

- Picoche, J. : *Précis de lexicologie française*. Paris : Éditions Nathan, 1977.
- Picoche, J. : « Un essai de lexicologie guillaumienne : la locution figée comme révélateur du signifié de puissance des polysèmes. » *La locution. Actes du colloque international Université McGill, Montréal, 15-16 octobre 1984*. Éditeurs : G. Di Stefano & R. G. McGillivray. *Le Moyen Français 14-15* (1984) : 103-118. Montréal : Éditions Ceres.
- Picoche, J. : *Structures sémantiques du lexique français*. Paris; Editions Nathan, 1986.
- Picoche, J. : « Étude psychomécanique des grands polysèmes et propositions pour un dictionnaire. » *Actes de Langue Française et de Linguistique - Symposium on French Language and Linguistics*, vol. 3-4 (1991-1992) : 13-21. Halifax, NS, Canada.
- Picoche, J. : « Une terminologie lexicale d'inspiration guillaumienne. » *Actes de Langue Française et de Linguistique - Symposium on French Language and Linguistics*, vol. 7-8 (1994-1995) : 401-12. Halifax, NS, Canada.
- Rouget, Chr. : *Distribution et sémantique des constructions Nom de Nom*. Paris : Honoré Champion, 2000.
- Ruhl, Ch. : *A study in linguistic semantics*. Albany : State U of New York P, 1989.

## Study Abroad Learners' Acquisition of the Spanish Voiceless Stops

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### 1. Introduction

This investigation addresses the need for research in the acquisition of the pronunciation of Spanish by English-speaking adults learning Spanish as a second language (L2) in a study abroad context. Specifically, it examines the relationship between second language acquisition (SLA) and the sociolinguistic environment by comparing the L2 pronunciation of students learning Spanish in Madrid, Spain, and "at home" in an American university setting. Through the qualitative and quantitative analysis of L2 Spanish phonetic data from at home and study abroad learners, this study seeks to provide empirical evidence that demonstrates the advantage of acquiring L2 Spanish pronunciation in a study abroad environment.

One of the central issues debated by SLA researchers in recent years has been whether learners acquire an L2 better by formal instruction or by comprehensible input alone. Comprehensible input refers to target language (TL) that is both meaning-bearing, in the sense that it has a clear communicative intent, and comprehensible, in that learners are able to understand all or most of the intended message. According to Lee and Van Patten (1995), comprehensible input is the crucial ingredient in successful SLA because

features of language, be they grammar, vocabulary, pronunciation, or something else, can only make their way into the learner's mental representation of the language system if they have been linked to some kind of real-world meaning. If the input is incomprehensible or if it is not meaning-bearing, then these form-meaning connections just don't happen (38).

Comprehensible input is a key component of "communicative language teaching," which refers to a variety of approaches used widely in the United States and Europe for the teaching of English as a second language and foreign languages. These approaches all share an emphasis on the appropriate use of language rather than explicit knowledge of language in settings that strive to recreate the natural conditions of the real world.

The empirical studies that have specifically examined the effect of phonological instruction for adult learners within a communicative context offer mixed, and often contradictory, findings. Suter (1976), for example, found no apparent relationship between pronunciation ability and phonological instruction. Other researchers, however, have reported finding beneficial effects on pronunciation (e.g., Elliott 1997; Murakawa 1981; Neufeld and Schneiderman 1980). Elliott (1995b) suggested that instruction might have possible negative effects on pronunciation by causing students to overgeneralize, while not teaching sounds could have little or a slight non-significant effect on pronunciation.

In the absence of phonological instruction, increased L2 input may have a positive effect on the pronunciation of adult learners. For example, McCandless and Winitz (1986, 361) found that "extensive auditory input in the beginning stages of second language learning results in improved pronunciation relative to traditional procedures of language instruction." Positive effects of listening on pronunciation were similarly shown by Neufeld (1978) and Burling, Becker, Henry, and Tomasova (1981). Given these results, one might expect that communicative language teaching's emphasis on extensive use of the TL should indirectly improve pronunciation. According to Elliott (1995b), this may partially explain his finding that not teaching pronunciation did not result in significantly worse pronunciation in a communication-based classroom. Nevertheless, Elliott did note that, contrary to McCandless and Winitz (1986), "pronunciation, when not formally taught, remained relatively stable in spite of the high degree of input the learners processed" (536).

