

Research Article

THE DEVELOPMENT OF A REGIONAL PHONOLOGICAL FEATURE DURING A SEMESTER ABROAD IN ARGENTINA

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Abstract

Although recent research suggests that gains are made in the acquisition of dialectal features during study abroad, the few studies that have been conducted on this topic in Spanish-speaking contexts have focused primarily on features characteristic of Spain. This article examines the L2 acquisition of phonological features characteristic of Buenos Aires Spanish, [ʃ] and [ʒ], known as *sheísmo/zheísmo*, for example the pronunciation of llave [jaβe] “key” as [ʃaβe] or [ʒaβe]. Participants include 23 learners of Spanish studying in Buenos Aires, Argentina. More than 4,800 tokens were gathered before, during, and at the end of the semester using sociolinguistic interviews, a reading passage, and a word list. These data were analyzed for the influence of linguistic and social factors using mixed-effects logistic regression (Rbrul; Johnson, 2009). Results suggest that participants approximate nativelike norms of use of these features and that time in country is a statistically significant predictor of patterns of phonological variation.

A study abroad (SA) experience is often viewed as an opportunity to gain proficiency in a foreign language as a result of immersion in the target language and culture. Nevertheless, an increasing amount of research conducted on SA over the last two decades reveals that it does not necessarily lead to gains in all areas of the second language (L2) (e.g., Collentine & Freed 2004; Lafford & Uscinski, 2014; Quan, 2016; Segalowitz et al., 2004). Recent research suggests that one area in which gains are made during SA is in the acquisition of

We would like to thank the anonymous reviewers for their close reading and invaluable suggestions regarding this article.

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dialectal features. However, the research conducted on this topic in Spanish-speaking contexts has focused primarily on second language (L2) learner development of features specific to Spain, particularly [θ], and it has not been able to explain fully why some participants acquire these features to varying degrees and others never acquire them at all (Geeslin & Gudmestad, 2008; George, 2013, 2014; Knouse, 2013; Ringer-Hilfinger, 2013). Because Argentina, and Buenos Aires in particular, is one of the top SA destinations for U.S. students (Institute of International Education, 2016; Study Abroad in Buenos Aires, 2019), learner production of features characteristic of the variety spoken in this speech community and the factors that influence this production merit investigation. This article examines L2 production of phonological features characteristic of Buenos Aires Spanish (BAS). Specifically, it explores L2 realization of the segments represented orthographically as “y” and “ll” as sibilant postalveolar fricatives. Most speakers of BAS produce these segments as a postalveolar voiceless fricative [j], known as *sheísmo*, which is realized as in the English word *sheep* (Hualde, 2005; Hualde et al., 2010). Other BAS speakers realize these segments as a postalveolar voiced fricative [ʒ], known as *zheísmo*, which is pronounced as in the English word *pleasure* (Hualde et al., 2010).

In addition, this study examines both the linguistic and social factors that constrain the production of these features. Participants are 23 learners of Spanish from the United States who were studying for a semester in Buenos Aires, Argentina. More than 4,800 tokens of [j] and [ʒ] were gathered prior to, during, and at the end of the semester by means of sociolinguistic interviews, a reading passage, and a word list. Multivariate analysis was used to examine the data for the influence of linguistic and social factors and these data were correlated with social networks using the results of a *social network strength scale* (SNSS; Kennedy, 2012; Kennedy Terry, 2017; Milroy & Milroy, 1978). Results suggest that participants move toward nativelike norms of use of these features during the sojourn abroad, and that time in country is a statistically significant predictor of phonological variation patterns.

In this article, we seek to contribute to the understanding of the role of SA in language learning by providing answers to questions about the influence of both linguistic and social factors in this context. The findings contribute to the areas of L2 acquisition of sociolinguistic variation and SA, as existing research regarding learner development of dialectal features in the SA context has been limited to a small set of sociolinguistic variables. Additionally, this study provides one of the first accounts of the acquisition of dialectal features specific to Argentina. The following sections first summarize previous research on the acquisition of target language patterns of variation by L2 students studying in Spanish-speaking countries as well as research on variation among [j] and [ʒ] in BAS. The next sections outline the methods of the current study and present the results, which suggest that most participants acquired many of the relevant constraints on the target variable. Finally, we describe the implications of the results for SA programs and for the understanding of the acquisition of sociolinguistic competence.

PREVIOUS RESEARCH

THE ACQUISITION OF SOCIOLINGUISTIC COMPETENCE DURING STUDY ABROAD

The benefits of SA for L2 learning have been the subject of a great deal of empirical research. However, as Isabelli-García et al. (2018) note in their recent state-of-the-art article, SA

research on the acquisition of sociolinguistic competence has tended to focus on interlanguage pragmatics. Fewer studies have explored L2 adoption of sociolinguistic variables and local dialectal features in a SA context. In particular, a number of studies have explored L2 development of variation in French during SA (e.g. Howard et al., 2006; Kennedy, 2012; Kennedy Terry, 2017; Regan, 1996; Regan et al., 2009), while others have examined the acquisition of features of Mandarin Chinese (e.g., Li 2010, 2014) and Japanese (Iwasaki, 2010). In Spanish, Geeslin and colleagues have investigated L2 acquisition of several variable structures during SA (Geeslin et al., 2010; Geeslin et al., 2013). Other studies have examined learners' development of region-specific features of Spanish in Spain (George, 2013, 2014; Knouse, 2013; Ringer-Hilfinger, 2013). Overall, this research shows that L2 learners incorporate sociolinguistic features in their interlanguage, although they do so less frequently than native speakers (NSs), and the amount of use varies depending on the focal features, a variety of social factors, and the individual learner.

