was the 'proactive inhibition of facilitation' and he claimed he could not see how this could operate in language acquisition.

A more useful terminology is that of *negative* and *positive* transfer. In positive transfer, we can see that cross-linguistic similarities are facilitative, but how does this apply to phonological skills? It is feasible to see this functioning at segmental levels, but the question is more problematic when we turn to prosody. The whole question of the transfer of prosodic L1 features is complicated by the suspicion that intonation, for example, is in a sense pre-linguistic and occupies a different cognitive realm from that of phonetics or morpho-syntactics and semantics.

Negative transfer takes many forms: these include *underproduction, overproduction, production errors* and *misinterpretation of the TL forms* (Odlin, 1989). In terms of grammatical structures, underproduction signifies the non-use of certain TL forms (Japanese learners of English do not use relative clauses since these do not exist in their L1 so there is perhaps no facilitation process available). Can this be applied to phonological output? There may be sounds that learners dislike, but how realistic is it to try and avoid them? Many learners have problems with /θ, ð/ but how far can you get in English if you try to avoid words containing these phonemes?

The corollary to underproduction of certain structures is the overproduction of other types: those Japanese learners produce a lot of simple sentences because they are avoiding

relative clauses. Do learners show a preference for certain phonemes over others? Again, is this feasible in the context of the rapid processing required during spontaneous speech?

Production errors caused by using patterns from the L1 are a common feature of L2 learner output. Sometimes this is manifested as structural *calques*, where the entire frame of the L1 has been transposed on to the TL: for example, an L1 English speaker produced *poner el fuego afuera* as an attempt to render in Spanish the English original *to put the fire out*. Hungarian L1 speakers learning Serbo-Croat were observed producing Serbo-Croat phrases with Hungarian-influenced stress patterns; this was complicated by the fact that these learners also produced stress patterns that were neither Hungarian-like nor Serbo-Croat-like.

The misinterpretation of TL URs is also common: a learner will mis-hear a TL phoneme as similar to an L1 sound, classify the TL phoneme accordingly and then produce heavily L1-influenced TL output.

INTERLANGUAGE PHONOLOGY AND LANGUAGE TRANSFER

To come to the meat of the problem, we should look at what actual processes are involved at the phonological and phonetic level in terms of transfer of knowledge and categories between the L1 and the TL.

These processes can be phonetic or phonemic. *Phonetically*, it may be that a main difference between L1 and L2 forms is contained in the articulatory positions of the vocal apparatus – the lips more rounded, the tongue further advanced; or in the length of the voice onset time (VOT), or in consonant length, when this duration is phonological in the language (Arabic /d/ is longer in word final position than American English /d/ tends to be, so Arabic L1 speakers learning English will produce longer word final [d:]).

Phonemically, we are dealing with the whole question of *interlingual identification*, or *equivalence classification* according to Flege's (1986) model. Phonemic differences may in fact override phonetic considerations: Spanish has the sounds /n, ŋ/ but they are not phonemically contrasted, as in English *fan* and *fang*, which Spanish L1 speakers have problems with differentiating. Again, perceptive skills may be more efficient than productive skills: Korean learners have been shown to be more than capable of distinguishing aurally between /l/ and /r/.

Segmental errors occur when cross-linguistic differences lead to divergent production. This can operate at 4 levels: *phonemically*, German /x, k/ are difficult for L1 English speakers; *phonetically* German uvular /ʁ/ is physiologically complex; *allophonic* [ɾ] in American English cannot be transferred to intervocalic <t> in German (to produce *[bɪɾə] for *Bitte*); and *distributionally* speaking, English L1 speakers seem to have no problem with word final /ts/ in German (*Sitz*) but find it complicated in word initial positions (*zu*).

Prosodically, errors in stress seem to be the most likely cause of unintelligibility. Benrabah's (1994) study showed that when native listeners heard learner production of the word *normally* as "norMALly" they claimed to have heard "no money"; when they heard *airport* as "airPORT" they reported hearing "approached". Similarly, cognate forms in the L1 and L2 may cause production errors: the French and English words *moteur* and *motor* are superficially similar but the stress placement on the inappropriate syllable may cause confusion.

Cross-linguistic frequency of certain phonemes is a factor in the process of transfer between languages. In a survey of 317 languages, the phonemes /i, u, ɑ/ appeared in more than 250; the phoneme /m/ in over 300, while /x/ occurred in only 76 and /ts/ in 46. Less frequent sounds (globally speaking) are more difficult to acquire.