In a study that specifically addressed the teaching of Spanish pronunciation in a communicative approach, Terrell (1989, 208) claimed that "learners will acquire a sound system better with meaningful input than with artificial exercises designed to focus on certain sounds or sound patterns." He admits, however, to having "no hard evidence to support or reject this conclusion" (208). Terrell based his assertion on studies that

have indicated that, whereas older children and adults are initially better than younger children in acquiring L2 pronunciation, with increased exposure and experience, younger children "catch up" and eventually surpass both adolescents and adults. The cognitive advantage of adults provides strategies that allow the older learner to communicate quickly in the TL. Younger children who do not possess the same level of cognitive development as adolescents or adults must attend to input for a longer period of time before attempting to speak. According to Terrell, the fact that children acquire a new sound system perfectly (without formal instruction), while adults rarely do, may justify the division of language acquisition into stages, the first being a period in which the learner would concentrate on listening and comprehension skills without the extra pressure of having to speak.

Terrell further supported his claim that learners will acquire the L2 sound system better with meaningful input than with explicit instruction by presenting the conclusions of an "informal" error analysis of three informants acquiring L2 Spanish. The subjects were native English-speaking adults who had never studied Spanish in a classroom. They had acquired Spanish in a "natural" context, in this case, by living in the Dominican Republic. The results of Terrell's analysis suggested that it is possible for English-speaking adult learners to acquire native-like L2 Spanish pronunciation with only natural input and no formal instruction.

More recently, Elliott (1997), responding to Terrell's (1989, 209) earlier warning that "only empirical research can determine the extent to which instruction can affect the acquisition of phonology," compared the effect of formal instruction on the gains in L2 pronunciation of American English-speaking students of Spanish. Elliott showed that the L2 Spanish pronunciation of an experimental group that received explicit instruction in pronunciation improved significantly compared to a control group that received no such instruction. These results appear to refute Terrell's assertion that learners acquire L2 pronunciation better with comprehensible input alone than with explicit instruction and suggest that adult learners can benefit from the teaching of pronunciation within the communicative framework.

The present investigation seeks to contribute to the above research by examining the pronunciation acquisition of a special type of L2 language learner—the study abroad learner. Because study abroad students are immersed in an environment in which they use the TL on a daily basis

real-life communicative situations with native speakers, these learners are exposed to a much greater amount of TL input in general, and comprehensible input in particular, than at home learners. It is predicted that this increase in the opportunity to both hear and produce the TL will result in greater improvement in L2 pronunciation accuracy for study abroad learners compared to at home learners. In order to test this hypothesis, Madrid study abroad learners and Los Angeles at home learners will be compared in their acquisition of a subset of sounds considered particularly difficult for English-speaking learners, the Spanish voiceless stops.

Although both English and Spanish contain a series of stop phonemes distinguished by voicing—voiced /b d g/ contrasted with voiceless /p t k/—important differences exist between them in terms of VOT, or *voice onset time* (Lisker and Abramson 1964). VOT refers to the time interval that occurs between the release of the articulators and the onset of vocal cord vibration. Whereas the English voiceless stops are said to be “long-lag” stops produced with relatively long VOT values, the English voiced stops are considered to be “short-lag” stops produced with short VOT values. The Spanish voiceless stops are also produced with short-lag VOT values, while their voiced counterparts are realized with lead voicing (or prevoicing), in which the vocal chords begin vibrating before the release of the articulators. The differences between the English and Spanish stops are illustrated in Table 1, which gives the mean VOT production values, as well as the range of VOT values for English and Spanish stops, as reported in a classic study by Lisker and Abramson (1964). Despite the fact that the English and Spanish stops share the same representation in the International Phonetic Alphabet, Table 1 reveals significant differences between them in terms of VOT. In regard to the voiceless stops, this difference in VOT is audible as the presence or absence of aspiration: Whereas the English voiceless stops are aspirated, especially word-initially and in the onset of a stressed syllable, the Spanish voiceless stops never are.

The specific hypothesis to be tested here is the following: The L2 Spanish pronunciation of American English-speaking adult learners who studied Spanish in Madrid will show significant improvement in terms of the reduction in VOT of the voiceless stops, whereas at home learners who studied at an American university in Los Angeles will not, because the study abroad learners had greater exposure to, and increased opportunities to produce, spoken Spanish.

Table 1. Mean VOT Measurements (in ms) for English and Spanish Stops (Lisker and Abramson 1964)

Stop	English		Stop	Spanish	
	Mean VOT	Range		Mean VOT	Range
/p/	58	20 / 120	/p/	4	0 / 15
/t/	70	30 / 105	/t/	9	0 / 15
/k/	80	50 / 135	/k/	29	15 / 55
/b/	1	0 / 5	/b/	-138	-235/-60
/d/	5	0 / 25	/d/	-110	-170/-75
/g/	21	0 / 35	/g/	-108	-165/45

Note. Positive values indicate voicing lag; negative values indicate prevoicing.

