

The Effect of Style in Second Language Phonology: An Analysis of Segmental Acquisition in Study Abroad and Regular-Classroom Students

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1. Introduction

The study of style in second language speakers seems to have implications in determining target-like pronunciation. Some investigations (Major 1986, 1987) have pointed out that in conversational styles second language students tend to be more target-like, while other investigations (Tarone 1979, 1982, 1983) indicate that students performed more target-like in formal tasks. This study is a follow-up of Díaz-Campos (2004) in which the impact of context of learning is examined in a reading-aloud task without taking into account different speech styles. While writing Díaz-Campos (2004), the research team involved in the context of learning project¹ pointed out to me the importance of further examining phonological acquisition in different styles given the previous findings mentioned above. This paper is a further step in analyzing style in second language phonological acquisition. The definition of style in the SLA literature revolves around task and attention paid to speech as discussed in Tarone (1979, 1982, 1983). This way of conceptualizing style is closely related to what has been proposed in traditional quantitative sociolinguistic research. That is, the main condition for defining style is attention paid to speech (see Labov 1972, Eckert & Rickford 2001). Tarone (1979, 1982, 1983) claims that in formal tasks such as reading a paragraph or a list of words second language learners are more target-like in their pronunciation of the target language, while in less formal styles language students produce less target-like productions and transfer phenomena from the native language are more likely to occur. Major (1986, 1987) makes a distinction between transfer errors and developmental errors (those unfaithful productions emerging from universal grammar principles or learning processes). A transfer error, according to Major would be less likely to appear in formal tasks such as reading, while errors emerging from the developing system would increase in such style. Major's proposal is in agreement with Tarone regarding transfer phenomena. Nonetheless, he points out that developmental errors decrease in informal styles, while they increase in formal ones as pointed out above.

The role of context of learning has been recently investigated with the purpose of examining language gain in pragmatics, morpho-syntax, lexicon, phonology, fluency, etc. (see Collentine 2004, Collentine & Freed 2004, Dewey 2004, Díaz-Campos 2004, Lafford 2004, Lazar 2004, Segalowitz & Freed 2004, and Segalowitz et al. 2004, among others.). Generally, the findings of these investigations analyzing context of learning reveal that the study abroad students show greater gains in oral

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¹ The team was composed of Barbara Freed, Barbara Lafford, Joseph Collentine, Norman Segalowitz, and Nicole Lazar.

performance than the regular-classroom students. It seems the case that this improvement in performance cannot be attributed only to greater opportunities for language contact as a series of complex relationships between the variables included in these studies arise (see the theoretical framework section for more details). In the light of current research in SLA further investigations into the differences in the kind of input students receive in study abroad versus regular-classroom experiences and how they impact not only mastery of the phonology of the second language, but also in the emergence of stylistic differences are warranted. Study abroad students are surrounded by opportunities to use the target language outside the classroom with native speakers, while regular classroom students are more limited in their opportunities, a generalization which might lead us to assume that study abroad students would be able to produce more target-like language in different situations since they are more exposed to a broader range of input. At the same time, we could also reasonably assume that regular-classroom students might be able to perform better in restricted situations in which they are likely to pay closer attention to their speech production (e.g., reading activities). Little research has examined the impact of context of learning in the production of more target-like pronunciation in a second language. It seems the case that this issue concerning the interaction between context of learning and style could be important in understanding the acquisition of second language phonology and the students' progress in coping with different external factors. We can learn how students acquire an implicit system based on different kinds of input and how they are able to adapt their production according to different conversational styles. This issue seems to be relevant since previous research has examined style without taking into account context of learning, a factor that can enrich linguistic exposure to the target language. The present investigation further examines the role of style in the acquisition of segmental phonology in two groups: study abroad vs. regular-classroom students. Specifically, an analysis of speech style (reading vs. conversation) and linguistic gain across time (pre-test and post-test) is presented.

2. Theoretical framework

2.1. Context of learning: A general perspective

This section provides summaries of some of the more important studies examining context of learning and linguistic gain. An exhaustive review of all the existing body of research is not possible given the limited space and scope of the present paper; a general perspective is presented in the first part including investigations in languages other than Spanish. The second part focuses on the studies analyzing context of learning that have been conducted with Spanish data.

