

LEARNING L3: WHY LEARNING FRENCH FIRST IS BETTER THAN LEARNING GERMAN FIRST

Laura Catharine Smith and Wendy Baker

Brigham Young University

E-mail: wendy_baker@email.byu.edu, laurasmith@byu.edu

ABSTRACT

This study investigated whether differences in cross-language similarity between English-French and English-German vowels would translate into differences in accurately identifying and discriminating French and German vowels (i.e., /i/, /y/, and /u/). In addition, this study investigated whether these same differences in cross-language perception would also translate into differences in accurately identifying and discriminating vowels in a novel third language. The results suggest that learners exposed to a language with a greater perceived difference with the L1 are more able to generalize their perception of their L2 vowels to a novel L3.

Keywords: French, German, pronunciation, perception, second language acquisition.

1. INTRODUCTION

Recent theories of SLA, such as Flege's Speech Learning Model (SLM), have assumed that sounds in the second language (L2) that are more similar to sounds in the first language (L1) will actually be more difficult to perceive and produce accurately than those which are less similar [1]. Conversely, the greater the distinction between the L1 and the L2 as shown through cross-language comparisons, the better L2 learners should be able to perceive (and produce) distinctions in the L2 [1,3,4]. This is the case not only for L2 sounds corresponding phonemically to sounds in the learner's L1, i.e., which are transcribed with the same IPA symbol in both languages like /u/ in both English and German, but also applies to so-called "new" sounds in the L2, in other words, sounds which learners do not already have in their L1, such as /y/ for English learners of French and German. In a study of the acquisition of German lax vowels [ɪ, ɛ, ʏ, ʊ] by college age English learners, Jacewicz [2], for instance, found that only the new

vowel [ɪ] was produced by learners in the same acoustic space as productions by native German speakers. This finding she ascribed to the observation that it was the sound which was least like any sound in the learner's L1, English.

Most cross-language studies, however, have only compared sounds in the learner's L1 with sounds in a single L2. They have not compared the L1 with the same sounds in two different languages to compare whether learners will treat the L2 sounds in a similar manner regardless of language or whether differences in the realizations of the sounds in each language will result in differential treatment of the sounds by learners. For instance, like German, French has three high vowels, /i/, /u/ and /y/. This leads to the first research question of this study: If cross-language similarity is different for English-French than English-German, will learners of these two L2s differ in how they perceive their L2 vowels?

By extension, it may be that variations in this cross-language similarity may have repercussions on the learning of a third language (L3) sharing the same phonetic inventory as the L2. This leads to the second question of this study: If learners can perceive differences between the L1 and the L2, can they generalize this ability to perceive sounds in an L2?

To address these questions, we examined the cross-language similarity between English-French and English-German vowels, and based on these results made predictions regarding how learners from each L2 group would perform in identifying and discriminating the same vowels in their L2 (either French or German) and in a language to which they had had no previous exposure (either French or German).

2. CROSS-LANGUAGE SIMILARITY

The first experiment of this study examined the degree of cross-language similarity between

English and French versus English and German vowels.

2.1 Methodology

Participants in this study were either learners of European French (F) or German (G) who had all spent at least 18 months in the target country. Importantly, participants had only studied their L2 (French or German)—they had never been exposed to the other language before participating in this study. These same participants took part in all experiments in this study. Table 1 lists the demographic information of the participants.

Table 1: Demographic Information of Participants

	N*	CA*	AOA*	LOR*
French Learners	10	21	18.25	1.6
German Learners	10	22.3	19.57	1.9

*N= Number of Participants; CA=current age; AOA=age of arrival in target dialect; LOR=length of residence (in years)

The stimuli used in this experiment were spoken by native English, French, or German speakers (average age: 26). These speakers produced the vowels in dV syllables.

Listeners heard tokens over headphones and responded to the stimuli through the presentation software E-prime. In each trial, listeners heard two tokens and were asked to choose one of 4 response alternatives depending on the relationship between the two tokens: (1) same vowel, same language, (2) same vowel, different language, (3) different vowels, same language, (4) different vowels, different language. In this portion of the study, vowel combinations for English-French and English-German were heard by both learner groups.