## 2. Method

In order to test the above-stated hypothesis, an experimental study was designed to examine the production of word-initial Spanish voiceless stop consonants by L2 learners studying in Madrid and in Los Angeles. The participants were 22 students from the University of Southern California (USC), all native speakers of English, who denied ever having received any specific instruction in Spanish pronunciation. The subjects were categorized into one “at home” control group and two “study abroad” experimental groups.<sup>1</sup> The Los Angeles control group consisted of 13 beginning learners (4 males, 9 females) enrolled in a sixteen-week second-semester Spanish language course at the USC campus in Los Angeles. One of the Madrid experimental groups was composed of intermediate learners (3 males, 2 females) enrolled in a seven-week intermediate-level Spanish course in USC's Madrid Summer Program. The other experimental group was comprised of 4 advanced learners (all females) enrolled in a sixteen-week program that combined upper-division courses in Spanish language, literature, and culture, studying in Madrid under the

auspices of Boston University.

Sample recordings of the subjects' pronunciation of the Spanish voiceless stops while performing two different speech tasks were taken from both a pretest and a posttest. One of these tasks consisted of the reading of a list of Spanish words containing /p t k/ in contexts in which they would be aspirated in English; that is, word initially and in the onset of a stressed syllable. The other task was a story-telling exercise in which subjects recorded themselves describing the same scene in a stimulus picture.<sup>2</sup> The stimulus items on the word list task were the same for both the pretest and the posttest. The word list task elicited 2 tokens of each stop, rendering a total of 12 tokens per individual for both tests. The speech data for the story-telling task varied per individual and differed between the pretest and the posttest due to the open-ended nature of the task. However, on average the subjects produced 19 tokens each of voiceless stops in contexts where they would be aspirated in English. The pretest was administered to the Madrid summer session group and the Los Angeles group during the first week of instruction. The Madrid semester group took the pretest a few days prior to departure for Spain. All subjects were then tested a second time during the final week of classes, whether in Madrid or Los Angeles.

The speech data were digitized and analyzed acoustically using the *Praat for Phonetics* speech analysis computer software. Waveforms were generated and inspected for each token. The VOT value of each stop was measured beginning with the release of the articulators and ending with the onset of vocal-fold vibration. Measurement reliability was assessed by creating a second set of waveforms, using the original corpus of data, for each of the three stops produced by five randomly selected subjects. The VOT values of these 15 stops were measured and compared to the values of the original waveforms. The mean difference between the two sets of measurements was minimal, averaging 1.5 ms, with a range of 0.0 to 3.0 ms.

### 3. Results

In order to evaluate the improvement in the subjects' pronunciation of Spanish /p t k/ in terms of reduction in VOT, a series of paired-samples *t* tests was performed. The first of these measured the mean difference in VOT between the pretest and the posttest for /p/. The results, represented graphically in Figure 1, indicated that all three subject groups experi-

enced a mean reduction in VOT. This reduction was significant for the two Madrid groups at the  $p < .05$  level and approached significance for the Los Angeles group.<sup>3</sup> For the Los Angeles group, the mean difference was -5.73 ms between the pretest ( $M = 56.16$ ,  $SD = 25.62$ ) and the posttest ( $M = 50.43$ ,  $SD = 21.21$ ),  $t = -1.91$ ,  $p = .061$ . For the Madrid summer group, the mean difference was -16.32 ms between the pretest ( $M = 43.39$ ,  $SD = 16.38$ ) and the posttest ( $M = 27.07$ ,  $SD = 12.10$ ),  $t = -5.88$ ,  $p <$