THE ACQUISITION OF REGION-SPECIFIC PHONOLOGICAL FEATURES IN SPANISH-SPEAKING COUNTRIES

Several studies have focused on L2 production of region-specific phonological features during SA in Spanish-speaking contexts, particularly the voiceless interdental fricative [θ] in Castilian Spanish (Geeslin & Gudmestad, 2008; George, 2013, 2014; Knouse, 2013; Ringer-Hilfinger, 2013). Where other dialects use [s], speakers in central and northwest Spain use [θ], for example, realizing the word *vez* "time" as [béθ] instead of [bés]. Regarding L2 development of this feature, Ringer-Hilfinger (2013) found that 24 L2 learners of Spanish studying for a semester in Madrid employed [θ] 17% of the time at the beginning of their stay abroad, 17.9% of the time at the end of the sojourn, and 11.3% of the time four months after SA. Other studies on the acquisition of Spanish [θ] include Geeslin and Gudmestad (2008), who conducted a cross-sectional study in the United States, and found that only 9 out of 130 learners used [θ], and only seven of those [θ] users had been to Spain. Thus, even at-home learners may acquire regional features, which might be attributed to the input they receive from friends and/or instructors of different origins outside of immersion contexts. In a SA context, however, Knouse (2013) found that L2 learners studying in Salamanca, Spain produced [θ] far less frequently than NSs, and 8 out of 15 students did not produce it at all. Similarly, George (2013, 2014) found that SA students in Toledo, Spain produced [θ] at a very low rate. In fact, 25 students used it only 6–7% of the time, and there was no significant change in use over time.

Learner acquisition of an additional geographic feature characteristic of Peninsular Spanish, the strident postvelar fricative [χ] (e.g., realizing the word *viejo* "old" as [bje.χo] instead of [bje.xo]) has also been investigated, although it has received less attention in the literature than [θ]. Ringer-Hilfinger (2013) found that L2 participants used [χ] 19% of the time four months after SA in Madrid, which was more than they used [θ] at the same time marker (11.3% of the time). She attributes this to learner belief that [χ] is not as much of a dialect marker as [θ]. Similarly, George (2013, 2014) found that L2 learners studying in Toledo, Spain increased production of [χ] during their semester abroad there; however, 8 of 25 students used the variant 26–35% of the time and the other 17 students used it only 1–2% of the time. In contrast to Ringer-Hilfinger (2013), however, George (2013, 2014) found that the variant was produced more in formal speech (the word list followed by the

reading passage) than during informal speech (spontaneous speech elicited through the informal interview). As seen in these studies on L2 production of peninsular phonological features, learners seem to make some progress toward nativelike pronunciation, but not much, both in and out of immersion contexts.

Although these studies examined the influence of a variety of social factors in variant production, the role of those features was not always clear. For example, regarding proficiency, Ringer-Hilfinger (2013) and Geeslin and Gudmestad (2008) found that learners with greater proficiency levels produced the target phonological features more often and George (2014) found that higher proficiency level correlated with production of [χ] but not that of [θ]. However, Knouse (2013) found that intermediate learners used [θ] more than beginning or advanced learners. With respect to social networks, while George (2014) took into consideration the amount of contact participants had in Spanish as well as their social networks, these factors were only significant predictors of [θ] production, not [χ] production, and only at interview time 2, which took place halfway through the semester. As such, additional research is needed regarding the role of social factors such as proficiency level and social networks in the acquisition of region-specific features in SA. This is particularly true in Argentina, given the substantial dialectal differences between BAS and Peninsular Spanish.

In contrast to the substantial body of research on features of Peninsular Spanish, only one study has examined learners' use of [j] and/or [ʒ] in Buenos Aires. Hoffman-Gonzalez (2015) examined the production of these features (she did not distinguish between the two in her analysis) by seven U.S. students in a semester-long SA program and found relatively high levels of use of the target variables during post-SA interviews, with rates of 74% in free speech and 95% in a reading passage. Although the small number of participants and the lack of multivariate analysis are limitations of Hoffman-Gonzalez's study, the fact that speakers used the BAS variants at a much higher rate than students studying in Spain used peninsular variants suggests a different social evaluation for the Buenos Aires features. These differences in L2 production of peninsular and BAS variants during SA merit more detailed investigation.

RESEARCH ON PREPALATAL FRICATIVES

In Buenos Aires, words that are written with the graphemes “y” and “ll” such as *yo* [jo] “I” and *allá* [ˈa.ja] “there” are pronounced as [jo] or [ʒo] and [aʃá] or [aʒá]. Research on this distinctive dialectal feature among NSs of BAS has received considerable attention in Hispanic sociolinguistics (Chang, 2008; Colantoni, 2008; Fontanella de Weinberg, 1978; Rohena-Madrado, 2011, 2013, 2015; Wolf, 1984). Recent research shows that while older speakers produce both devoiced and voiced prepalatal fricatives, most younger speakers employ the devoiced variant [j], indicating that the devoicing of prepalatal fricatives in Buenos Aires is nearing completion (Rohena-Madrado, 2015) or has already reached completion (Chang, 2008). However, as noted earlier, little research has examined the production of prepalatal fricatives by L2 learners of Spanish. Considering that there is still some variation in prepalatal fricative production in Buenos Aires today, individuals studying abroad there might be exposed to both devoiced [j] and voiced [ʒ] variants. For this reason, they may be faced with the challenge of “catch[ing] a moving target” (Geeslin, 2011, p. 303) when seeking to approximate the norms of use of these

phonological features in the host community. In the remainder of this article, we investigate the acquisition of this salient feature of BAS by addressing the following questions:

1. When and to what degree do English-speaking students studying in Buenos Aires, Argentina acquire the phonological features characteristic of Buenos Aires Spanish, that is [ʃ] and [ʒ]?
2. How does the acquisition of [ʃ] and [ʒ] by SA students in Buenos Aires compare with the acquisition of region-specific phonological features in other areas of the Spanish-speaking world?
3. What are the linguistic and social constraints on the acquisition of [ʃ] and [ʒ]?