There also seem to be common phonological rules for languages, so-called *natural rules*. Word final obstruent devoicing is one of these, although it is not part of English. The frequency of the rule predicts the relative ease with which it is learned. Despite its absence from English, English L1 speakers learning German acquire the rule early, whereas German L1 speakers learning English have difficulty in suppressing the rule and therefore have problems distinguishing between *nod* and *not*.

All these factors may be involved at some stage during the development of a learner's interlanguage phonology, either separately or concurrently (and some factors may be causal, bringing others into play). These are the elements that motivate the basic research questions in this area.

RESEARCH DATA

The research reported here is from an exploratory project that is seeking to define the parameters of a larger-scale investigation. The subjects are university students with 300+ hours of EFL classes, on a humanities course, who are aiming for either a teaching licenciature or a BA in *'Letras'*. There were two main tasks that were applied:

- a reading aloud task, whose text contained 229 tokens [types=131]. This task was given because, while recognizing that reading aloud makes a heavy cognitive demand on the learner, it seems the only way to encourage the production of specific phonemes that might otherwise not appear in the data because of avoidance strategies on the part of the subjects (see White 1989); the text was from Celce-Murcia *et al.*(1994), Appendix 13;
- the recording of an unpremeditated dialogue of +/-5 minutes' duration, deployed because of the affective

considerations that are relevant to interaction with an interlocutor that may lead to a lowering of speaker attention to output, thus rendering the task less formal than a monologue (see Tarone, 1987).

The data that were found to be interesting at the present stage of the research is set out in the following table:

Table 1 – Example data from the research project under discussion (FALE/UFMG, 1999-2000)

apocope/syncope	*palatalization*
Noticed ⇨ [noʊts, noʊtst]	*that you* ⇨ [-tʃ-]
accent ⇨ [æksɛn, æsɛn(t)]	*two* ⇨ [tʃuː]
influences ⇨ [-s]	
schwa paragoge	*epenthesis*
most native ⇨ [- stənɛɪ-]	*linguists* ⇨[-gwɪstɪs]
hard work ⇨ [hɑːdəwɜːk]	*changed* ⇨ [-dʒɪd, -dʒɛd]
native speaker ⇨ [-tɪvəsp-]	*won't change* ⇨ [-ntətʃ-]
forget to ⇨ [-gɛtətuː]	*noticed* ⇨ [-tɪsɛd]
/l/ vocalization	*C nasalization*
will you ⇨ [wɪʊ̹uː]	*them* ⇨ [ðɛ̃]
	end ⇨ [ɛ̃d]
	only ⇨ [õ ɪ]
(de)-voicing	*/ð/ ⇨ [d]*
language ⇨ [-gwɪtʃ]	*they* ⇨ [deɪ]
people ⇨ [biːb̩l, pˀiːpˀ̩l]	*the* ⇨ [də]
	does this ⇨ [dʌzdɪs, dʌdɪs]

COMMENTARY

We can classify these examples according to some of the theoretical models suggested above. For instance, as an example of L1 transfer we can identify the process of syllable final *consonant nasalization* ([ðɛ̃] ⇨*them*) and consonant cluster epenthesis (*won't change* ⇨ [-ntɔtʃ-]) as these processes reflect the tendency for Brazilian Portuguese (BP) word final <m, n> to be nasalized; and a reluctance to violate phonological rules in BP regarding clustering. On the other hand, the examples of *schwa paragoge* (*hard work* ⇨ [hɑːdəwɜːk]), it could be argued, might be based on phonological universals (the preference for open syllables of the CV variety).

The relationship between the L1 and the TL is shown to be complex at the point of the overgeneralization of <t> *palatalization*: *that you* ⇨ [-tʃ-] and *two* ⇨ [tʃuː]. In the first case, the output follows the pattern of English L1 speaker processes, where palatalization occurs before /j/; however, by extrapolating this process to a word like <two>, these speakers are exemplifying production that is divergent from TL norms; and yet this cannot be claimed as L1 influence, since this process of palatalization before rounded front vowels also violates BP phonological rules.

Some L1 variation is demonstrated in the data in the */l/ vocalization* (*will you* ⇨ [wɪʊʲuː]) which is part of an ongoing change in BP phonology (which is coincidentally taking place in some forms of British English, sometimes characterised as 'Estuary English').

We can also see the clear influence of the *orthography* in the reading aloud task in forms such as *changed* ⇨ [-dʒɪd, -dʒɛd] and *noticed* ⇨ [-tɪsɛd]. The research question here is whether this effect persists in spontaneous speaking tasks which are not text-dependent – that is, if the learner preserves a UR that is

affected by knowledge of the orthography or if this process is confined to reading aloud events.