One of the first comprehensive collections of investigation on language acquisition and context of learning is Freed's (1995a) volume. Freed points out that even though there is some conflicting evidence, the body of research overall supports the benefits of studying abroad. Specifically, she maintains:

What emerges from these studies is a somewhat contradictory picture of the linguistic benefits to be gained from an in-country language learning experience. The role of instruction, its comparison to and/or interaction with naturalistic SLA has been a dominant and much debated issue in SLA studies. Ellis has summarized this literature (1994, pp. 611-663) and concludes that 'there is support for the claim that formal instruction helps learners to develop greater L2 proficiency, particularly if it is linked with opportunities for natural exposure' (1994, p. 616). At the same time, he suggests caution in interpreting the many conflicting studies. (Freed 1995a:8)

The studies in the collection examine data obtained from secondary school and university level students from Australia, Canada, Ireland, and the United States who went to study abroad in France, Japan, Latin America, Russia, Spain or in a Canadian province other than their own. The perspectives investigated include predictors and measurements of language gains, comparisons with at-home learning, acquisition of sociolinguistic competence, and diary studies. Brecht et al. (1995) examine data from 658 university students taking advanced Russian for one semester and find that the

following factors are predictors of language gain:² gender, age, knowing another foreign language, and strong command of grammar and reading skills.

Lapkin et al. (1995) investigate the effects of an exchange program in which 119 English native speakers traveled to a francophone area of Canada. The study focuses on gains in language proficiency by skill area (i.e., speaking, listening, reading, writing) and level of proficiency before enrolling in the program. The results reveal that students reported improvement in all four-language skills after the program and, interestingly, that the lower the pre-test score the higher the language gains at the end of the program. The study does not explore the reasoning behind this pattern of behavior, but point out that previous studies have also found similar tendencies.

In the same volume, Lafford (1995) examines communicative strategies used by study abroad and at-home students. Her participants include 13 students who spent one semester in Mexico, 16 students who spent a semester in Spain, and 13 control students who stayed at home taking classes at Arizona State University. In general terms, Lafford found that study abroad students expanded their repertoire of communicative strategies, thus enabling these students to more successfully interact in the target language. In contrast to the at-home students, the study abroad participants not only show knowledge of cultural scripts for conversational situation, but also incorporated different structures according to conversational contexts including appropriate fillers, connectors and back-channel signals. The study abroad group also shows more production of words and use of self-repair strategies than repetition in their speech. This means that study abroad students used the target language more effectively to overcome a communicational gap. They not only show improvement in their acquisition of lexical items and phrases, but also in their appropriate use of them.

Freed (1995b) investigates the commonly held belief that students are “more fluent” after a study abroad experience. Her study compares the global perception of fluency, as determined by native speakers, of the speech produced by study abroad versus at-home students. Freed’s results indicate that study abroad subjects obtained higher ratings at the end of the program than the at-home students. She also found that less advanced proficiency level students improve slightly more at the end of the program. In terms of global fluency, her findings reveal that the perception of fluency is associated with longer production of speech, faster rate, less disfluency and fewer pauses. Freed also found that study abroad students are more likely to reformulate their speech. These results reveal that study abroad participants are able to produce longer utterances with fewer hesitations as well as to use the target language when communication gaps occur.

Guntermann (1995) presents a description and analysis of the linguistic performance of 9 subjects who participated in Peace Corps training and service in Central America. This investigation focuses on the mastery of *ser-estar*, *por-para*, and *preterit-imperfect* to measure language gain. The results show that Peace Corps participants have a higher proficiency rating in comparison to students going abroad for one semester. Guntermann also found that Peace Corps students had more control over uses of *estar* as well as the distinction between *preterit* and *imperfect* than study abroad students as described in previous research by Ryan (1991), Lafford and Collentine (1989), and Palacios (1992). In comparison with study abroad students, no differences were found in the mastery of *por* and *para*. According to Guntermann (1995) these findings reveal that classroom instruction along with the experience of living in the target culture can provide the necessary preparation for succeeding in the mastery of the target language. Furthermore, Guntermann claims that Peace Corps participants have the advantage of not only living, but also working abroad. Both conditions create an environment where the authenticity of the experiences motivates students in their learning process.