METHODS

SPEAKERS

The 23 participants in this study (four males and 19 females) were part of semester-long SA programs affiliated with universities in Buenos Aires in 2015–2016. All participants had completed at least two years of Spanish at the university or high school level. They ranged in age from 19 to 26; however, most were between 19 and 23. All 23 participants reported that English was the language spoken in their homes when they were growing up and none spoke other languages with their families. During their stay in Buenos Aires, 13 participants resided primarily in a home stay, five in an apartment by themselves, two in an apartment with Argentines, and three in dorm-style residences, typically with other international students. Of the 23 participants, five changed their living situation at some point during the sojourn. When this was the case, we counted the living situations in which participants stayed the longest.

As determined through a background questionnaire, most of the participants had not previously been to Argentina or had only had minimal contact and/or experience interacting with NSs of Spanish from Argentina prior to the sojourn. Although participants did not take a separate proficiency exam for this study, their programs administered pre-departure placement tests, which varied according to program and consisted of either a multiple-choice exam or a writing assessment. Results were used to place students in the appropriate levels in their SA programs and participants in the study self-reported the results of their placement tests. Overall, 14 participants were placed in the advanced level, five in the intermediate level, and four in the beginning level. [Table 1](#) summarizes participants' relevant background information and living situation. All names are pseudonyms.

DATA COLLECTION

In addition to the background questionnaire conducted in English prior to or shortly after the start of SA, four types of data were collected from each participant: (a) sociolinguistic interviews; (b) a *social network strength scale* (SNSS) based on that used in Kennedy (2012) and Kennedy Terry (2017); (c) readings of selections from the Argentine comic strip, *Mafalda* (Quino, 2007); and (d) a word list based on Davies's (2006) frequency dictionary. These data were collected at three times during the five-month (20-week) semester: the first was prior to or shortly after participants' arrival in Buenos Aires, the

TABLE 1. Participant characteristics

Speaker	Age	Gender	Proficiency	Living situation*
Valerie	22	F	Advanced	Host family
Melanie	20	F	Intermediate	Host family
Brittany	22	F	Advanced	Host family/apartment alone
Chelsea	20	F	Beginning	Host family
Jenny	22	F	Advanced	Apartment with Argentines
Erin	21	F	Advanced	Host family
Kelly	23	F	Advanced	Apartment alone
Mary	20	F	Advanced	Host family/apartment alone
Andrew	26	M	Intermediate	Dorm-style residence/apartment alone
Alicia	19	F	Advanced	Host family
Kim	20	F	Beginning	Host family
Julia	20	F	Beginning	Dorm-style residence
Kathryn	20	F	Beginning	Host family/dorm-style residence
Amy	23	F	Advanced	Apartment alone
Emily	19	F	Advanced	Host family
Alison	20	F	Advanced	Host family/dorm-style residence
Ryan	22	M	Advanced	Apartment alone
Mariah	19	F	Intermediate	Host family
Camille	21	F	Intermediate	Host family
Eddie	20	M	Intermediate	Host family
Kerry	20	F	Advanced	Host family
Andrea	22	F	Advanced	Apartment with Argentines
Tyler	19	M	Advanced	Host family

*Those who have more than one living situation listed changed their place of residence during SA.

second was in their ninth or tenth week in-country, and the third occurred in weeks 19 or 20 or immediately following program completion. Sociolinguistic interviews were conducted via Skype in Spanish and questions dealt with students' experiences before and during their stay abroad, including topics such as study in the United States, previous travel, and experiences with host families. However, as is common in sociolinguistic interviews, speakers often expanded on topics of interest, regardless of whether such topics were included in the question modules. At the conclusion of the sociolinguistic interviews, participants were asked to provide comprehensive information in English about their social networks for the SNSS, which is described in detail at the end of the "Coding" subsection.

The reading passage in Spanish consisted of selections from the popular Argentine comic strip *Mafalda* (Quino, 2007) that had originally been used by Chang (2008) to elicit NS palatal phoneme production. Following Chang (2008), the comic strips used in the study were selected to elicit speaker use of [ʃ] and/or [ʒ] when reading the graphemes "y" and "ll." The use of the same reading passage at each interview time allowed for elicitation of the same sound in the same linguistic context during each interview, thus allowing for the investigation of changes in learner production over time.

The word list in Spanish, based on Davies's (2006) frequency dictionary of Spanish, which lists the 5,000 most frequently used words in Spanish, included words of high, medium, low, and very low frequency. Out of 105 total words in Davies's list containing the graphemes "y" or "ll," 26 words included in the top 25% of Davies's list were counted

as high frequency, 53 words included in the mid 50% of Davies's list were counted as mid frequency, and 26 words included in the bottom 25% of Davies's list were counted as low frequency. Words that did not make Davies's list were counted as very low frequency.