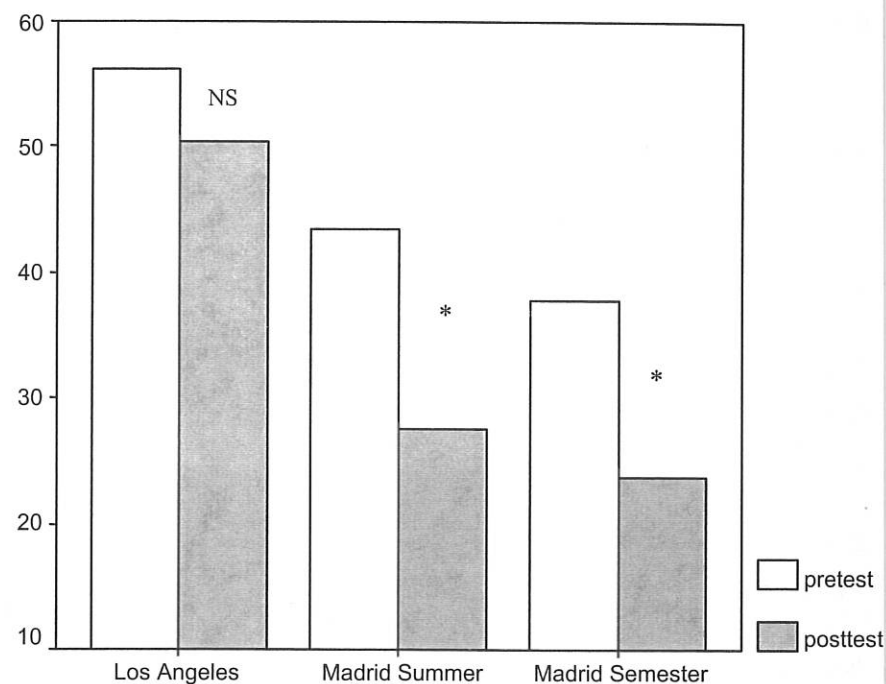


Figure 1. Mean Reduction in VOT (in ms) for /p/, by Group (Note. NS indicates non-significant differences between pairs of means; an asterisk [\*] indicates significance.)

.001. The Madrid semester group registered a mean difference of -13.95 ms between the pretest ( $M = 37.77$ ,  $SD = 16.74$ ) and the posttest ( $M = 23.82$ ,  $SD = 11.01$ ),  $t = -4.92$ ,  $p < .001$ . An ANOVA was conducted in order to evaluate whether the mean reduction in VOT differed significantly among the groups. This test proved to be non-significant,  $F = 2.87$ ,  $p = .061$ .

The results of the paired-samples  $t$  test for /t/ are presented graphically in Figure 2. The results indicated that all three groups experienced a significant change in mean.

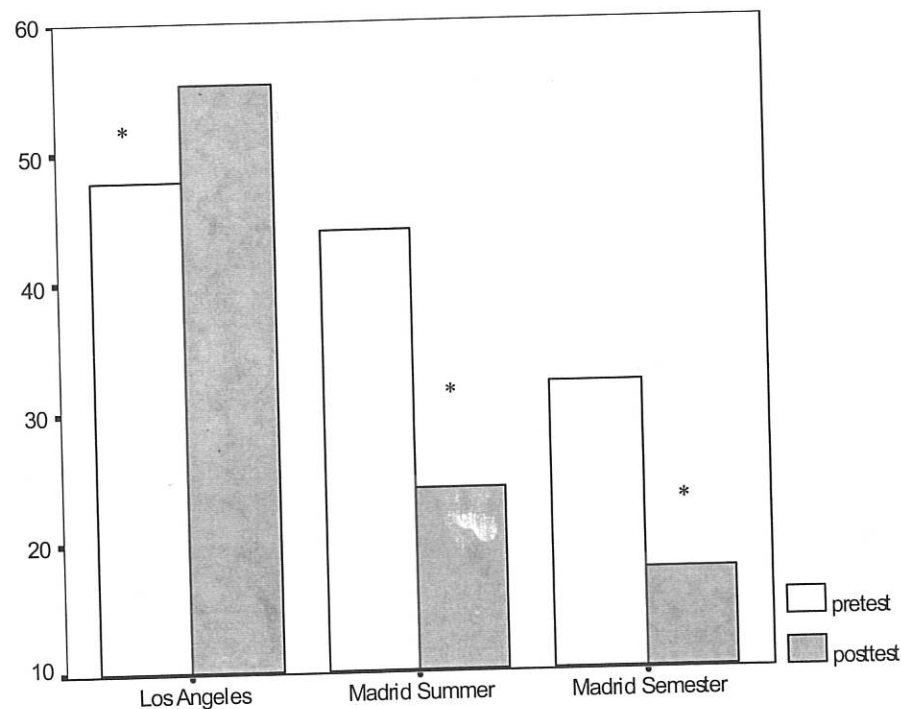


Figure 2. Mean Difference in VOT (in ms) for /t/, by Group (Note. An asterisk [\*] indicates significance.)

VOT between the pretest and the posttest. However, whereas the two Madrid groups showed improvement in /t/ by a reduction in mean VOT,

the Los Angeles group experienced a worsening in the accuracy of the sound as evidenced by its increase in VOT. For the Los Angeles group the mean difference was 7.31 ms between the pretest ( $M = 47.81$ ,  $SD = 20.98$ ) and the posttest ( $M = 55.13$ ,  $SD = 29.40$ ),  $t = 2.49$ ,  $p = .016$ . For the Madrid summer group, the mean difference was -20.00 ms between the pretest ( $M = 43.96$ ,  $SD = 21.54$ ) and the posttest ( $M = 23.96$ ,  $SD = 8.10$ ),  $t = -4.825$ ,  $p < .001$ . The Madrid semester group evidenced a mean difference of -14.37 ms between the pretest ( $M = 32.08$ ,  $SD = 14.39$ ) and the