Freed’s edited volume also includes papers analyzing the acquisition of sociolinguistic competence (Marriott 1995, Regan 1995, and Siegal 1995). Marriott examines politeness in the speech of 8 high school students learning Japanese and finds a great degree of individual variation in the acquisition of politeness rules. She also finds that there were substantial changes in students’ performance after participating in the study abroad program. However, study abroad students still deviate from the norms of the native model, instead using conventions commonly used in the first language. On the other hand, Siegal (1995) explores individual differences in the acquisition of

² Brecht et al. (1995) define language gain in terms of listening comprehension, reading proficiency, and oral proficiency.

politeness by two advanced students of Japanese. Her qualitative results reveal a series of conflicts concerning the use of politeness in Japanese as the students find themselves presenting an image that contradicts their own beliefs about themselves and women's role in society. Regan (1995) presents an analysis of the deletion of "ne" in the speech of 7 advanced Irish students of French. Her findings indicate that after study abroad students showed more native-like patterns of 'ne' -deletion than prior to the experience; however, some patterns emerged revealing that study abroad students tend to overgeneralize "ne" deletion in ways that deviate from the native norm.

In general terms, these investigations point out the benefits of being exposed to an experience in a country where the target language is spoken. While a variety of aspects of language acquisition are investigated, the need for the analysis of detailed segmental phenomena becomes apparent. In fact, the analysis of acquisition of second language phonology was not directly addressed in any of the papers. The investigations analyzing sociolinguistic issues within the volume reveal that study abroad students began to have contact and show variation in their speech even though such variation is not necessarily a faithful reflection of the native model. The important contribution of these investigations to my own paper is that they present evidence about the role of context of learning in measuring linguistic gain. For a complete review of phonological acquisition and comparisons between at-home and study abroad students' phonological gain, see Díaz-Campos (2004).

2.2. Recent developments examining context of learning in Spanish

The following section is concerned with previous studies examining language gain at different linguistic levels and the effect of context of learning. This literature review provides a more direct perspective of research analyzing the role of context of learning in second language students of Spanish (Lafford 2004, Collentine 2004, Segalowitz & Freed 2004, and Díaz-Campos 2004). The data from these papers come from 20 native English speakers enrolled at the University of Colorado at Boulder and from 26 native English speakers participating in a study abroad program in Alicante, Spain.

Lafford (2004) investigates the effect of context of learning (i.e., study abroad versus regular classroom) on the use of communicative strategies, which she defines as those used by L2 learners to fill a communication gap resulting from lack of knowledge, problems with performance or problems in the interaction with an interlocutor. The findings reveal that both the at-home and the study abroad groups reduced their use of communicative strategies from the pretest to the posttest in the period of one semester. Furthermore, Lafford points out that there is a significant statistical difference indicating that study abroad students used fewer communicative strategies at the end of the treatment period, which she claims is a result of having more linguistic resources with which to interact in the target language.

A comparison of at-home and study abroad students concerning their grammatical and lexical abilities is presented by Collentine (2004). His main findings indicate that at-home students performed better in their production of discrete grammatical and lexical items, while study abroad students demonstrated better narrative competence and the use of more complex discourse in terms of semantic content. Collentine claims that this result can be taken as an indication that interaction in the target-language context provides students with enough resources to produce more enriched narrative structures and to use more appropriate vocabulary according to the situation and context.

Segalowitz and Freed (2004) examine oral performance in terms of fluency and oral proficiency. They also analyze the relationship between these measures of oral gains and cognitive measures including speed of lexical access, automaticity of lexical access, and speed and automaticity of attention control. Their findings reveal that study abroad subjects made more substantial gains in oral performance than regular classroom students. They also found that there was a weak relationship between oral performance and reported used of Spanish in-class and outside-class. That is, their measurement of fluency did not show strong correlations with the reported information students provided about their use of Spanish inside and outside class. The results indicate that speed and efficiency, as measured in the specific tasks designed for this investigation, are related to oral gains. In other words, students with better oral gains also are faster and efficient when speaking. Finally, they

claim that participants' initial oral abilities seem to determine the amount and type of out-class activities in which they reported participating. For instance, Segalowitz and Freed found that long turn taking in study abroad students correlated with participants who reported frequently listening to the radio, films, and television outside the classroom.

The findings of previous investigations examining linguistic gains in communicative strategies, vocabulary and syntactic structures reveal that context of learning has an important effect in predicting a more target-like performance. Furthermore, language fluency, as defined by Segalowitz and Freed, also indicates a positive tendency according to which study abroad students use more vocabulary, longer phrases at a faster pace than at-home students. These are important results for the study of phonological acquisition and the effect of context of learning since one might expect that similar results can be obtained in the case of segmental phenomena.