TRANSCRIPTION

Tokens of the phonological variables of focus, [ʃ] and [ʒ], were transcribed from the sociolinguistic interview, the reading task, and the word list using symbols from the International Phonetic Alphabet (IPA). The transcriptions focused on phonological tokens of [ʃ] and [ʒ] but also considered other realizations, including [j] and [dʒ]. It was expected that learners would produce [ʃ] the most at the second and third interview times because it is the most common realization of the graphemes “y” and “ll” in BAS. Nevertheless, considering that another possible realization of these graphemes in this dialect is [ʒ], instances of this realization were also transcribed. While the realizations of [j] and [dʒ] were relatively simple to determine through simply listening to them, distinguishing whether a variant was voiced or not through listening alone was more difficult. Therefore, if there was any doubt regarding the realization of the segment [ʃ] or [ʒ], Praat 6.0.28 (Boersma & Weenink, 2016) was used to verify the phonological production. If there was any evidence of a voice bar within the Praat spectrogram, the production of the fricative was determined to be voiced. Examples of the devoiced and voiced realizations of “y” and “ll” can be seen in the Praat waveforms and spectrograms in Figures 1 and 2. Figure 1 shows the realization of “ll” in the word *castellano* (“the Spanish language”), uttered by Melanie during Interview Time 2. This figure shows weak periodicity in the waveform and no voicing bar in the spectrogram, thus indicating the voiceless realization of the segment as [ʃ]. Figure 2 shows the realization of the “y” in *proyectos* (projects), uttered by Erin during interview 3. Figure 2 contrasts with Figure 1,

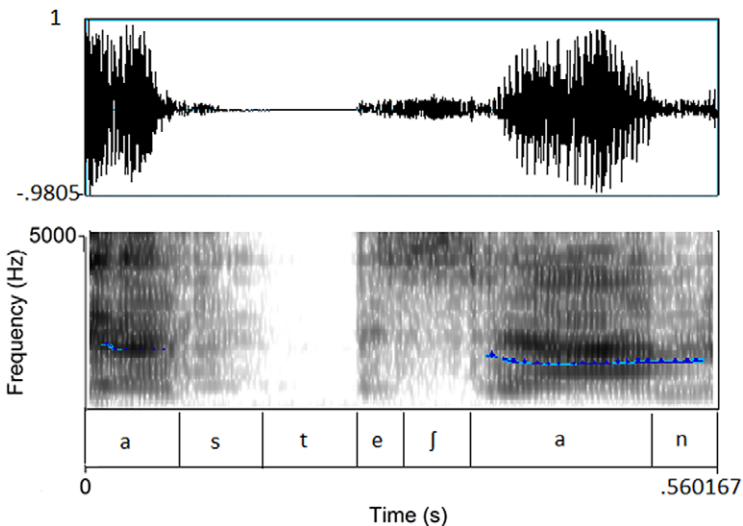


FIGURE 1. Praat image of *sheísmo* production.

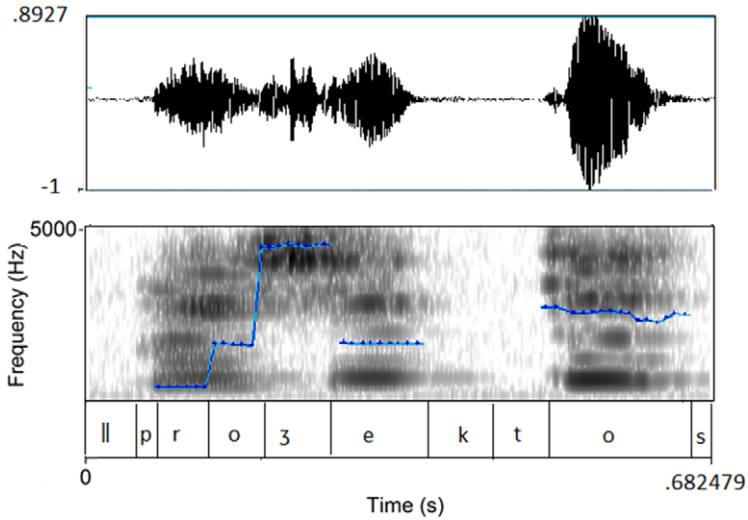


FIGURE 2. Praat image of *zheísmo* production.

in that the realization of “y” shows strong periodicity (waveform) and a clear voicing bar (spectrogram), indicating the production of “y” as the voiced variant [ʒ].

An advanced applied linguist, foreign language teacher, and NS of River Plate Spanish was also trained to transcribe the phonological features based on impressionistic analysis. She listened to and provided phonological transcriptions for all three interviews conducted with more than half of the participants, reaching a total of approximately 3,000 tokens of palatal phonemes. Then, these transcriptions were compared to those of the first author. The coders reached agreement 95% of the time. When there was a discrepancy between the two sets of transcriptions, Praat (Boersma & Weenink, 2016) was used to perform acoustic analysis and thus verify the phonological realization. If the first author had further trouble verifying the realization, Audacity 2.0.5 recording and editing software was used to reduce background noise and amplify the sound, and then Praat was used to verify the realization again.

CODING

Data were coded for a range of internal and external factors that could potentially influence a speaker’s use of a Buenos Aires variant. Because there has been little research on the acquisition of *sheísmo/zheísmo* by L2 learners, we coded broadly, drawing on Chang (2008) and Rohena-Madrado (2011, 2013, 2015). While Chang (2008) was a small study and few factors were found to be significant, Rohena-Madrado’s (2011, 2013, 2015) studies have found that multiple linguistic factors constrain the choice between voiced and voiceless variants. Table 2 summarizes the coding categories.