Some *phonetic* difficulty can be seen in the fact that the proximity of certain phonemes seem to have a deleterious effect, as in the example *does this* ⇨ [dʌzdɪs, dʌdɪs]. The consonant phonemes of *does* have had some influence on the production of the initial consonant of *this*; in some instances, the initial consonant of *this* (modified to [d]) has also led in some cases to the deletion of the final consonant of *does.*

FUTURE RESEARCH QUESTIONS AND OBJECTIVES

The next phases of this research project will involve the development of a user database of L2 output from this speech community, a corpus of learner production, utilizing various speaking tasks and recorder at intervals over time, to develop a clearer picture of the processes involved in the development of phonological skills in English by these students. The focus of future endeavours will include topics such as:

- the influence of orthographic knowledge on URs and output;
- the question of the acquisition order for phonological skills among speakers of BP;
- the parameters of intelligibility involved in BP speaker output of L2 English;
- the question of pedagogical intervention and classroom practice that is therefore appropriate to this speech community.

Underlying this research project is the philosophy that is reflected in Cook's (1999) considerations on the relationship between 'native' and 'non-native' speakers and his assertion that

> The ultimate attainment of L2 learning should be defined in terms of knowledge of the L2. There is no reason why the L2 component of multicompetence should be identical to the monolingual's L1, if only because multicompetence is intrinsically more complex than monolingualism. (Cook, 1999, p. 191)

and is also informed by the declaration in Jenkins (2000) that

> The critical questions for pronunciation teachers are: in which phonological and phonetic areas does the transfer of L1 pronunciation militate against EIL intelligibility; and to what extent is it feasible to teach learners to replace their L1 forms with L2 forms in these areas? (Jenkins, 2000, p. 104)

REFERENCES

ARCHIBALD, J. *Second Language Phonology*. Amsterdam: John Benjamins, 1998.

AZEVEDO, M. M. *A Contrastive Phonology of Portuguese and English*. Washington DC: Georgetown University Press, 1981.

BENRABAH, M. (1997). Word Stress – a source of unintelligibility in English. *International Review of Applied Linguistics*. v. 35 n. 3, 1997.

CARR, P. *Phonology*. Basingstoke: Macmillan, 1993.

CORDER, S.P. The role of the mother tongue. In: Gass and Selinker (eds), 1983.

CRISTÓFARO, Silva T. *Fonética e Fonologia do Português: roteiro de estudos e guia de exercícios*. São Paulo: Contexto, 1998..

DALTON, C & SEIDLHOFER, B. *Pronunciation*. Oxford: Oxford University Press, 1994.

FLEGE, J.E. Effects of Equivalence Classification on the Production of Foreign Language Speech Sounds. In: *James, A & Leather, J.* (eds.), 1986.

GASS, S. & SELINKER, L. (eds). *Language Transfer in Language Learning*. Amsterdam: John Benjamins, 1983/1994.

HANCIN-BHATT, B & BHATT, R. M. Optimal L2 Syllables: Interaction of Transfer and Developmental Effects. *Studies in Second Language Acquisition*, v. 19, p. 331-378, 1997.

IOUP, G & WEINBERGER, S.H. *Interlanguage Phonology: The Acquisition of a Second Language Sound System.* Cambridge: Newbury House, 1987.

JAMES, A. & LEATHER, J. (eds). *Sound Patterns in Second Language Acquisition*. Dordrecht, Holland: Foris, 1986.

JENKINS, J. *The Phonology of English as an International Language.* Cambridge: Cambridge University Press, 2000.

KEYS, K.J. Current trends in pronunciation teaching. *IATEFL Issues,* v. 151, a, 1999.

KEYS, K.J. Making the right noises: pronunciation and teacher training in Brazil. *Speak Out!*, issue 24, b, 1999.

KEYS, K.J. Teaching Pronunciation for English as an International Language. *Speak Out!*, issue 26, 2000.

KEYS, K.J. First language influence on spoken English of Brazilian students of EFL: preliminary results of a longitudinal study. *English Language Teaching Journal*, in press.

MAJOR, R.C. Current trends in Interlanguage Phonology. In: *Yavas, M.* (ed), 1994.

MUNRO, M.J. & DERWING, T. Foreign Accent, Comprehensibility and Intelligibility in the Speech of Second Language Learners. *Language Learning,* v. 45 n. 1, 1995.

ODLIN, T. *Language Transfer*: *cross-linguistic influence in language learning.* Cambridge: Cambridge University Press, 1989.

PENNINGTON, M. *Phonology in English Language Teaching.* London: Longman, 1996.

YAVAS, M. (ed) *First and Second Language Phonology*. San Diego: Singular Publishing Group Ltd., 1994.