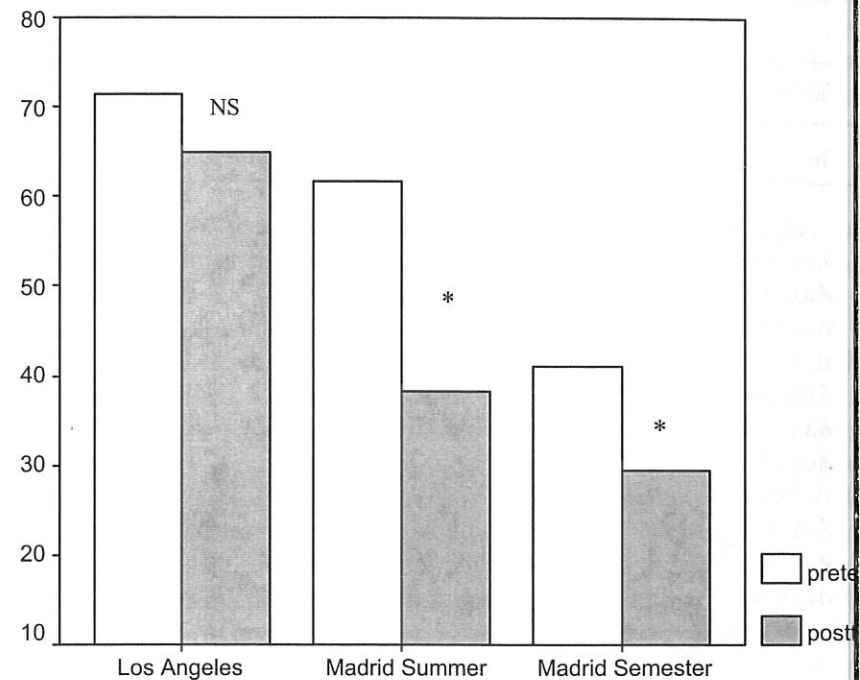


Figure 3. Mean Reduction in VOT (in ms) for /k/, by Group (Note. NS indicates non-significant differences between pairs of means; an asterisk [\*] indicates significance.)

posttest ( $M = 17.71$ ,  $SD = 5.92$ ),  $t = -5.30$ ,  $p < .001$ . As above, an ANOVA was performed to evaluate the relationship between the mean change in VOT of /t/ and group of subjects. The ANOVA test was significant,  $F = 20.26$ ,  $p < .001$ . Follow-up tests indicated that the differences in mean VOT reduction between the Los Angeles group and the two Madrid groups were significant. The differences in the means between the Madrid summer and Madrid semester groups were not significant.

The results of the paired-samples  $t$  test for /k/, shown graphically in Figure 3, indicated that all three groups evidenced a reduction in VOT. However, this reduction proved significant only for the Madrid summer and Madrid semester groups. The Los Angeles group experienced a mean difference of -6.45 ms between the pretest ( $M = 71.47$ ,  $SD = 47$ ,  $SD =$

Table 2. VOT Values (in ms) for Voiceless Stops, by Group

Group	Pretest			Posttest		
	/p/	/t/	/k/	/p/	/t/	/k/
Los Angeles						
Min. VOT	20	17	32	17	13	22
Max. VOT	121	109	135	113	126	129
Mean VOT	56	48	71	50	55	65
Mad. Sum.						
Min. VOT	18	24	36	13	11	16
Max. VOT	81	123	184	64	38	64
Mean VOT	43	44	62	27	24	39
Mad. Sem.						
Min. VOT	13	1	23	9	9	18
Max. VOT	66	66	80	54	31	45
Mean VOT	38	32	42	24	18	30

22.54) and the posttest ( $M = 65.02$ ,  $SD = 24.20$ ),  $t = -1.54$ ,  $p = .132$ . The Madrid summer group registered a mean difference of -23.19 ms between the pretest ( $M = 61.78$ ,  $SD = 34.13$ ) and the posttest ( $M = 38.59$ ,  $SD = 13.84$ ),  $t = -3.35$ ,  $p = .004$ . For the Madrid semester group, the mean difference was -12.12 ms between the pretest ( $M = 41.62$ ,  $SD = 17.57$ ) and the posttest ( $M = 29.50$ ,  $SD = 8.50$ ),  $t = -3.06$ ,  $p = .008$ . As

above, an ANOVA was conducted to evaluate whether the mean reduction in VOT differed significantly among the groups. The ANOVA test was non-significant,  $F = 2.67$ ,  $p = .075$ .