The internal factor groups of orthographic representation, word type, morphological status, and phonological environment were determined based on recent research on variation in palatal production among NSs of BAS (Chang, 2008). Additionally, the

TABLE 2. Coding for multivariate analysis

Factor group	Factors
Dependent variable	Buenos Aires ([ʃ] or [ʒ]) Other ([j] or [dʒ])
Orthographic representation	<y> <ll>
Word type	Closed-class items (e.g., <i>allá</i> “there,” <i>yo</i> “I,” <i>ella</i> “she”) Open-class items (e.g., <i>subdesarrollados</i> “underdeveloped”)
Morphological status	Palatal associated with basic morpheme (e.g., <i>rayado</i> “scratched,” cf. <i>rayar</i> “to scratch”) Palatal restricted to certain parts of morphological paradigm (e.g., <i>leyendo</i> “reading,” cf. <i>leer</i> “to read”)
Phonological environment—location	Word-initial (e.g., <i>ya</i> “already”) Word-medial (e.g., <i>proyectos</i> “projects”)
Phonological environment—nearby vowels	Adjacent to high/front vowel (e.g., <i>ayer</i> “yesterday”) Adjacent to low/back vowel (e.g., <i>cayó</i> “fell,” <i>gallo</i> “chicken”)
Frequency (Davies, 2006)	High (top 25%) Medium (middle 50%) Low (bottom 25%) Very low (not in Davies)
Social network strength scale (SNSS)	0–19 20–39 40 and higher
Age of member in social network with whom learner had most contact	30 and younger 31–59 60+
Proficiency level	Beginning Intermediate Advanced
Speech type	Sociolinguistic interview Reading task Word list
Interview time	1 Predeparture or immediately after arrival in Buenos Aires 2 Week 9 or 10 of stay in Buenos Aires 3 Shortly before or immediately after return to the United States
Individual speaker	

frequency of a word in which a phonological token appears was included in the analysis as a linguistic factor group. This was done following Rohena-Madrado’s (2011) recommendation because frequency may be related to noticing, which sets the stage for language acquisition to occur (Schmidt, 1990, 2001). The word-type factor group was added to the linguistic factors during the analysis to determine whether certain words, particularly the word *yo* (“I”), interacted with L2 learner production of BAS phonemes. This was done because participants often produced *yo* as [jo], as opposed to the BAS realizations of [jo] or [ʒo] produced frequently among NSs in the target speech community.

The external factor groups of SNSS (Kennedy, 2012; Kennedy Terry, 2017), the approximate age of the member of the participant’s social network with whom he or she had the most contact (Chang, 2008; Rohena-Madrado, 2013, 2015), speech style (Rohena-Madrado, 2013), proficiency level (Bayley, 1996; Bayley & Langman, 2004;

Geeslin & Gudmestad, 2008; Ringer-Hilfinger, 2013), and interview time (Kennedy, 2012) were determined based on previous literature on NS palatal fricative production and the acquisition of sociolinguistic competence. Finally, individual speaker was included as a random effect.

Two of those external factor groups require explanation. First, although there is some debate as to whether the change from [ʒ] to [ʃ] is complete (Chang, 2008; Rohena-Madrado, 2015), there is evidence that younger people favor the devoiced variant. However, a number of the participants in this study were in home stays with elderly speakers, with whom they spent time and from whom they received input in Spanish. Hence, the age of a student's most frequent interlocutor was expected to potentially influence his or her choice of [ʃ] or [ʒ]. Second, although it is often thought that students in a SA program will have ample access to NS input, that is not always the case. As such, to determine the amount and quality of students' interactions with NSs, they were assessed orally at each interview time with a modified version of Kennedy Terry's (2017) SNSS, illustrated in Appendix A. Although several studies have examined the role of social networks in SA research, Kennedy Terry's scale was selected because it provides highly useful information not only about the interlocutors with whom students engage but also about the types of activities in which students participate during SA.

On the SNSS, learners were asked to list all the NSs (along with where they were from and their approximate age) with whom they spoke in Spanish for at least 30 minutes in the previous two weeks, as well as the number of hours they spoke, and their relationship. Participants were then asked if any of the NSs knew each other and, if so, which ones and how. In addition, they were asked to list the activities they participated in and the topics they discussed with each NS. Participants earned one point for each NS listed from Buenos Aires, one point for each hour per week spent speaking with this person, and one point for each NS contact that knew another NS contact on the list. Learners received one point for each connection among NSs on their lists who knew each other, one point for each different topic discussed, and one point for each activity done with a NS from Buenos Aires. Using this point system, a SNSS score was determined for each learner at each interview time. Finally, SNSS scores were considered Low (0–19 points), Mid (20–39 points), or High (40 points and up) for the purposes of the analysis.

ANALYSIS

Several analyses were conducted with Rbrul, a specialized application of logistic regression that is commonly used in studies of linguistic variation (Johnson, 2009). First, speakers' use of a BAS variant, whether [ʃ] or [ʒ], was compared to that of a non-BAS variant, with the BAS variant defined as the application value. In the second stage, non-BAS variants were excluded and the two BAS variants were compared, with [ʃ] defined as the application value.

