

Experience as a factor in L2 phonological acquisition

Robert McAllister

Dept. of Linguistics, Stockholms University
bob@ling.su.se

Abstract

This paper discusses the question of the effect of experience in the use of a second language (L2) as a factor in the acquisition of L2 phonology. In a recent study of the acquisition of the Swedish quantity contrast a considerable inter-subject variability in the ability to produce and perceive this aspect of the L2 could be observed. The possibility that this variability could be due to variation in language experience is discussed in light of recently obtained results.

1 Introduction

This paper is concerned with the question of which factors influence the success of an individual's acquisition of L2 phonology. Although considerable individual variation can be observed in adults' mastery of L2 production and perception, the L2 literature, as well as our common experience as language users, generally indicates that most adult L2 learners will permanently speak the L2 with a foreign accent. One interpretation of this observation is, in the scientific study of foreign accent, that success in acquiring the phonetics and phonology of an L2 is dependent on a number of factors which influence the performance of individual L2 users. A considerable body of linguistic and phonetic research has been concentrated on the investigation of which factors these might be and their relative importance to success in the difficult task of acquiring L2 production and perception (e.g. Purcell & Suter, 1980, Flege, Munro & MacKay, 1995, Piske & MacKay, 1999, under review). Among the factors that have been discussed as possible subject variables that may influence the acquisition of L2 speech is experience with the L2. It is the specific aim of this paper to discuss this subject variable in light of recent research in which it has been put forth as one of the factors likely to influence success in the acquisition of L2 phonology.

2 Inter-subject variability

In a recent study McAllister et al. (2000) investigated the acquisition of the Swedish quantity contrast in subject groups with three different first languages (L1), North American English, Latin American Spanish and Estonian. The aim of this study was to contribute to the discussion of the role of the L1 as an important factor influencing the acquisition of L2 phonology. A so called "feature hypothesis" was tested and the main findings supported this hypothesis and thus furthered our understanding of the familiar concept of transfer.

One of the salient aspects of the results obtained in this investigation was a large inter-subject variability an example of which can be seen in Figure 1. This figure shows the percent of correct identification of the two quantity classes in Swedish stressed syllables, V:C

or VC. Some native speakers of English performed just like native speakers of Swedish, whereas others performed at a chance level. That is, they were unable to determine if known Swedish words were supposed to have a long vowel-short consonant durational structure, or a short vowel-long consonant. The large range of variability could be observed most clearly in the results of the perception experiment for the native English and native Spanish speakers.

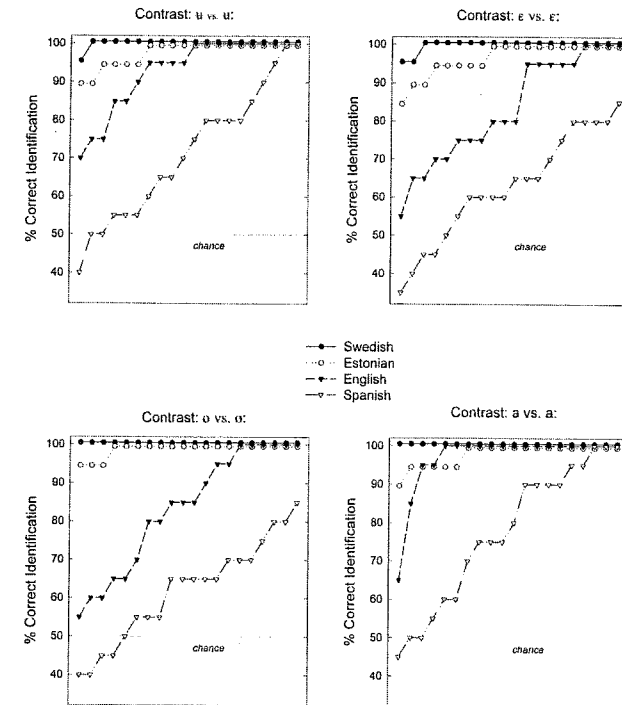


Figure 1 Individual data for the perception experiment which reveals the large individual difference in perceptual performance

Note that those subjects who were unsuccessful in distinguishing, in either production or perception, Swedish syllables differing in phonological quantity failed in this task despite the fact that they fulfilled the requirement of at least 10 years of residence in Sweden and that the Swedish words tested were equally familiar to all subjects.

