The impact of a short auditory training on L2 pronunciation in languages with different orthographic depth

E. Zetterholm¹, M. Kuronen² and V. Nyyssönen²
¹ Department of Culture and Society, Linköping University, Sweden
² Department of Language and Communication Studies, University of Jyväskylä, Finland

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I. INTRODUCTION

Languages differ with respect to the degree of orthographic transparency, also called orthographic depth [1, 2, 3]. Orthographic depth refers to the phoneme-to-grapheme correspondence [4, 5]. A language with a transparent orthography has a relatively consistent correspondence between orthography and pronunciation, whereas in a language with an opaque orthography, the correspondence is relatively inconsistent [4]. For example, in Finnish the phoneme-to-grapheme correspondence is transparent in the meaning that graphemes often relate to phonemes in a way which is intuitively close and consistent [2, 10]. In a language with an opaque orthography — for example Swedish — the phoneme-to-grapheme correspondence is more inconsistent in the way that there are often several ways to pronounce one letter (feedforward, i.e. letter-to-phoneme inconsistency) and several ways to spell one sound (feedback, i.e. phoneme-to-letter inconsistency). Thus, a Finnish second language (L2) learner of Swedish must learn many new grapheme-to-phoneme and phoneme-to-grapheme correspondences, and not to use some in his/her first language (L1), according to what learning of new orthography-phonetics correspondences in L2 means [6]. Sometimes the effect of orthography is so strong that it overrides an L2 learner’s ability to hear the actual pronunciation of the word preventing him/her from learning pronunciation accurately [7]. Adult multilingual learners can use previous knowledge from other languages to find out links between orthography and pronunciation [8]. However, it is difficult to teach pronunciation from spelling alone and orthographic input only can affect negatively both the perception and production of L2 speech [9].

In the present paper, we study the impact of L2 orthography on L2 pronunciation in the very first stages of L2 learning, more specifically when the L2 learner has no prior knowledge of the target language; a native learner. The learner's L1 is Swedish, and the target languages are Finnish and Portuguese. The target languages vary in their degree of orthographic depth. In Finnish, the orthography is nearly transparent [2, 10], while Portuguese has more opaque orthography [2]. Further, we study what kind of an effect a short auditory training (supported by simultaneous orthographic input) has on L2 speech in languages with different orthographic depth.

II. AIM AND RESEARCH QUESTIONS

The first aim of the study is to augment our understanding of the impact of orthography on pronunciation in the first stages of L2 learning. Secondly, we study what kind of an effect a short, primarily auditory training has on L2 pronunciation. We address the following research questions:

- Is an L2 with a transparent orthography easier to pronounce for a naive L2 learner than an L2 with an opaque orthography?
- What kind of effect has a short auditory training (supported by simultaneous orthographic input) on comprehensibility and accuracy of L2 speech in languages with different orthographic depth?

III. METHOD AND MATERIAL

A professional speech impersonator with Swedish as his L1 read a short text in Finnish and Portuguese. Both languages were previously unfamiliar to him and had different degrees of orthographic depth. First, the impersonator read aloud a passage from a novel without any training or instructions how to read/pronounce the text. Next, he listened to the same text read by a native speaker of the language. He was requested to listen to, mimic and train, and – when he thought he was ready for the task – read aloud the same texts again. Thus, he also had the text available during the auditory training and the second reading. The training session before the second reading was about two hours in both languages.

A listener test with pre- and post-training recordings (hereafter Test 1 and Test 2) was constructed. Native speakers of Finnish and Portuguese rated comprehensibility of the readings on a scale from 1 to 6. The scale was described with the following
wordings: 1 = I understand nothing, 2 = I understand a couple of words, 3 = I understand quite little, 4 = I understand quite much, 5 = I understand almost everything, 6 = I understand everything. Further, the listeners graded the accuracy of pronunciation in the recordings by answering (i) whether Test 1 or Test 2 sounded better (‘better’ in the sense ‘closer to the target language’: a forced choice with 4 alternatives), and (ii) what pronunciation features caused the possible difference between the tests (an open question). The listener test was done with an online survey tool. The listeners were able to listen to the speech samples as many times as they wanted and advance in the test at their own pace. The listeners had Finnish (n=28) and Portuguese (n=30) as their L1. The difference between Test 1 and Test 2 within the same language was tested by Wilcoxon Signed–Rank Test, while Mann-Whitney U was used to test the difference between the languages in Test 1 and Test 2, respectively. The difference between Test 1 and Test 2 in all data was tested by paired samples t-test.

IV. RESULTS

On average, the listeners understood “quite little” (3) or “quite much” (4) (on a scale from 1 to 6) of both languages in Test 1. The Finnish listeners rated the comprehensibility as somewhat lower than the Portuguese listeners. The mean score was 3.50 in Finnish and 3.93 in Portuguese (a non-significant difference, p=0.070) in Test 1. Further, the results show that listeners understood something – in many cases quite much – of both languages. This finding is in line with human listeners’ ability to interpret even fairly distorted speech signals. In Test 2, the difference between the languages was smaller than in Test 1; the mean score was 4.21 in Finnish and 4.43 in Portuguese (a non-significant difference, p=0.376) in Test 2. The difference between Test 1 and Test 2 in all data was strongly significant (p<0.005). Thus, a short auditory training (supported by simultaneous orthographic input) improved comprehensibility of the L2 pronunciation evidently in both languages.

Even though Finnish and Portuguese have considerable phonetic differences, the pattern of development in the accuracy of the pronunciation was similar in the languages: A better rhythm and faster speech tempo were highly valued features by the listeners in both languages.

As regards comprehensibility, we can conclude that (i) on average, the listeners understood quite little or quite much of both languages in Test 1, (ii) the languages were equally easy or difficult to pronounce for the naïve L2 speaker, (iii) both languages got significantly higher comprehensibility ratings in Test 2 than in Test 1, and (iv) the effect of a short auditory training (supported by simultaneous orthographic input) was similar and evident in both languages.

V. SUMMARY

A first finding of our study is that an L2 with a transparent orthography is not easier to pronounce for a naïve L2 learner than an L2 with an opaque orthography. This is the case in the very first stages of language learning when the L2 learner has not yet gained knowledge of the orthography–pronunciation correspondences and discrepancies in the L2. In order for transparent L2 orthography to be beneficial for L2 learner, the learner must be aware of the correspondences and discrepancies between orthography and pronunciation in the L2. A second finding of our study is that even a short period of auditory training (supported by simultaneous orthographic input) can induce a significant improvement in both comprehensibility and accuracy of L2 speech. This improvement was similar in the languages despite the difference in orthographic depth between them. Finally, the results suggest that mimicking one specific L1 speaker could be a method worth testing in L2 pronunciation learning.

REFERENCES