RESULTS

The overall results indicate that participants increased their production of a BAS phoneme, as well as their production of the devoiced phoneme in particular, during SA in Buenos Aires. Participants produced a Buenos Aires phoneme [ʃ] or [ʒ] 4.7% of the time at

Time 1 prior to or right after the start of SA, 83.1% of the time at Time 2 after 2.5 months into the program, and 89% of the time at Time 3 after five months in Buenos Aires. Of the BAS phonemes, they produced the voiceless phoneme [ʃ] 19.8% of the time at Time 1, 52.1% of the time at Time 2, and 66.1% of the time at Time 3.

BAS ([ʃ] or [ʒ]) VERSUS NON-BAS

The results of the BAS ([ʃ] or [ʒ]) versus non-BAS ([j] or [dʒ]) analysis are shown in Table 3. The last column on the right shows the factor weight for each factor in the factor group. This weight, which ranges from 0 to 1, indicates the amount of influence of each factor relative to other factors in the same factor group on the variant selected as the application value (Bayley, 2013). Weights higher than .50 indicate that the factor positively influences the use of the variant(s) selected as the application value (Bayley, 2013), in this case the BAS variants [ʃ] or [ʒ]. This table includes the factor groups (word type, phonological environment—location, and time) and the individual factors within these groups (vowel-ll-vowel, other, and *yo*; word-initial and word-medial; and Interview Time 1, 2, and 3) that reached significance at $p < 0.05$. As Guy (1988) notes, the goal of this type of analysis is to produce the most parsimonious model that accounts for the data. Therefore, factor groups that failed to reach significance—morphological status, orthographic representation, phonological environment-nearby vowels, frequency, and social factors—are not included.¹

As seen in the word type factor group in Table 3, the word *yo* disfavored Buenos Aires realizations the most with a factor weight of .340. Words that included vowel-ll-vowel, however, favored BAS realizations with a factor weight of .702. All other words that included a “y” or a “ll” slightly disfavored BAS realizations, with a factor weight of .421. In the word type factor group, *yo* was recoded as a separate factor in the final analysis because closer examination of the data showed that learners frequently pronounced *yo* as [jo]. Because *yo* is one of the first words students learn, it could have been fixed early on as [jo] in learners’ internal or exemplar representations (Bybee, 2013) and therefore could have been difficult to change. This may occur because “details of form and usage are

TABLE 3. BAS ([ʃ] or [ʒ]) versus non-BAS ([j] or [dʒ]) (application value = [ʃ] or [ʒ])

Factor group	Factor	Logodds	N	% BAS	Weight
Word type	Vowel-ll-vowel (<i>ella</i> , etc.)	0.899	1577	63.2	.702
	Other	−0.278	2392	53.3	.421
	<i>Yo</i>	−0.621	890	57.9	.340
Phonological environment—location	Initial	0.421	2034	57.2	.620
	Medial	−0.421	2825	57.4	.413
Time	3	2.614	1570	89.0	.940
	2	1.898	1571	83.1	.884
	1	−4.512	1718	4.7	.012
Total	Input		4859	57.3	.508

automatically registered in exemplar representation and ... can become an inherent part of the construction" (Bybee, 2013, p. 55).

With respect to the phonological environment factor group seen in Table 3, participants produced a BAS phoneme more in word-initial position (factor weight of .62) than in word-medial position (factor weight of .413). It is not entirely clear why learners tended to do this. In his study of BAS phoneme production among NSs of BAS, Chang (2008) did not find an effect for phonological environment—position. We hypothesize that the BAS realizations in word-initial position may be more noticeable to learners and therefore they may produce them more often.

The results for the time factor group indicate that the amount of time participants spent abroad significantly influenced their production of BAS phonemes. During Interview Time 1, participants produced a BAS phoneme 4.7% of the time with a corresponding factor weight of .012. The participants who produced a BAS phoneme at Time 1 were already in Buenos Aires, had learned about NS production of BAS phonemes in a Spanish course in the United States, or had spent time in a region of Colombia where “y” and “ll” were perceived to be realized as BAS phonemes (background questionnaire, pre-SA interview). At the mid-SA interview 2.5 months into SA, participants dramatically increased their production of BAS phonemes to 83.1% of the time, with a favorable factor weight of .884. During the third interview at the end of the five-month sojourn, participants continued to increase their production of BAS phonemes, albeit only slightly, to 89% of the time with a factor weight of .94. This demonstrates that the greatest gains in use of BAS phonemes seem to be made during the first months of immersion.

Individual speakers also differed considerably in their production of BAS variants, with weights ranging from .074 (use of BAS phonemes 37% of the time) to .983 (use of BAS phonemes 88.2% of the time). Tokens elicited from speakers who showed no variation in their interview at Times 2 and 3 (two speakers—Kelly and Brittany—who categorically produced the BAS phonemes [j] or [ʒ] at Time 2, and six speakers—Amy, Andrea, Brittany, Ryan, Kelly, and Mary—who categorically produced the BAS phonemes [j] or [ʒ] at Time 3) were removed from the analysis. These participants who categorically produced BAS phonemes were advanced learners. Moreover, five of them were the only participants who created social networks large enough to merit a SNSS score of high. All other learners who produced BAS phonemes to varying degrees during SA earned low to mid scores on the SNSS. This result suggests that having advanced proficiency and large or strong social networks might facilitate achieving categorical use of BAS phonemes during SA.²

In addition, there were two participants who resisted using BAS phonemes: Kim and Alison. Kim made a conscious choice not to fully adopt these phonemes due to her long-term goal of working with Spanish-speaking immigrants from other countries in the United States as an immigration lawyer (post-SA interview). Alison, who was not happy with her SA experience overall, reported spending little time with Argentines and substantial time with NS friends from other Spanish-speaking countries while in Buenos Aires (mid-SA interview). This suggests that learners who interact with NSs of other dialects of Spanish during SA and/or who plan to do so upon return to the United States might resist using BAS phonemes while in the host community.