3 Experience as a source of variability

How can this large variation be accounted for? In the introduction to this study we stated that easily observed large individual variation in L2 performance was one of the indications that many independent factors probably influenced the success of learning L2 in any given individual. One of these factors that has been discussed in recent research is the Length of Residence (LOR) in the L2 environment. It is generally assumed that Length of Residence (LOR) in a predominately L2-speaking environment (e.g. Swedish

for immigrants to Sweden) is positively correlated with amount of L2-input an immigrant has received and that the more L2 input that is received, the better the chances for the L2-learner to master L2 speech.

Upon examination of the LOR data in our study in which the large inter subject variation in performance was observed we discovered that although all subjects met the requirements of a minimum of 10 years of LOR in Sweden, there was a significant LOR difference between the native Spanish (LOR=17 years) and the native English speakers (LOR=24 years). Therefore it could be the case that the longer LOR for the native English speakers could be the source of the difference in their performance. To provide a test as to whether the LOR may have been an important factor behind the difference in performance between the two groups, a follow up experiment was conducted. 10 subjects from both L1 groups were selected and matched for LOR (mean=18 years) and 10 new subjects with considerably less L2 experience were recruited for each L1 group, their mean LOR being 3.6 years. The results of the same production and perception tests for these four groups can be seen in Figure 2.

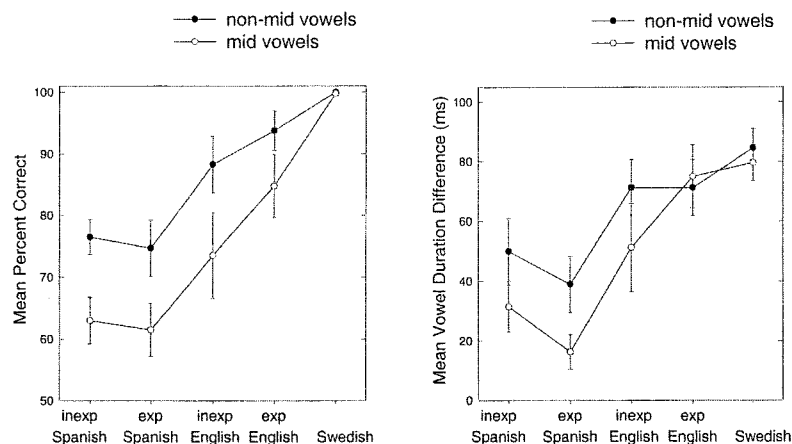


Figure 2 Comparison of the performance of experienced groups (LOR=18 years) and inexperienced groups (LOR=3.6 years) in production and perception of the Swedish quantity contrast.

Figure 2 indicates that increased LOR does not necessarily improve performance. The difference in mastery of the Swedish quantity contrast with the native English speakers being more like Swedes in their production and perception than the native Spanish speakers is still evident despite the matching of the two groups with respect to LOR. This result suggests that the native English speaking subjects were somehow making better use of the input they were receiving in Sweden than the native Spanish subjects.

A comparison of the inexperienced groups with those who had considerably more experience reveals that there was no significant difference between the two groups for the native Spanish speakers. The difference in performance between the experienced and inexperienced native English speaking groups that can be seen in Figure 2 was not significant.

The finding that LOR may not be a robust predictor of L2 performance is not unique. Other studies have come to similar conclusions (e.g. Moyer, 1999). On the other hand, a number of studies have shown a positive effect on L2 performance (e.g. Flege, 1988, Purcell & Suter, 1980). In a recent study on the role of LOR in phonological acquisition, Flege and Liu (2000) suggest that the lack of an effect of LOR found in some previous studies may have been due to sampling errors and that it appears that adults' performance in an L2 will improve over time provided that a substantial amount of L2 input is provided.

We have not been able to accurately measure the amount of L2 input received by our subjects in this experiment and it is, in fact, a difficult factor to control and to assess in experimental subjects. Our non-native subjects have reported very similar amounts of L2 use (4.8 on a scale of 7 for the native Spanish speakers, 4.9 for the native English speakers) and have also a very similar self assessment of their Swedish ability.

We might conclude that language experience as measured by LOR has, in these experiments, not been a good predictor of L2 performance. We have not found a systematic relationship between this factor and the inter subject variability we have illustrated in Figure 1. We do see in the data presented here in Figure 2 a significant difference in mean group performance results which we would tend to attribute to the differences in the use of the duration feature in the respective phonologies of Spanish and English.

We would be compelled to point to the possibility that some as yet unidentified difference in learning ability or Swedish input permitted certain subjects to acquire this phonological distinction. It appears, moreover, that if an individual was going to learn this aspect of Swedish, he or she did so within a few years after arriving in the L2 environment. Otherwise, many years of Swedish use did not lead to success.

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