The relationship between second language phonological acquisition and context of learning has been recently examined by Díaz-Campos (2004) who points out that this is a relationship that has gone largely unexplored thus far. In his paper, he compares the speech production of regular classroom and study abroad students across time by observing their performance at the beginning and end of the treatment period (i.e., one semester). Specifically, his data investigate four groups of segments: voiceless stops, voiced fricatives, syllable-final laterals, and the palatal nasal as produced in a read-aloud task. The results reveal the following patterns: equal gain for both regular classroom and study abroad students in the production of voiceless stops and syllable-final laterals. In other words, the results show improvement in both study abroad and at-home students in their production of voiceless stops and syllable-final laterals when comparing pretest and posttest. The second pattern was the lack of gain for the voiced fricatives since there was no improvement regardless of context of learning. The third tendency found reveals high levels of accuracy in the case of the palatal nasal in the pre-test, revealing that students have already acquired this segment before beginning the program.

While examining the effect of context of learning in phonological acquisition in the read-aloud task, the members of the research team pointed out to me the potential effect of style since in the SLA literature (Major 1986, 1987) has found that students show a more target-like pronunciation in more informal styles. The debate did not seem a simple one since a common assumption in phonetic studies would be in favor of more target-like production in activities where participants paid more attention to their speech, such as a read-aloud, which is also supported by Tarone (1979, 1982, 1983). This question about the role of style opened the door for a new research project in which the interaction of style, context of learning and segmental phonology is examined. Do study abroad students perform more target-like in conversational style than in a read aloud task? If so, can such an outcome be positively affected by the study abroad experience? Major (1987:192) points out that stylistic variation is "universal in human language" and "should be expected in second language as well." In his own research (Major 1986) found that Brazilian learners of English decrease the number of insertions of a vowel word-finally in more formal styles (i.e., reading styles). Furthermore, he found that interference based on insertion was reduced more rapidly than insertion caused by developmental factors. In other words, Major explains that transference errors are more likely to be suppressed in formal tasks than developmental errors emerging from the developing system of the language learner. In summary, the subject of style and context of learning in second language phonology has not been directly addressed, which points to the need for examining its effect in segmental production of SLA students.

Since we want to understand the role of the interaction between style and context of learning in the production of second language phonology, the following research questions are pursued in the present investigation: 1) What is the overall effect of style in predicting target-like pronunciation, 2) What is the role of style in predicting target-like pronunciation when one distinguishes between study abroad and regular-classroom students? and 3) What is the linguistic gain across time in terms of target-like pronunciation when one compares study abroad and regular-classroom students?

3. Methodology

3.1. Participants

Forty-six students were interviewed for this study. Twenty-six students were studying Spanish abroad in Alicante, Spain, while twenty were taking a regular Spanish language class in the United States. The average of the OPI test placed students at the intermediate-low level. In terms of academic placement, all students were between the second and third semester of instruction according to the Spanish SAT test used in the USA. All the participants were born in the USA, and their first language was English. Heritage speakers were not included in the study, so none of the participants used Spanish at home. Participants had had at least two semesters of formal language instruction in Spanish with no previous study abroad experience.

3.2. Corpora

Two types of corpora were targeted for analysis. First, participants took part in a read-aloud task that contained 60 target words including word-initial voiceless stops (i.e., [p t k]), voiced intervocalic fricatives (i.e., [β ð ʎ]), syllable-final laterals (i.e., [ɭ]), and the palatal nasal (i.e., [ɲ]). The second corpus is composed from 2-minute extracts taken from the Oral Proficiency Interview (OPI) that participants took in both the pre-test and post-test interviews. The two extracts represented minutes 7 and 8 as well as minutes 12 and 13. The same segmental phenomena described above were observed for the phonological analysis of the extracts. All the data was tape-recorded and then digitized for analysis.

3.3. Statistical analysis

Following Berdan (1996), Young and Bayley (1996), Geeslin (2002), and Díaz-Campos (2004), a variationist analysis of the dependent variables was performed. The reason for pursuing a quantitative analysis based on current sociolinguistic theory is that this model is particularly useful for capturing the probabilistic nature of second language development across time.

The logistic regression analysis using VARBRUL or Goldvarb provides the probabilistic weight for each one of the factors included within each factor group, indicating the significant statistical contribution of each factor with respect to the dependent variable. The maximum weight is 1.00 and the minimum 0.00. A weight greater than .500 favors the application value and a lesser probability disfavors it. In other words, a weight of .600 would reveal a favoring tendency for the production of target-like variants. The application value selected for the present investigation, based on the current goal of measuring linguistic gains according to style, context of learning, and time of recording, is the target-like production of the sound classes described above (i.e., word initial voiceless stops, voiced intervocalic fricatives, syllable-final laterals, and the palatal nasal).