TABLE 4. [j] versus [ʒ] (application value = [j])

Factor group	Factor	Logodds	N	% [j]	Weight
Word type	Vowel-ll-vowel (<i>ella</i> , etc.)	0.399	874	63.7	.574
	Other	0.087	1099	56.6	.497
	<i>yo</i>	-0.486	418	53.3	.357
Speech style	Interview	0.315	807	63.8	.579
	Word list	-0.083	700	57.1	.480
	Reading	-0.232	884	55.1	.443
Time	3	1.514	1308	66.1	.607
	2	0.786	1002	52.1	.427
	1	-2.300	81	19.8	.033
Total	Input		2391	58.6	.680

[j] VERSUS [ʒ]

Table 4 summarizes the results of the analysis that explored the voiceless [j] versus the voiced variant [ʒ]. In this analysis, only word type, speech style, and time reached significance at $p < .05$.

As seen in Table 4, looking at the word type factor group, *yo* resisted devoicing with a factor weight of .357, vowel-ll-vowel (including tokens such as *ella*) slightly favored devoicing with a factor weight of .574, and all other tokens were relatively neutral with a factor weight of .497. Close examination of the data showed that *yo*, with 418 tokens, tended to be realized as voiced (with a factor weight of .357) and differed considerably from other words beginning with “y.” Students may favor producing *yo* with the voiced variant because they originally learned to pronounce *yo* using a voiced variant [j] in their Spanish classes. Because [j] is voiced, L2 learner realization of *yo* as voiced could be a characteristic set for the word early on as an inherent part of the construction (Bybee, 2013).

As seen in the speech style factor group, devoicing was favored the most during the sociolinguistic interviews with a factor weight of .579, voicing was slightly favored but relatively neutral in the word list with a factor weight of .480, and voicing was favored slightly more in the reading task with a factor weight of .443. These results are in line with previous research on voicing among NSs of BAS conducted by Rohena-Madrado (2013), who also found more voicing in running speech (the reading task) than in isolated words (the word list).

As indicated in the time factor group, the amount of time spent abroad significantly influenced devoicing. In the Time 1 interview, learners produced a devoiced variant 19.8% of the time with a factor weight of .033. This devoicing in Time 1 was due primarily to two participants: Camille, who learned about devoicing in BAS in her Hispanic linguistics course prior to her sojourn abroad, and thus began producing “y” and “ll” as [j] before leaving for Argentina, and Kerry, who participated in the initial interview from Colombia, where she perceived “y” and “ll” to be realized as BAS features, and thus began producing them as such prior to arriving in Argentina. In the Time 2 interview 2.5 months into the semester abroad, participants produced a devoiced variant 52.1% of the time with a factor weight of .427. Most notably, by Time 3 at the end of the five-month sojourn, participants produced a devoiced variant 66.1% of the time with a factor weight of .607. Thus, there was an increase in devoicing over time throughout the semester abroad.

TABLE 5. Results for individual speakers (percentages)

Speaker	SNSS score	Time 1			Time 2			Time 3			Weight	Weight
		Tokens	[ʃ]/[ʒ]	[ʃ]	Tokens	[ʃ]/[ʒ]	[ʃ]	Tokens	[ʃ]/[ʒ]	[ʃ]	[ʃ]/[ʒ]	[ʃ]
Kerry	Mid	105	53.3	98.2	113	95.6	1.0	103	97.1	100	.983	.904
Camille	Low	65	23.1	6.7	69	95.6	55.9	65	92.3	36.7	.924	.789
Amy	Mid	105	0	0	97	99.0	100	95	100	100	.717	na
Mary	High	67	0	0	80	98.8	22.8	84	100	84.5	.704	.356
Ryan	High	65	0	0	72	97.2	100	80	100	100	.670	na
Jenny	Mid	75	0	0	93	93.5	55.2	93	93.5	91.9	.621	.558
Emily	Mid	72	0	0	nd	nd	nd	108	98.1	100	.618	na
Valerie	Mid	71	0	0	117	97.4	100	73	91.8	98.5	.608	.934
Eddie	Low, Mid	67	14.9	1.0	66	83.3	30.9	78	92.3	5.6	.577	.057
Alicia	Low, Mid	68	0	0	74	91.9	40.3	83	95.2	70.9	.531	.388
Chelsea	Low	65	0	0	108	89.8	100	79	94.9	94.7	.502	.840
Erin	Mid	80	0	0	nd	nd	nd	108	94.4	89.2	.457	.704
Andrew	Mid	79	0	0	81	86.4	31.4	117	92.3	84.3	.407	.420
Kathryn	Low, Mid	65	0	0	86	79.1	1.5	85	97.6	8.4	.403	.026
Melanie	Low, Mid	65	0	0	65	84.6	69.1	69	91.3	98.4	.381	.770
Tyler	Low, Mid	80	0	0	99	71.7	2.8	72	94.4	4.4	.291	.021
Kelly	High	78	0	0	73	100	74.0	83	100	86.7	.260	.707
Andrea	High	83	0	0	nd	nd	nd	82	100	100	.255	na
Julia	Low	68	0	0	75	66.7	34.0	67	94.0	9.5	.254	.109
Brittany	High	82	0	0	80	100	100	102	100	98.0	.250	na
Mariah	Mid	73	0	0	90	53.3	97.9	75	89.3	100	.167	.922
Alison	Low	69	0	0	93	58.1	94.4	108	55.6	45.5	.093	.933
Kim	Low	71	0	0	93	51.6	31.3	106	49.1	40.4	.074	.216

Notes: na, not applicable—speaker was producing devoiced variant categorically; nd, no data—speaker did not participate in interview. When two SNSS scores are displayed, the first is from Time 2 and the second is from Time 3. When only one SNSS score is displayed, the SNSS score at Time 2 and 3 was in the same range. Columns headed [ʃ] show the percentage of BAS variants that were devoiced.

