Japanese 4-Year-Olds' Acquisition of English Phonology

- A Pilot Study Report -

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Abstract
We report on an exploratory sample of a wider research project to assess second language phonological competence in young children of differing linguistic background learning English as a foreign language. Our investigation begins with some Japanese 4-year-olds who have studied English for one year. Early results suggest an unexpectedly high level of their perceptual proficiency with regard to non-native English contrasts, leading to a possible re-appraisal of the enduring impact of a native phonological system on Very Young Learners.
Introduction

The growth in teaching English to young learners (TEYL) is undoubtedly one of the most significant developments of the last decade in English language teaching world-wide, and voices are being heard that it will alter, in a domino effect, the rest of the field as well as teacher education (cf. Cameron, 2003). The common belief among parents and an increasing number of governments around the world is that the success stories exemplified by bilingual families, for example, or the ease with which children will pick up the language of any foreign community they find themselves in, can somehow be emulated in the foreign language classroom. Many specialists, on the other hand, have been engaging in pouring cold water on this wave of popular enthusiasm, warning that the rosy future of TEYL is by no means assured, since the production and grammatical skills of young learners, in contrast to their listening skill and accent, do not on the whole surpass those of more mature students. There is also the prospect that such an early education will be producing students of extremely mixed ability as well as a fair proportion of those who will be seriously demotivated. The situation poses considerable pedagogic, institutional and research-related challenges; there is an urgent need for a better understanding of child foreign language learning – hence the motivation for the present research.

I have been puzzled by the question of the extent to which the native language interferes with the acquisition of English phonology and phonetics in learners as young as four. If their acquisition of foreign sounds, in particular, is as 'effortless' and 'painless', as some claim, then one should expect little evidence of such interference, at least on the receptive level. A related question concerns the relative complexity non-native sound contrasts which, according to one theory (Brown, 2000), is rule-governed and depends on the learner's native system. Prosody remains more subtle functionally, and therefore less amenable to analytic assessment than the segments, such as vowels and consonants. But that does not mean to say it is any less important to communication, or even less prominent: in terms of native language acquisition, it is something children acquire before all other aspects of language, and is therefore more entrenched than are segmental phonemes. Which aspects of English prosody do young children find easy to acquire, and which ones do they find troublesome? We hope to address such questions a well many others as the body of research results accumulates, but, in this preliminary phase, our enquiry tried to attend to only the first of these, namely the problem of segmental interference.
Testing procedure

A group of 10 Japanese nursery school students, 4 years of age, were given 2 auditory tests, on two different occasions, to assess their knowledge of certain English vocalic and consonantal contrasts. They had done one year of partial 'immersion English' - a course where the foreign language is used as a medium of instruction rather than a subject of study in its own right. The number of classes was in excess of 10 hours a week. They had been taught by a team of 2 native North American and one Japanese teacher.

Each child was presented with a page containing a serious of pictures and asked to identify them, one after another, as his or her teacher read out the words in English. Some of the pictures on the page illustrated a minimal phonological pair, such as 'cars - cards', whereas others were single representatives of a potential minimal pair, e.g. 'bed', which was meant to contrast with 'bad'. The idea was to vary the complexity of the task by setting up different expected baseline performances; thus a series of 2 pictures with one auditory cue would produce an expected baseline performance of 50%, whereas a forced choice among 3 or more pictures would make the task appropriately harder for the testee. The auditory cues were also conceived with the same intention of exploring the most valid and reliable way of carrying out the experiment. For example: a pair of pictures representing a phonological minimal pair, such as the above 'cars - cards' would be cued auditorily with either one word of the pair or both. Or indeed neither of them, e.g. 'cows', whose purpose here would be to act as a foil.

Table 1 contains a list of some of the English phonemic contrasts that the subjects were asked to identify.

Table 1 List of non-native English contrasts presented to subjects for discrimination

<table>
<thead>
<tr>
<th>1. sheep - ship</th>
<th>6. fat - hat</th>
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</thead>
<tbody>
<tr>
<td>2. bed - bad</td>
<td>7. mouse - mouth</td>
</tr>
<tr>
<td>3. cat - cut</td>
<td>8. sun - sung</td>
</tr>
<tr>
<td>4. hear - air</td>
<td>9. cars - cards</td>
</tr>
<tr>
<td>5. light - write</td>
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</tbody>
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Results and discussion

The samples of the non-native English contrasts had been selected for testing in order to scrutinise a hypothesis that Japanese 4-year-olds learning a foreign language have to grapple with much the same auditory perception problems as grown-up learners, at least initially. This is due to the fact that their native phonological system, which inhibits foreign language perception, is already largely in place by that age. I had therefore concentrated on the well-known problem areas, including the notorious [1] vs. [ r ] distinction. The results of this pilot study - taken at face value - refute in
fact that prediction quite overwhelmingly, the only convincing failure by the subjects to discriminate between two English phonemes (50%) having been recorded for the voiced fricative/affricate contrast \( [z] \) vs. \( [dz] \).

Figure 1 provides a summary of the subjects’ general performance on two perceptual tests consisting of selected vocalic and consonantal contrasts in English.

Fig. 1 Overall auditory performance by Japanese 4-year-olds

If the present outcome is proven correct by further, more careful research, it will bring credit not only to the advocates of early immersion programmes, but also to those who regard with some suspicion the theory of phonological acquisition by L2 learners as being accountable entirely in terms of Feature Geometry (cf. Brown, 2000).

However, there were clearly a number of problems both with the validity as well as reliability of the tests concerned. To begin with, the subjects were not always certain of the meanings of the words they were expected to distinguish among.

This happened despite great care having been taken to avoid such situations, and the best option would have been to resort to nonce words for some of the tests. Secondly, it appears there is little merit in lowering the baseline of the expected performance by producing multiple rather than dual choice test problems. Thirdly, there were no native controls included in the experiment. Last not least, there was no provision made for a test of production competence to counterbalance perception. On the reliability side, the administration of the tests had to be left to the subjects’ regular teachers, which is not usually a guarantee of full objectiveness despite the best intentions of everyone concerned.

References:


Cameron, L. (2001) Teaching languages to young learners. CUP