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ACQUISITION OF L2 PHONOLOGY IN ADVANCED LEARNERS: DOES INSTRUCTION MAKE A DIFFERENCE?

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Research in second language phonology suggests that direct pronunciation instruction may improve students' pronunciation (Derwing, Munro & Wiebe, 1997; 1998; Lord, 2005). For example, Lord's (2005) study of the instructional effects of a Spanish phonetics course on advanced Spanish learners' acquisition of phonology showed that learners improved in their pronunciation over the course of a semester, but one of the study's limitations was that there was no control group. Therefore, it is unclear whether improvement was related to the phonetics course, or merely a result of being enrolled in any advanced Spanish course.

This study presents a preliminary analysis of one feature, Spanish stress, based on a replication of Lord's (2005) study, but includes a control group enrolled in advanced Spanish courses (n = 17), as well as the experimental group enrolled in a Spanish phonetics course (n = 11). All participants were enrolled in third and fourth year Spanish courses; they completed an initial recording during the first four weeks of the semester, and a final recording during the last four weeks of the semester. Results indicate that the students who most need pronunciation instruction are not enrolled in phonetics classes.

INTRODUCTION

As many researchers in L2 phonology have noted over the last fifteen years or so (Arteaga, 2000; Derwing & Munro, 2005; Elliott, 1997; González-Bueno, 2001; Hurtado & Estrada, 2010; Levis, 2005; Lord, 2005; Morin, 2007), pronunciation has been largely neglected in the L2 classroom. While there are undoubtedly a variety of reasons for this, Derwing & Munro (2005) note that the trend away from teaching pronunciation can probably be principally attributed to a shift away from audiolingualism, as well as a result of research emerging in the late 1960s and early 1970s suggesting that it was impossible for post-pubescent learners to acquire a native-like accent. Furthermore, communicative language teaching de-emphasizes drills of the kind that are usually used to practice pronunciation (repetition, for example).

However, this shift away from teaching pronunciation has left language learners at a disadvantage, because they are not being taught pronunciation in traditional language classrooms. As Levis (2005) and Derwing & Munro (2009) note, there is now an accent reduction industry, which promises to eliminate foreign accent, but there is no research in L2 pronunciation pedagogy to support the claims of the industry; the majority of the evidence instead indicates that attainment of a native accent in a second language is not a realistic goal for most language learners.

Nonetheless, this should not result in pronunciation instruction being excluded from the curriculum. The very existence of an industry promising (however fraudulently) to eliminate foreign accent indicates that learners want to improve their own pronunciation.[1] Moreover,

while not all aspects of pronunciation must be accurate in order for a speaker to be intelligible, there must certainly be some minimal degree of competence in pronunciation in order for communication to occur. For example, in a beginning Spanish classroom discussing weekend activities, a student was asked if he washed clothes on Saturdays. ("¿Lavas la ropa los sábados?") The student responded, befuddled, "Did you just ask me if I wore clothes on Saturdays?" (He was promptly reassured that the question was asking him if he *washed* clothes on Saturdays.) In Spanish, the verb "lavar" is "to wash," and the verb "llevar" is "to wear." The phonological similarity leads many students to mispronounce both words, to the point that they misinterpret basic questions in bizarre (though funny) ways.

By themselves, the communicative importance of pronunciation and learners' desires to master it is still not enough to justify its inclusion in foreign language instruction; we must also see evidence that teaching pronunciation is effective. Recent research investigating a number of features in various languages at different levels of instruction has shown that teaching pronunciation produces improvement.

In Spanish, Elliott (1997) and González-Bueno (1997) examined the effects of instruction on pronunciation in beginning and intermediate language courses. While participants did not demonstrate improvement in all of the features that were studied, they did demonstrate improvement in some of them. Also in Spanish, Lord (2005) investigated the effects of instruction on the pronunciation of students enrolled in a Spanish phonetics course. There were 17 learners enrolled in an upper-division Spanish phonetics course, as well as 10 native Spanish speakers that served as a control group. The study targeted various segmental features in Spanish, and the results indicated that although learners were still easily distinguishable from native speakers after a semester of instruction, their pronunciation improved noticeably over the course of the semester.

Lord (2008), Hahn (2004), Wang, Spence, Jongman, and Sereno (1999), and Derwing, Munro & Wiebe (1997, 1998) all examined instructional effects on acquisition of suprasegmental features in various languages (Spanish, English, and Mandarin), and participants in all studies demonstrated improvement after training.