In the specific case of the present paper, I have created three factor groups with the purpose of addressing the research questions proposed above. The dependent variable in each case consists of the target-like³ and non-target-like productions of the sound classes included. As can be inferred from above, in all cases two variants (i.e., target-like and non-target-like productions) were considered for each sound class. The reason for electing this method of coding the data is based on the need to create a binary dependent variable to run the logistic regression analysis. The first factor group takes into account style, which is defined according to attention paid to speech (i.e., conversation versus read-aloud). As explained previously, we have two corpora: one consists of recordings from a reading task and the other one is an extract from the OPI interview. The second factor group considers context of learning and includes the following factors: 1) regular classroom 2) study abroad. The third and last factor group addresses the research question concerning the interaction between style and context of

³ Target-like variants were sounds produced with similar qualities to those characterizing Spanish native sounds. A research assistant and I worked on coding the data. Both aural and acoustical techniques were used whenever possible. For instance, in the case of voiceless stops, non-aspirated variants had a VOT with an average difference of 38.29 ms. between aspirated and non-aspirated variants.

learning. The four factors included in this factor group are: 1) read-aloud/regular student; 2) conversation/regular student; 3) read-aloud/study abroad; 4) conversation/study abroad.

4. Results

With the purpose of addressing the three research questions posed above the results section is organized as follows: first, an analysis of the effect of style is presented, then we discuss the role of context of learning, and finally the interaction between style and context of learning is investigated.

4.1. The effect of style

4.1.1 Word-initial voiceless stops

Table 1 presents the results of word-initial voiceless stops according to style. The first column entitle ‘Factor Group’ indicates that style is the factor being considered. The next column specifies the two factors constituting the factor group *style*: read-aloud, conversation. Under ‘No of cases’ the next column shows the number of target-like pronunciations out of the total cases. The percentage column reflects target-like productions out of the total. The final column shows the probabilistic weight calculated by logistic regression analysis. A total of 7,184 word-initial voiceless stops tokens were coded for this analysis.⁴ The general distribution reveals that 39% of the variants found were classified as target-like, while 60% were classified as non-target like. Table 1 shows the results of the effect of style in the distribution of voiceless stops.

Factor Group	Factors	No of cases	%	Weight
Style	Read aloud	621/3652	17	.259
	Conversation	2242/3532	63	.748

Table 1: Effect of style in the production of word-initial voiceless stops

The results reveal that 2,242 cases out of 3,532 were not aspirated variants in the conversational style, while 621 cases out of 3,652 were not aspirated variants when read aloud. There is clearly an increase in the production of target-like variants in conversational style. These tendencies are further corroborated by the logistic regression analysis according to which target-like production of word-initial voiceless stops is favored by the conversational style with a weight of .748, whereas target-like pronunciation (i.e., non-aspiration) is disfavored by the read aloud style, with a weight of .259.

4.1.2 Intervocalic voiced fricatives

Table 2 shows the effect of style in the production of intervocalic voiced fricatives. The analysis shows 187 target-like productions out of 1,378 cases in the read-aloud recordings, while 549 target-like productions out of 1,898 cases were found in conversational style. Overall, the analysis of the voiced fricatives is based on 3,276 tokens, from which 736 cases were classified as target-like (22%), and 2,540 tokens out of 3,276 were coded as non-target like productions (77%).

Factor Group	Factors	No of cases	%	Weight
Style	Read-aloud	187/1378	13	.366
	Conversation	549/1898	28	.598

Table 2: Effect of style in the production of intervocalic voiced fricatives

The statistical analysis reveals that target-like production of intervocalic voiced fricatives is favored in the conversational style, while it is disfavored in the read aloud speech samples. In other words, voiced fricatives are also more likely to be pronounced in a target-like manner in the conversational style.

⁴ This number reflects the total of cases regardless of context of learning or any other variable.

4.1.3 Syllable-final laterals

Table 3 presents the results of the effect of style in the pronunciation of syllable-final laterals. One hundred four tokens out of 368 were classified as target-like in the read-aloud recordings, while 302 tokens out of 433 were coded as target-like in the conversational style. These results were calculated from a total of 801 cases of syllable-final laterals. The distribution of the cases reveals that 406 tokens were classified as target-like productions (50%), while 395 cases were coded as non-target-like productions (49%).