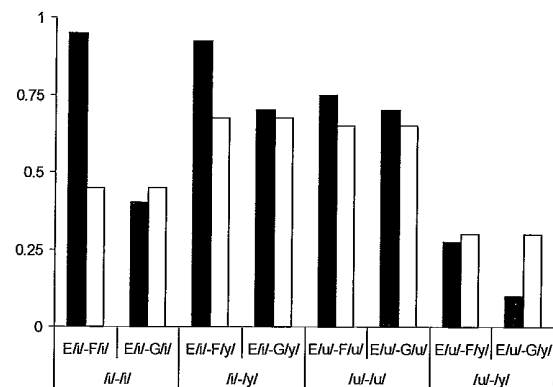
2.1. Results and Discussion

The participants' correct responses were tallied for each of the possible cross-language vowel pairs: L1/i/-L2/i/, L1/u/-L2/u/, L1/i/-L2/y/, L1/u/-L2/y/ where L1 in each case was English and L2 was either French or German. The correct responses for the English-French vowel pairs were submitted to a two-way (learner group x vowel pair) ANOVA. This analysis revealed that there was a significant group ($F=8.96$, $p<.001$), vowel ($F=39.24$, $p<.0001$), and group x vowel interaction ($F=17.48$, $p<.0001$). Further post-hoc analyses revealed that the French learner group was more accurate than the German learner group at

discriminating between English /i/ and French /i/ and /y/, but did not differ from them in discriminating between English /u/ and French /y/ and /u/.

We ran a similar analysis on the discrimination between German and English vowels. This analysis revealed no significant difference between the two learners groups' discrimination between English and German vowels ($F=1.30$, $p>.05$). These results are displayed in Figure 1. In this figure, the higher the bars, the greater the perceived distance between the English and the L2 vowels.

Figure 1: French (black bars) and German (white bars) learners' accuracy in discriminating between English and French or German vowels



The results of this first experiment revealed two main findings. First, both German and French learners were more accurate at distinguishing between French and English than between German and English vowels. In addition, French learners are better than German learners at distinguishing between French and English vowels, but both groups were equally accurate at distinguishing between German and English vowels.

3. IDENTIFICATION

The findings in the first experiment allow us to make the following predictions to test our two research questions. First, regarding the influence of cross-language similarity on identifying French and German vowels, we predicted that, since cross-language differences between French-English were perceived as greater than between German-English, it should also be easier for French learners to identify and discriminate French than German learners to identify and discriminate German

vowels. Second, since French learners had been exposed to an L2 that is less similar to the L1, they should more accurately identify and discriminate German vowels (i.e., vowels in an L3) than German learners should be able to identify and discriminate French vowels. The next two experiments were conducted to test these hypotheses.

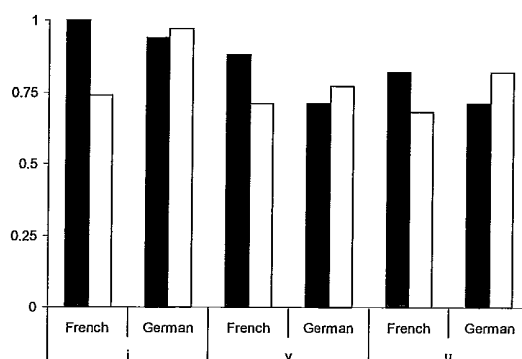
3.1. Methodology

In this experiment, the French and German learners were asked to identify French and German vowels. The learners heard French and German /i/, /u/, and /y/ in syllable, words, and single vowel tokens via the presentation software E-prime. They heard 15 tokens of each vowel as spoken by either a native French female speaker (age: 24) or a native German female speaker (age: 22). The two languages were randomly interspersed; the learners were not told if the vowels were German or French vowels.

3.2. Data Analysis and Results

The correct identifications for the three French and three German vowels for each participant were tallied and submitted to two two-way (learner group x vowel) ANOVAs. The first ANOVA examined how well French and German learners identified French vowels. This analysis revealed a group x vowel interactions ($F=2.36$, $p<.05$). Further post-hoc Tukey tests revealed the French learners were more accurate than the German learners at identifying French /i/ and /y/. The second analysis examined how accurately French and German learners identified German vowels. This analysis revealed that the two learner groups did not differ in accuracy of identifying any of the German vowels ($F=2.13$, $p>.05$). See Figure 2.

Figure 2: French (black bars) and German (white bars) learners' identification of French and German vowels



3.3. Discussion

The results of the identification experiment supported to some degree our two hypotheses. First, since French vowels were perceived to be more distinct from English vowels than were German vowels as shown in the first experiment, French learners were more accurate at identifying French vowels than German learners were accurate at identifying German vowels.

Second, for the same reason, French learners were better able to identify German vowels than German learners were able to identify French vowels. That is, French learners did better at perceiving vowels in an L3 than did the German learners.