The present study is a replication of Lord's (2005) study investigating the effects of instruction in a Spanish phonetics course. As noted above, results indicated that students improved their pronunciation over the course of the semester, but an important limitation of the study was the lack of a control group. Although it is extremely probable that the pronunciation instruction was the catalyst for improvement, without a control group, it is impossible to know for certain. With this in mind, the objective of the current study was to investigate whether improvement in pronunciation would occur in learners enrolled in a Spanish phonetics course, and if so, whether that improvement could be attributed to the phonetics course, or to being enrolled in any upper-level Spanish course. Features targeted for analysis in the full study include both segmental and suprasegmental features, but the current study focuses on lexical stress.

METHOD

Participants

Participants were 28 Spanish majors and minors at a large, public Midwestern university. The experimental group was made up of students enrolled in Spanish phonetics (n=11), and the control group (n=17) consisted of students enrolled in other upper-level Spanish courses. Most students in both groups were enrolled in at least two Spanish courses. Participants in the experimental group completed the tasks as part of their regular coursework; students in the control group made individual appointments with the researcher to make the recordings, and received a set of Spanish flashcards as compensation for their participation.

Design

The same text that was used in the Lord (2005) study was used for the present study (Appendix A). All participants completed pre-test and post-test recordings of the text. The variable under investigation for the current analysis was accuracy of stress placement. In order to judge stress placement, the researcher counted the number of words in the text with lexical stress containing two or more syllables (106 total), and totaled the number of words with incorrect stress placement for each participant on the basis of auditory discrimination.[2]

Procedure

Students enrolled in the Spanish phonetics course submitted a total of seven recorded homework assignments as part of their regular homework. The first and last recordings were the pre-test and post-test recordings of the experimental text. The researcher recruited students from other third and fourth-year Spanish courses to arrange appointments to record the text. All pre-test recordings were completed during the first three weeks of the semester, and all post-test recordings were completed during the final three weeks of the semester.

Over the course of the semester, students enrolled in the phonetics course received instruction on various aspects of Spanish pronunciation, including vowels, consonants, allophonic variation, stress, intonation, and dialectal variation. In addition to completing the seven recorded homework assignments, they took quizzes nearly every week on the content discussed during the previous week, and completed six written homework assignments, which included identifications, transcriptions, definitions, and more. Participants in the control group were enrolled in a variety of courses, such as literature, civilization, composition and conversation. None of the courses included regular, specific pronunciation instruction (though incidental pronunciation guidance may have occurred).

RESULTS AND DISCUSSION

Results from pre-test comparisons indicated that the experimental group was more accurate at producing correct word stress than the control group at the outset of the experiment (see Table 1). An independent samples t-test demonstrated that this difference was statistically significant ($t(26) = -2.23$, $p = .03$). Accuracy ratings for each group indicated that the experimental group produced correct word stress at a rate of 96.83% (102.64/106 words), and the control group produced correct word stress at a rate of 93.34% (98.94/106 words). While these figures are very high, they are interesting in light of the fact that Spanish stress is almost completely predictable based on orthography, and the words included in the experimental text did not present any exceptions. More interesting still is the fact that students enrolled in the phonetics

class already produced word stress with greater accuracy than the control group at the outset of the experiment. As is the case in many institutions, Spanish phonetics is an elective course, and is not required to graduate with a major or minor in Spanish. It is not a big surprise, then, that the students enrolled in the class demonstrated more pronunciation accuracy than those students who were not enrolled in the class; they selected the elective course out of an interest in improving their pronunciation, and this interest had already distinguished them from peers enrolled in other classes.

Table 1. *Pre-test means of accurately stressed words by group*

Group	N	Mean	SD	Accuracy rating
Experimental	11	102.64	3.26	96.83%
Control	17	98.94	4.80	93.34%

Possible total of 106 words.