The results are summarized in Table 2, which gives the minimum and maximum VOT values as well as the mean VOT values for each of the voiceless stops for all three groups of learners on both the pretest and the posttest. Table 2 reveals that although all three groups evidenced a mean reduction in VOT for /p/, this reduction was significant for the two Madrid groups only (Los Angeles = -6 ms, Madrid summer = -16 ms, Madrid semester = -14 ms). Both Madrid summer and Madrid semester learners experienced a significant reduction in VOT for /t/ (Madrid summer = -20 ms, Madrid semester = -14 ms). Conversely, the Los Angeles learners exhibited a significant *increase* in VOT for this stop (+7 ms). Although all three groups showed a mean reduction in VOT for /k/, this reduction was significant for the two Madrid groups only (Los Angeles = -6 ms, Madrid summer = -23 ms, Madrid semester = -12 ms).

#### 4. Discussion

The results of the quantitative analysis support this study's original hypothesis: The study abroad learners did make significant improvement in acquiring the Spanish voiceless stops in terms of reduced VOT, whereas the at home learners did not.

In order to determine whether this result may have been influenced by differences in the L2 Spanish proficiency level among groups at the outset of the experimental period, a linear regression analysis was conducted to evaluate the relationship between learners' pronunciation accuracy on the pretest and the amount of their overall improvement in pronunciation accuracy between the pretest and the posttest. The results indicated that accuracy on the pretest scores and pronunciation improvement are linearly related such that as overall pronunciation ability increases the amount of improvement decreases,  $-.43$ ,  $t(697) = 12.66$ ,  $p < .001$ . This finding suggests that the higher proficiency levels of the two Madrid groups are probably not responsible for their greater improvement in pronunciation accuracy and leaves open the possibility that the improvement in pronunciation experienced by the Madrid groups may be due instead to the effect of study abroad.

It is likely that the significant gains in Spanish stop production exhibited by the Madrid summer and Madrid semester learners, as well as the

slight improvement demonstrated by the Los Angeles learners for /p/ and /k/, has to do with the type and amount of TL input received during the experimental period. The teaching methodology employed throughout the semester with the Los Angeles beginning learners used more traditional instructional techniques, such as explicit explanation of grammatical structures combined with practice using mechanical substitution and transformation drills. Pronunciation was not taught, and little effort was made to correct students' mispronunciations of the TL. The learners were, however, called upon to perform communicative activities on a regular basis. These included role play exercises, skits, and activities that forced learners to collect information from fellow students for a specific communicative purpose, such as making comparisons and contrasts or eliciting opinions to form a group consensus or foster debate.<sup>4</sup> Through such communicative activities, the Los Angeles learners were exposed to a steady stream of TL input that was both meaning-bearing and comprehensible: Meaning-bearing in the sense that the input had a clear and specific communicative intent that learners attended to; and comprehensible because learners could understand most or all of the intended message.

According to Krashen, "humans acquire language in only one way—by understanding messages or by receiving 'comprehensible input'" (1985, 2). It seems likely that the amount of comprehensible input that the Los Angeles learners received in the classroom, conversation laboratory, and "in the field" throughout the semester was sufficient to make the connections between meaning and pronunciation necessary for certain TL phonetic features to become part of the learners' mental representation, which in turn resulted in improvement, albeit non-significant, in the pronunciation of /p/ and /k/ (cf. Lee and Van Patten 1995, 38). This supports other research that suggests that increasing comprehensible input in the classroom (in the absence of explicit phonological instruction) can have beneficial effects on the pronunciation accuracy of adult learners (McCandless and Winitz 1986, 361) and that not teaching pronunciation in a communicative based classroom has no significant negative effect on TL pronunciation (Elliott 1995a, 536).

Although the Los Angeles learners showed some improvement in terms of reduced VOT for /p/ and /k/, they exhibited significantly worse pronunciation of /t/ at the end of the experimental period. This unexpected result may be related to the order in which these sounds are acquired in English as a first language (L1). It has been observed that the order of L1