Factor Group	Factors	No of cases	%	Weight
Style	Read aloud	104/368	28	.278
	Conversation	302/433	69	.692

Table 3: Effect of style in the production of syllable-final laterals

Consistent with the results presented above, the same pattern of performance is also found for syllable-final laterals. That is, the alveolar production is more likely to happen in conversational style. Even though the general tendency reveals that students persist in pronouncing a velar variant, the cases where there was target-like production were favored by the conversational style.

4.1.4. Palatal nasals

The analysis of the palatal nasals is based on 403 tokens. According to the statistical results, 383 cases were coded as palatals (i.e., 95%), while 20 were alveolar productions (i.e., 4%).

Factor Group	Factors	No of cases	%	Weight
Style	Read-aloud	78/93	83	.131
	Conversation	305/310	98	.638

Table 4: Effect of style in the production of palatal nasals

Even though students are very successful in the production of the palatal nasal, target-like production increases in the conversational style. In fact, the statistical analysis shows a favoring weight for the palatal production of .638 in the conversational style.

The findings presented here so far reveal that style has a strong effect in the prediction of target-like pronunciation of the sounds included in the present investigation. Particularly, we have found that target-like production is favored in the conversational sections of the interview. In order to have a better understanding of the data the next section examines the role of context of learning.

4.2. The effect of context of learning

This section is concerned with an analysis of the effect of context of learning in the production of target-like variants in the speech of second language students. A comparison between regular classroom and study abroad students is presented. The tendencies described here are important for the understanding of the interaction between style and context of learning, which is the focus of the next section.

Table 5 presents the results for word-initial voiceless stops according to context of learning. A total of 952 productions out of 3,074 were produced as target-like by regular classroom students (30%), while study abroad students produced 1,911 target-like productions out of 4,110 (39%).

Factor Group	Factors	No of cases	%	Weight
Context of learning	Regular classroom	952/3074	30	.407
	Study abroad	1911/4110	39	.570

Table 5: Results of context of learning in the analysis for word-initial voiceless stops

The statistical analysis reveals that study abroad students favored the production of target-like variants of word-initial voiceless stops, whereas regular classroom students present a disfavoring tendency with a weight of .407. Recall that a weight above .500 favored the application value, that in this case is target-like production.

Table 6 shows the results of the effect of context of learning in the case of the voiced intervocalic fricatives. The analysis is based on 518 target-like tokens out of 1,381 produced by regular classroom students and 218 target-like tokens out of 1,895 produced by study abroad students.

Factor Group	Factors	No of cases	%	Weight
Context of learning	Regular classroom	518/1381	37	.708
	Study abroad	218/1895	11	.344

Table 6: Results of context of learning in the analysis for voiced intervocalic fricatives

The tendencies found reveal that regular classroom students favored the production of target-like variants of voiced intervocalic fricatives, while study abroad students disfavor target-like variants. A similar effect to the one described above was found in Díaz-Campos (2004). The hypothesis presented in Díaz-Campos (2004) is that within the group of regular classroom students there are participants who had more than seven years of formal language instruction. We are not going to explore this issue in here since it is out of the scope of the present paper (for more details see Díaz-Campos 2004). However, in order to better understand these findings we need to explore the interaction of style and context of learning. We come back to this issue in the discussion section.

Table 7 presents the results in the case of syllable-final laterals. The analysis is based on 120 target-like tokens out of 345 produced by regular classroom students and 286 target-like tokens out of 456 produced by study abroad students.

Factor Group	Factors	No of cases	%	Weight
Context of learning	Regular classroom	120/345	34	.342
	Study abroad	286/456	62	.621

Table 7: Results of context of learning in the analysis for syllable-final laterals

The findings reveal that study abroad students favored target-like production of syllable-final laterals, while regular classroom students disfavored it. This pattern is very similar to the one found for word-initial voiceless stops according to which study abroad students also favored target-like variants.

Table 8 presents the results for the palatal nasals. The analysis is based on 153 target-like tokens out of 161 cases produced by regular classroom students and 230 target-like tokens out of 242 produced by study abroad students.

Factor Group	Factors	No of cases	%	Weight
Context of learning	Regular classroom	153/161	95	*
	Study abroad	230/242	95	*

Table 8: Results of context of learning in the analysis for palatal nasals. * = Not selected by logistic regression analysis

In the case of the palatal nasals, the findings reveal that students were very successful in producing target-like variants regardless of difference in context of learning. From previous research (Díaz-Campos 2004), we know that in the pre-test recordings both regular classroom and study abroad students show accuracy in the production of target-like variants, so that one can claim that students mastered the palatal nasal before the treatment period.