Difference between groups was statistically significant ($t(26) = -2.23$, $p = .03$)

Post-test results revealed a similar pattern. Neither group demonstrated improvement in accuracy of stress production from pre-test to post-test, which was expected for the control group given the lack of instruction. However, considering the high accuracy rates of both groups, but especially of the experimental group, on the pre-test, it is probable that the lack of results is due to a ceiling effect. As Table 2 shows, the mean accuracy for the experimental group went up by .09, from 102.64 to 102.73, and the mean accuracy for the control group stayed the same at 98.94. A repeated measures ANOVA showed an effect for group ($F(1,26) = 5.33$, $p = .03$), but not for time ($F(1,26) = 0.01$, $p = .92$). Analyses of other features are still in progress, and will hopefully reveal improvement in the experimental group, especially in areas where there is more room for improvement. In particular, based on observations made while grading recorded homework assignments, participants will probably demonstrate improvement in vowel quality over the course the semester.

Table 2. *Pre-test and post-test means of accurately stressed words by group*

Group	N	Pre-test mean	Pre-test SD	Pre-test accuracy rating	Post-test mean	Post-test SD	Post-test accuracy rating
Experimental	11	102.64	3.26	96.83%	102.73	3.64	96.92%
Control	17	98.94	4.80	93.34%	98.94	4.76	93.34%

Possible total of 106 words.

Repeated-measures ANOVA indicated a difference between groups ($F(1,26) = 5.33$, $p = .03$), but no effect for time ($F(1,26) = 0.01$, $p = .92$)

Given the ceiling effect evident in the experimental group results, these results are not as discouraging as they otherwise would be. Rather, a key area of concern seems to be the self-selection bias that appeared in the experimental group. Specifically, the fact that students in the control group chose not to enroll in the Spanish phonetics course is a challenge for pronunciation instruction, since these students are the ones who need instruction the most. As in many programs, pronunciation is not emphasized in beginning Spanish language courses. While there are probably many reasons for this, one of the main reasons is almost certainly the relative orthographic transparency of Spanish; there are only five pure vowels, and most letters only correspond to one sound. Since there are many possible topics for instruction, the relative transparency of the Spanish alphabet means that instructors feel more comfortable omitting this information from their classroom instruction, and students who choose not to take Spanish phonetics may acquire a degree in Spanish without ever receiving pronunciation instruction.

The lack of pronunciation instruction throughout the curriculum means that students in upper-level Spanish courses, such as the phonetics course, arrive with entrenched errors in pronunciation. For example, although the participants enrolled in the phonetics class performed better than participants not enrolled in the phonetics class, there were a number of problems in the pronunciation of vowels. For example, a number of students reduced many unaccented vowels to [□], reduced /i/ to [∩], /o/ to [˙·.] or [□], and frequently pronounced /u/ as [ju]. Given that there are only five vowels in Spanish, the degree to which the mis-pronunciation of vowels predominated in the phonetics course was astonishing. Because a substantial amount of time needed to be dedicated to correcting students' pronunciation of vowels, there was considerably less time to discuss and practice other features in the amount of detail originally planned.

Within the broader framework of SLA research, these results appear to corroborate Schmidt's (1990) Noticing Hypothesis, as well as work done by Leow (2000), which indicates that learners must be aware of a feature in order for it to become part of their linguistic system. Although the study was not designed to investigate attention and awareness, it appears that an awareness of the need to improve their pronunciation prompted students to enroll in the phonetics course. This awareness may be the reason for which students in the phonetics course displayed more accuracy in pronunciation at the outset than students not enrolled in the phonetics course. While there are indubitably many reasons why a student would choose not to enroll in a phonetics course, it is likely that a key reason is the belief that the course will not be beneficial; in other words, students are unaware of how far their pronunciation deviates from the norm and thus have no motivation to work on it.

The pedagogical implications of the results point to the need for pronunciation instruction integrated throughout the curriculum in second language instruction. At a minimum, in a language such as Spanish with only five vowels, students should not be systematically mispronouncing vowels at advanced levels of instruction. However, there is no easy solution to this problem. Derwing & Munro (2009) have noted that most language teachers do not learn how to teach pronunciation when they learn to teach other features in the language, and thus do

not feel comfortable or able to provide pronunciation instruction. Burgess & Spencer (2000) reported that even teachers enrolled in master's-level courses felt "ignorant of phonology, though they are aware of the need for helping learners with their pronunciation" (p. 207). Morin (2007) specifically notes the lack of preparation in teaching pronunciation for students planning to teach Spanish.