These results led us to examine whether the same phenomenon would occur when learners discriminate between French-French and German-German vowels.

4. DISCRIMINATION

This next analysis was conducted to determine if cross-language similarity influenced the ability of learners to accurately discriminate between vowels in their L2 and another language to which they had never been exposed.

4.1. Methodology

Participants heard tokens spoken by the same native speakers as in the identification task. They heard two tokens and had to determine whether they were the same (i.e., French /i/-French /i/) or different (i.e., French /i/-French /u/) vowels. Vowels were presented either in dV or isolated vowel tokens.

4.2. Data Analysis and Results

The number of correct responses for each vowel pair for each participant were submitted to a series of two (learner group x vowel) or (language x vowel) ANOVAs. These analyses revealed the following:

1. French learners were more accurate at discriminating their vowels than German learners were at discriminating German vowels ($F=15.51$, $p<.0001$).
2. German learners were not more accurate than French learners at discriminating German vowels

- ($F=0.583$, $p>.45$).
- French learners were more accurate at discriminating French than German vowels ($F=8.89$, $p<.0001$).
 - German learners were not more accurate at discriminating German than French vowels ($F=1.19$, $p>.43$). (cf. Figures 3-4).

4.3. Discussion

The findings of the discrimination study also support the predictions based on the findings of the cross-language similarity task. First, French learners were more accurate at discriminating their L2 (French) vowels than were German learners at discriminating their L2 (German) vowels. Surprisingly, French learners were also equally accurate at discriminating German vowels as were the German learners, even though the French learners had never been exposed to German before this study. By contrast, however, the German learners were not as accurate as the French learners at discriminating French vowels.

Figure 3: French (black bars) and German (white bars) learners' accuracy discriminating between pairs of French vowels

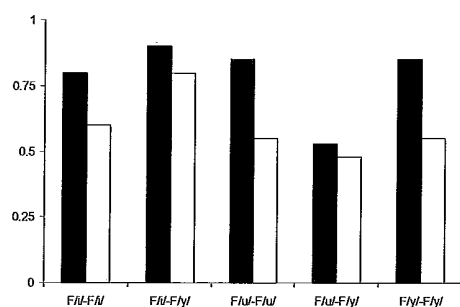
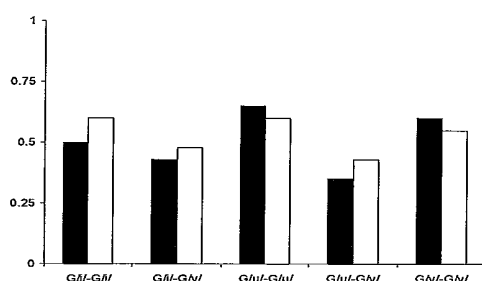


Figure 4: French (black bars) and German (white bars) learners' accuracy discriminating between pairs of German vowels



5. DISCUSSION AND CONCLUSIONS

This study investigated the role of cross-language similarity in the ability to identify and discriminate L2 vowels and vowels in a novel L3 language. The results of this study suggest that just because two non-native languages share the phonemic categories, it does not necessarily follow that learners will be able to identify and discriminate these vowels with equal accuracy. In other words, it is fine-tuned distinctions between two L2s that lead to differences in how accurately learners are able to perceive (and eventually learn) L2 sounds.

Furthermore, it appears that the degree of cross-language similarity between an L1 and L2 may influence the ability to accurately perceive similar vowels in an L3. We found that learners exposed to an L2 with a greater perceived distinction between L1 and L2 vowels were better able to accurately perceive the same vowels (i.e., those transcribed using the same IPA symbols) in a third language.

Further research will investigate in more detail how one second language can actually facilitate the perception and production of vowels in a third language.

6. REFERENCES

- [1] Flege, J. 1995. Second-language speech learning: Theory, findings, and problems. In: Strange, W. (ed.) *Speech perception and linguistic experience: Theoretical and methodological issues*. Timonium, MD: York Press. 233-277.
- [2] Jacewicz, E. 1999. Phonological context in the acquisition of second language vowels. Ph.D. Dissertation, University of Wisconsin, Madison.
- [3] Strange, W., O.-S. Bohn, K. Nishi, S.A. Trent. 2006. Contextual variation in the acoustic and perceptual similarity of North German and American vowels. *J. Acoust. Soc. Am.* 118, 1751-1762.
- [4] Strange, W., O.-S. Bohn, S.A. Trent, K. Nishi. 2004. Acoustic and perceptual similarity of North German and American English vowels. *J. Acoust. Soc. Am.* 115, 1791-1807.