The following section is concerned with an analysis of the interaction between the factor groups style and context of learning. Studying this interaction is important to identify whether there are differences in performance according to context of learning.

4.2. Interaction between style and context of learning

This section specifically addresses the question about the role of style in the two groups of students included in the present investigation: regular classroom and study abroad. We want to find out whether there are differences in performance that can be attributed to the interaction of these two factors. One might suggest that study abroad could be more successful in the production of target-like variants in informal styles since they are more exposed to this kind of input. Study abroad students, due to the nature of the context of learning, are in contact with native speakers throughout the day in different situations. Perhaps, the more limited experience of the regular classroom students could trigger results with a less clear pattern in which non-target like variants could be predominant. Table 9 shows the results for word-initial voiceless stops.

Factor Group	Factors	No of cases	%	Weight
Interaction between style and context of learning	Read-aloud/regular classroom	283/1588	17	.276
	Conversation/regular classroom	670/1486	45	.593
	Read-aloud/study abroad	339/2064	16	.238
	Conversation/study abroad	1572/2046	76	.839
	Input probability = 0.376 (2863/7184)			

Table 9: Results of the interaction between style and context of learning analysis for word-initial voiceless stops

The findings for the word-initial voiceless stops reveal that both groups of students favor the production of target-like variants in the conversational style. Nonetheless, study abroad students show a much stronger effect in the conversational style with a weight of .839, whereas the regular classroom students have a favoring weight of .593. As can be seen in Table 9, both groups equally disfavor target-like variants in the read aloud corpus. Statistically, the higher weight shows a significantly stronger favoring tendency in the case of the study abroad students.

Table 10 presents the findings of the interaction between style and context of learning in the case of intervocalic voiced fricatives.

Factor Group	Factors	No of cases	%	Weight
Interaction between style and context of learning	Read-aloud/regular classroom	90/600	15	.397
	Conversation/regular classroom	428/781	54	.817
	Read-aloud/study abroad	97/778	12	.404
	Conversation/study abroad	121/1117	10	.366
	Input probability = 0.189 (736/3276)			

Table 10: Results of the interaction between style and context of learning analysis for intervocalic voiced fricatives

A puzzling result is found in the case of the voiced fricatives: the regular classroom students produce more target-like intervocalic voiced fricatives in the conversational style than study abroad students. In order to explain this pattern, we will have to explore more within the tokens contained in the *conversation/regular classroom* factor and observe common aspects in the group of speakers producing target-like variants. We have some indications from previous research with this data (i.e., Díaz-Campos 2004, Díaz-Campos & Lazar 2003) that this might be the effect of formal language instruction since there is a group within the regular classroom students with 7 or more years of language instruction who favor target-like variants. One of the factors considered in Díaz-Campos and Lazar (2003) and Díaz-Campos (2004) is the information about previous formal language instruction from the language contact profile and the results of these previous papers indicate that it is the group of regular classroom students with 7 or more years of language instruction who are the ones showing better performance. We have to point out that this factor extracted from the language contact profile is different from the OPI proficiency test and student's placement and enrollment in Spanish at the college level. We will return to this issue in the discussion section below.

Table 11 presents the results for the interaction between style and context of learning for syllable-final laterals.

Factor Group	Factors	No of cases	%	Weight
Interaction between style and context of learning	Read-aloud/regular classroom	49/160	30	.261
	Conversation/regular classroom	71/185	38	.368
	Read-aloud/study abroad	55/208	26	.199
	Conversation/study abroad	231/248	93	.904
	Input probability = 0.565 (406/801)			

Table 11: Results of the interaction between style and context of learning analysis for syllable-final laterals

The findings reveal that the strongest pattern of target-like production is observed in the case of study abroad students in the conversational style with a weight of .904. Recall that a probabilistic weight above .500 favors the appearance of the application value, which is target-like variants, so that .904 is a very strong favoring result. On the other hand, regular classroom students do not appear to favor target-like production in either the read-aloud or the conversation portions of the interview.

Table 12 shows the results of the interaction between style and context of learning for palatal nasals.

Factor Group	Factors	No of cases	%	Weight
Interaction between style and context of learning	Read aloud/regular classroom	38/41	92	*
	Conversation/regular classroom	115/120	95	*
	Read aloud/study abroad	40/52	76	*
	Conversation/study abroad	190/190	100	*
	*Not selected by the program			

Table 12: Results of the interaction between style and context of learning analysis for palatal nasals

Consistent with what was found by Díaz-Campos (2004), students are very successful in the production of target-like variants. Significant statistical effects are not found for any of the factors. However, the percentages indicate tendencies that coincide with what we have shown for word-initial voiceless stops and syllable-final laterals, namely, higher percentages of target-like productions are found within the conversational style for both study abroad and regular classroom students.