In order to address this issue, language education programs need to include pronunciation instruction in their curricula so that teachers are trained to work with students to improve pronunciation at all levels of language instruction. This would ideally prevent a number of pronunciation errors from becoming entrenched, and would allow an upper-level phonetics course to provide advanced, rather than remedial instruction to correct ingrained errors.

Another possible solution for language programs is to make a phonetics course (or another course focusing on pronunciation) a requirement in programs for foreign language majors and minors. While student evaluations indicated that most students did not care for the more theoretical parts of the course, all students felt that the pronunciation instruction given was valuable, and several students indicated that they had never received any type of pronunciation instruction in previous classes. One student commented: "I found this course to be more practical than some others that are required for Spanish majors. It helps with pronunciation and various problems of native [*sic*] speakers. In my opinion and experience, I have gained much more from it than literature classes." Another student noted that the class was very helpful, but that "I thought this was stuff I needed to know in my 2000 level [second-year] courses."

One possible solution for teachers wishing to offer pronunciation instruction but that feel unable to teach it is to give assignments that focus on pronunciation. For example, an instructor might make a recording of a native speaker reading a word list, series of sentences, or a short paragraph, and make the recording available to students. Students would then be required to listen to the recording and be directed to match target sounds as closely as possible. As technology continues to develop and become more affordable and accessible to non-specialists, it may also be possible to automate pronunciation training.

LIMITATIONS

As with any study, there are limitations that need to be addressed in future studies. One key limitation of this finding was that the number of Spanish classes that each student had taken and was taking at the time of the study was not controlled, and therefore, it is possible that the students enrolled in the phonetics course simply had the advantage of having completed more instructional hours in Spanish than students in the control group. For future studies, it would be advisable to collect background data about students' experience with Spanish in order to control for the amount of exposure to the language.

In addition, for future studies it may be worthwhile to collect survey data on attitudes and beliefs about acquiring L2 pronunciation. As an anonymous reviewer noted, it may be that students who chose not to enroll the phonetics course simply believed that it ultimately would not improve their pronunciation, and while research results in the broader SLA community indicate that instruction can improve pronunciation, the results of this particular study do not contradict that belief.

CONCLUSIONS

While recent research has indicated that pronunciation instruction is effective, it is still largely absent from language instruction at all levels. Because courses in phonetics for foreign language majors are often electives, and not required courses, many of the students who would benefit most from pronunciation instruction may choose not to take the course, and may graduate with a degree in a foreign language without being able to pronounce basic sounds correctly. To remedy this situation, as Derwing & Munro (2005) note, there is a need for more research on teaching pronunciation, as well as for more collaboration between researchers and teachers, so that research findings inform teaching practices.

NOTES

1. As an anonymous reviewer pointed out, the accent reduction industry is almost exclusively aimed at reducing a foreign accent in English. The lack of this industry in other languages is probably due to the fact that English is currently the international business language, and thus generates the largest amount of revenue. However, it may indicate that learners of other languages do not care if their speech is accented.

2. Analyses of other features are being conducted using the program Praat, as well as native speaker rater judgments, and are still in progress.

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APPENDIX A

Text read by participants

Poco a poco, a medida que la noche fue avanzando, la presencia de la fotografía empezó a hacerse más molesta y obsesiva cada vez. Concentré la mirada en la espiral del fuego. Cerré los ojos tratando de dormir. Pero todo era inútil. Los ojos amarillos de Sabina me miraban. Su soledad antigua se extendía como una mancha húmeda por toda la pared. Pronto entendí que la tranquilidad y el sueño de horas antes serían ya imposibles mientras aquel viejo retrato siguiera frente a mí. La perra despertó sobresaltada, y se quedó mirándome sin entender muy bien. Yo estaba ya junto al escaño, nervioso y aturdido, pero dispuesto a poner fin a aquella situación. El recuerdo cercano de la soga me empujaba. El temor a la locura y al insomnio había comenzado a apoderarse de mí. Cogí el retrato entre las manos y lo miré otra vez: Sabina sonreía con una gran tristeza, sus ojos me miraban como si aún pudieran ver. Y, en la desolación extrema de aquel andén vacío – vacío para siempre -, su soledad de entonces atravesó mi corazón. Sé que nadie jamás me creería, pero, mientras se consumía entre las llamas, su voz inconfundible me llamaba por mi nombre, sus ojos me miraban pidiéndome perdón.

From *La lluvia amarilla*, by Julio Llamazares, Quoted from Lord (2005)