stop acquisition for native speakers of English is alveolar, then labial then velar (Macken 1979, 1980; Macken and Barton 1979). According to González-Bueno (1997, 71), sounds that are acquired early in the L1 are more ingrained in the learner's phonological system and hence more resistant to change. Despite TL input sufficient to produce some improvement in /p/ and /k/, it is possible that /t/, as the first of the voiceless stops to be acquired in L1 English, is more resistant to change and thus more difficult to modify when learning L2 Spanish, at least for beginning learners. It appears likely that TL input is also responsible for the significant gains in L2 Spanish stop production achieved by the Madrid summer and Madrid semester learners. While in Madrid, the summer learners were enrolled in an intermediate-level Spanish language course that reviewed grammatical structures and placed much emphasis on writing and making oral presentations in Spanish. Communicative activities, per se, did not form part of the curriculum. This course was conducted entirely in Spanish. The Madrid summer learners also took a course in Spanish civilization, which was likewise taught entirely in Spanish. The Madrid semester learners were enrolled in advanced Spanish conversation and writing courses that employed a more traditional methodology that emphasized intensive drilling to improve speaking, writing, and reading skills. In addition, the Madrid semester learners took various courses in art history, Spanish literature, politics, and economics, all conducted in Spanish. All of the learners in the Madrid summer and semester groups lived with Spanish families while studying in Madrid. These families were instructed by the housing coordinators of both the USC and Boston University programs to use Spanish exclusively with their American lodgers.

While it is impossible to say how much of the Spanish language input the Madrid learners were exposed to may have been "comprehensible," it is clear that both the Madrid summer and Madrid semester learners had innumerable opportunities to hear and speak the TL in the classroom with their host families and Spanish friends, and with merchants, business people, and others both in Madrid and on excursions to cities and points of interest throughout Spain. The increase in the amount of TL exposure afforded by the study abroad experience appears likely to be responsible for the significant improvement in the pronunciation of the Spanish stops of the Madrid learners compared to the Los Angeles learners. In this case, increased exposure to the TL in general led to an increase in com-

prehensible input for the study abroad learners for whom understanding and producing Spanish were crucial in order to communicate successfully with native Spaniards on a daily basis. This increase in communication in Spanish consequently resulted in improved L2 Spanish pronunciation accuracy that was significant compared to the Los Angeles learners who, of course, did not benefit from the immersion effect of study abroad and who therefore experienced only modest gains in the pronunciation of /p/ and /k/.

Although the difference in amount of improvement between the Madrid summer and Madrid semester learners is not significant, the mean difference between their accuracy scores on the posttest is.<sup>5</sup> The Madrid semester group, by the end of the experimental period, has achieved a level of L2 Spanish pronunciation accuracy that is significantly higher than that of the other two groups. This result provides some evidence that the amount of time spent abroad leads to greater L2 pronunciation accuracy and supports other research that shows a positive correlation between length of residency abroad and L2 proficiency (Carroll 1967; Murakami 1980; Oller, Perkins, and Murakami 1980).

## 5. Conclusion

This study has shown that study abroad can have a positive impact on the pronunciation of L2 Spanish voiceless stops in terms of reduction in VOT. This finding underscores the connection between comprehensible input, use of the TL, and SLA. In this case, more comprehensible input and use of the TL seem to relate to increased acquisition of L2 Spanish pronunciation. The implications for language teachers would be for them to make their classrooms as rich in comprehensible input as possible, which is precisely what proponents of communicative language approaches try to do. Thus, this study validates communicative language teaching's emphasis on the use of the TL in settings that strive to simulate the conditions of the real world.

The findings of this experiment also have implications for study abroad programs. Such programs, because they provide greater opportunities for learners to actively use the TL, appear to be an effective means of learning L2 in general and of acquiring L2 pronunciation in particular. Administrators and teachers involved in study abroad programs should find ways to maximize learners' use of the TL by involving them in the TL society and culture, thereby reducing the risk that learners form

"American cliques" in which L1 English is used to the detriment of TL.

Although this study has illuminated the importance of comprehensible input and use of the TL for the acquisition of L2 pronunciation, more investigation is required to gain an understanding of how language instructors might optimize their students' successful learning of the TL pronunciation in the classroom. Such research, for example, could examine the combined effect of formal phonological instruction and study abroad, as well as how learners' changes in the perception of TL sounds may be related to their production of these sounds.

## NOTES

<sup>1</sup> The Los Angeles group of learners is not a "control group" in the strictest sense of the term because these subjects differed from the Madrid subjects with regard to their amount of previous study of Spanish, level of overall Spanish proficiency, and Spanish pronunciation ability at the onset of the experiment. In a broader sense, however, the Los Angeles learners do represent a "control group," because they are not subjected to the "effect" of study abroad as are the Madrid experimental groups of learners.

<sup>2</sup> The illustration used was from Spinelli, García, and Galvin 1990 and showed a classroom with a teacher writing on the chalkboard and several students engaged in various activities such as studying, writing, sleeping, eating, etc.

<sup>3</sup> An alpha level of .05 was used for all statistical tests. Per convention, *p* values of .000 are reported as "*p* < .001."

<sup>4</sup> The textbook used was *Puntos de partida* (Knorre, Dorwick, Pérez-Gironés, Glass, and Villarreal 1997). As part of the course syllabus, the Los Angeles learners were required to independently visit "the language conversation laboratory" approximately every two weeks for a total of six visits for the semester. These conversation labs consisted of 15-minute sessions in which students practiced speaking and listening to Spanish with a Spanish instructor and/or other students.

