Ability to identify unfamiliar speech sounds negatively correlates with second language proficiency

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1. Introduction

In past research, a strong correlation was found between one's ability to identify nonsense-syllable consonants and one's second language (L2) listening proficiency as measured by the TOEIC test [1]. In that research, however, the same language (English) was used for both the speech sound identification measure and the L2 proficiency measure, so results could not be generalized to other sound identification ability. The present study, then, tests for a correlation between Japanese adults' ability to identify unfamiliar Korean sounds, and their proficiency in English as a second language. In light of [1], one might expect a positive correlation – a person who can identify unfamiliar phonemes well should be better at acquiring vocabulary and thus attaining L2 proficiency. On the other hand, a language learner who is 1able to focus too much on fine phonetic properties, might not do well at overall L2 learning, and this would result in a negative correlation.

2. Method

2.1. Participants and stimuli

The participants were 25 Japanese university students, intermediate-level speakers of English with no formal training in Korean. Korean differs from Japanese in that there are 3 stops (fortis, lenis and aspirated), each with a different VOT [2] and possibly different f0 on the following vowel [3]. We used the following nine Korean syllables in an identification test: /p*a, pa, p^{h}a, ta*, ta, t^{h}a, k*a, ka, k^{h}a/.

2.2. Data collection & analysis

We administered a 45-question, forced-choice sound identification test. In 15 questions, participants were asked to choose which of the three /p/ syllables they heard (5 were fortis, 5 lenis, and 5 aspirated). There were also 15 /t/ and 15 /k/ syllables, again with 5 fortis, 5 lenis, and 5 aspirated each. Participants had a chance to train themselves (2-3 minutes) before starting the test. The 45 questions were presented in random order to participants, who listened using JVC HA-XM20X headphones. As in [1], the present study used both overall and listening-only TOEIC scores to measure the Pearson product-moment correlation coefficients with the Korean sound identification test scores.

3. Results

Figure 1 shows the relationship between TOEIC score and sound identification score. Using Cohen's guidelines for reporting behavioral science effect sizes [4], fine phonetic sound identification score has a medium negative correlation with TOEIC total score (i.e., both reading and listening included) and with TOEIC listening-only score (see Table 1).
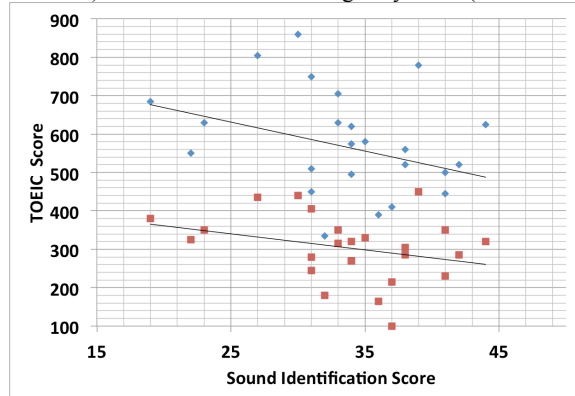
Figure 1: *Scatterplot of general L2 English proficiency and unfamiliar Korean sound identification score*
♦ *TOEIC Total Score* ■ *TOEIC Listening Score*

Table 1: *Correlation coefficients between general L2 English proficiency and unfamiliar Korean sound discrimination score*

Correlation with TOEIC Total Score	-0.31
Correlation with TOEIC Listennig Score	-0.30

4. Discussion

The results show evidence that having the ability to hear fine-grained phonetic differences does not necessarily lead to successful L2 learning. Perhaps if learners are too sensitive to individual sounds, it can inhibit understanding of whole L2 listening and reading passages. Individual differences exist, though, which is to be expected given the range of factors affecting L2 acquisition.

5. References

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