The findings of this section reveal that, in general terms with the exception of intervocalic voiced fricatives, study abroad students tended to produce more target-like variants in conversational style. Instead of a pattern according to which more attention paid to speech (i.e., read-aloud) triggers more-target-like variants, we found the opposite. A possible interpretation of the better performance of study abroad students in conversational style has to do with the exposure this group of students experienced while abroad with native speakers in informal situations. We come back to this issue below in the discussion section.

5. Discussion

The purpose of the present investigation is to examine style, context of learning and the interaction between style and context of learning. The analysis of style clearly reveals that second language learners tend to produce more target-like pronunciation in the conversational style as compared to the read aloud style. It seems the case that the read aloud task triggers a negative effect in the production of target-like variants, while the results for the factor context of learning indicate that study abroad students performed better than regular classroom students. This finding seems to contradict previous research in which formal tasks triggered more target-like variants. One possible interpretation of this result goes along with Major's (1986) suggestion that there might be differences based on whether the phenomenon is due to developmental factors or whether it is due to transfer. Further analysis will have to take into consideration this possible difference.

Since we have evidence from previous analyses (Díaz-Campos 2004) that students show development across time in the case of the word-initial voiceless stops and syllable-final laterals, we might suggest that sound groups in a more advanced stage of development might be more likely to appear in conversation style. We could assume that in a conversation the implicit system is more activated than in other formal tasks such as reading. This observation seems to be supported by our data in the sense that group of sounds showing improvement across time are more likely to be produced in a target-like manner in the conversation samples. In contrast, sound groups such as the intervocalic voiced fricatives (in which development cannot be observed across time) show a puzzling pattern. In other words, the fact that intervocalic voiced fricatives do not show development across time reveals that we need to be careful in making definite conclusions. The pattern according to which regular classroom students show more target-like productions might be due to the subgroup of students with 7 or more years of formal language instruction as discussed above. Future research will have to further examine the acquisition of intervocalic voiced fricatives. Another possible direction for future research might be related to the effect of the written word and lexical familiarity. The written text could have an influence in the way an English native speaker produces a certain sound. For instance, a speaker might see the word *haba* ‘bean’ and be bound to produce a stop [b] instead of a fricative [β] due to the effect of the written text.

The results of the interaction between style and context of learning reveal that study abroad students tend to do better in the conversational styles than regular classroom students. Even though we have not presented specific details regarding the exposure to the target language in the study abroad context in the present study, we might speculate that the study abroad students have more contact with native speakers in different daily life situations and, therefore, their performance is more likely to improve in informal contexts. This observation can be corroborated by taking into account the reported use of the language before and during the program (see Díaz-Campos 2004) where students reporting using the language before and during the semester are also the ones producing more target-like variants. This pattern seems to be true for groups of sounds showing development across time. Even when there are higher levels of accuracy in the entrance recordings, tendencies favoring more target-like pronunciation in the study abroad group emerge in the conversational style. These findings are in line with those presented for other levels of analysis such as morpho-syntactic (Collentine 2004) and pragmatic (Lafford 2004) development.

6. Conclusions

The present paper has analyzed the role of style in the acquisition of second language phonology and its relationship with context of learning and time of recording. A further analysis of students’ performance in more informal styles was presented to complement previous findings (Díaz-Campos 2004) in which only read-aloud data was examined.

What is the overall effect of style in the production of target-like variants? Generally speaking, style has an important effect in the production of certain sounds with more target-like accuracy. Specifically, students tend to be more target-like in their pronunciation during the conversation section of the interview than in the read-aloud section.

What is the role of style when one distinguishes between study abroad and regular-classroom students? The general pattern revealed here is that study abroad students tend to do better than regular classroom students in the conversational style in the case of word-initial voiceless stops, syllable-final laterals, and palatal nasals. Intervocalic voiced fricatives were an exception to this general pattern.

Future studies will have to further explore segmental linguistic gain in conversational styles in different learning contexts in order to observe whether one can find stronger effects for target-like pronunciation in study abroad students. Another avenue to pursue is related to the need to isolate the characteristics of these study abroad students who are more successful in producing target-like variants. There is also the need to explore other segmental and suprasegmental phonological features to have a complete picture contributing to our understanding of the effect of context of learning in the acquisition of second language phonology.

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