<sup>5</sup> This was determined by an ANOVA test that was significant,  $F = 80.99$ ,  $p < .001$ . Post-hoc comparison tests revealed significant differences among all three groups.



## WORKS CITED

- Burling, Robbins, Alton L. Becker, Patricia B. Henry, and Joyce N. Tomasova. 1981. *The Comprehensible Approach to Foreign Language Instruction*. Rowley, Mass.: Newbury House.
- Carroll, John B. 1967. "Foreign Language Proficiency Levels Attained by Language Majors near Graduation from College." *Foreign Language Annals* 1: 131-151.
- Elliott, A. Raymond. 1995a. "Field Independence/Dependence, Hemispheric Specialization, and Attitude in Relation to Pronunciation Accuracy in Spanish as a Foreign Language." *Modern Language Journal* 79: 356-371.
- . 1995b. "Foreign Language Phonology: Field Independence, Attitude, and Success of Formal Instruction in Spanish Pronunciation." *Modern Language Journal* 79: 530-542.
- . 1997. "On the Teaching and Acquisition of Pronunciation within a Communicative Approach." *Hispania* 80: 95-108.
- González-Bueno, Manuela. 1997. "The Effects of Formal Instruction on the Acquisition of Spanish Stop Consonants." *Contemporary Perspectives on the Acquisition of Spanish*. Vol. 2. Ed. William R. Glass and Ana Teresa Pérez-Leroux. Somerville, Mass.: Cascadilla. 57-75.
- Knorre, Marty, Thalia Dorwick, Ana María Pérez-Gironés, William Glass, and Hildebrando Villareal. 1997. *Puntos de partida*. 5th ed. New York: McGraw-Hill.
- Krashen, Stephen. 1985. *The Input Hypothesis: Issues and Implications*. London: Longman.
- Lisker, Leigh, and Arthur S. Abramson. 1964. "A Cross-Language Study of Voicing in Initial Stops." *Acoustical Measurements*. *Word* 20: 384-422.
- Macken, Marlys. 1979. "Developmental Reorganization of Phonology: A Hierarchy of Basic Units of Acquisition." *Lingua* 49: 11-49.
- . 1980. "Aspects of the Acquisition of Stop Systems: A Cross-Linguistic Perspective." *Child Phonology: Perception and Production*. Vol. 1. Ed. Grace H. Yeni-Komshian, James F. Kavanaugh, and Charles A. Ferguson. New York: Academic Press. 143-168.
- Macken, Marlys, and David Barton. 1979. "The Acquisition of the Voicing Contrast in Spanish: A Phonetic and Phonological Study of Word-Initial Stops, as Measured by Voice Onset Time." *Journal of Child Language* 7: 41-74.
- McCandless, P., and H. Winitz. 1986. "Test of Pronunciation Following One Year of Comprehension Instruction in College German." *Modern Language Journal* 70: 355-362.
- Murakawa, H. 1981. "Teaching English Pronunciation to Japanese Adults." Diss. Univ. of Texas, Austin.
- Murakawa, Mitsushisa. 1980. "Behavioral and Attitudinal Correlates of Progress in ESL by Native Speakers of Japanese." *Research in Language Testing*. Ed. John Oller and Kyle Perkins. Rowley, MA: Newbury. 227-32.
- Neufeld, Gerald G. 1978. "A Theoretical Perspective on the Nature of Linguistic Aptitude." *IRAL*

16(1): 15-25.

- Oller, John, Kyle Perkins, and Mitsushisa Murakawa. 1980. "Seven Types of Learner Variables Relation to ESL Learning." *Research in Language Testing*. Ed. John Oller and Kyle Perkins. Rowley, MA: Newbury. 233-240.
- Spinelli, Emily, Carmen Garcia, and Carol E. Galvin. 1990. *Interacciones*. Orlando, Fla.: Holt Rinehart, and Winston.
- Suter, Richard W. 1976. "Predictors of Pronunciation Accuracy in Second Language Learning." *Language Learning* 26: 233-253.
- Terrell, Tracy D. 1989. "Teaching Spanish Pronunciation in a Communicative Approach." *American Spanish Pronunciation: Theoretical and Applied Perspectives*. Ed. Peter C. Bjarkman and Robert M. Hammond. Washington, D.C.: Georgetown University. 196-214.
- Van Patten, Bill, and James F. Lee. 1995. *Making Communicative Language Teaching Happen*. Univ. of Illinois at Urbana-Champaign: McGraw-Hill.