As shown in [Table 5](#), speaker as a random effect also influenced the [ʃ] versus [ʒ] analysis, with weights ranging from .021 to .934. Tokens from five speakers who showed no variation at Time 2 (Valerie, Brittany, Chelsea, Ryan, and Amy, who produced [ʃ] categorically at Time 2) and six speakers who showed no variation at Time 3 (Kerry, Amy, Mariah, Andrea, Emily, and Ryan, who produced [ʃ] categorically at Time 3) were removed from the analysis. These speakers had a variety of proficiency levels and SNSS scores and thus seemed to be a more diverse group of learners than the categorical BAS phoneme users.

In addition, there were five participants who produced the voiced variant more than the devoiced one by the end of the five-month sojourn in Buenos Aires. These participants lived with older hosts (over the age of 60) during part of the SA sojourn (Kathryn, Alison, Eddie, and Kim) and/or lived in dorm-style residences for at least part of their time in Buenos Aires (Julia and Alison). Because older NSs of BAS are more likely to produce voiced variants (Chang, 2008), it makes sense that learners who lived with these hosts produced [ʒ] more. Nonetheless, age of the most prominent member of learners' social networks was not a significant predictor of L2 voicing. Moreover, given that learners who lived in dorm-style residences had substantial contact with NSs of Spanish from other countries, this may have influenced their voicing patterns as well.

DISCUSSION

In this section we discuss the research questions we sought to answer and outline how the quantitative analyses presented in the previous sections provide answers to these questions.

RESEARCH QUESTION #1

The first question was: When and to what degree do English-speaking students studying in Buenos Aires, Argentina acquire the phonological features characteristic of BAS, that is [ʃ] and [ʒ]? Overall, results demonstrate that in general participants made rapid gains in nativelike production of the target phonological features. These results are consistent with previous literature on the topic. Specifically, Hoffman-Gonzalez (2015) found post-SA that learners produced BAS phonemes [ʃ] and/or [ʒ] 84.5% of the time, compared to the present study's finding that post-SA learners produced BAS phonemes 89% of the time.

RESEARCH QUESTION #2

The second question was: How does the acquisition of [ʃ] and [ʒ] by SA students in Buenos Aires compare with the acquisition of region-specific phonological features in other areas of the Spanish-speaking world? Both this study and Hoffman-Gonzalez (2015) found that learners participating in SA in Buenos Aires produced BAS phonemes at a much higher rate than learners studying in Spain produced [θ] and [χ]. For instance, George (2013) found that [θ] production among L2 learners remained low, between 7 and 8% of the time, throughout a three-month sojourn in Spain. Similarly, Ringer-Hilfinger (2013) found that participants produced [θ] 17% of the time at the beginning and 18% of the time at the end of four months in Spain. In addition, George (2013) found that learners produced the phonological feature [χ] a total of 13% of the time after three months in Spain and Ringer-Hilfinger (2013) found

that participants produced it a total of 15.5% of the time after four months there. So, why do learners studying in Buenos Aires acquire BAS phonemes more quickly than learners studying in Spain acquire [θ] and [χ]? There are several possible explanations for this. First, because *sheísmo/zhéismo* occurs in all phonological contexts, it is relatively easy to implement, as opposed to [θ] and [χ] in Castilian Spanish, which are only used in specific linguistic contexts ([θ] is used for “z” and for “c” before “i” and “e” and [χ] is used for “j” and for “g” before “i” and “e”—which may be difficult for learners to remember and use according to NS patterns). Second, *sheísmo/zhéismo* is a prestige form. In this respect, it contrasts with the [θ] of Peninsular Spanish, which has been viewed negatively by many native English speakers, who tend to see it as a lisp (Aronson, 1973).

Moreover, there are additional reasons that L2 learners might adopt the BAS phonemes examined here. First, the BAS phonemes are very salient, with salience defined as “the prominence of a linguistic item during its delivery as a result of its distinctiveness from input or against previously formed cognitive representations” (Ghia, 2011, p. 2). The distinctiveness of these phonemes has been examined by McLeod (2014), who demonstrated that the pronunciation of “y” and “ll” in BAS is one of the most salient features of the dialect for speakers of other Spanish dialects. Second, as our participant Alicia (mid-SA interview) commented, when learners do not produce “y” and “ll” using a BAS phoneme in Buenos Aires, *porteños* (natives of Buenos Aires) seem to have difficulty understanding them. Third, although there is still some variation among [j] and [ç] in BAS, most NSs use the devoiced variant [j̥] and the devoicing change is nearing or has reached completion (Chang, 2008; Rohena-Madrazo, 2015). Considering that L2 learners are more likely to produce more stable variants in more targetlike ways (Regan et al., 2009), more targetlike production of *sheísmo/zhéismo* among L2 learners studying abroad in Buenos Aires is to be expected.

RESEARCH QUESTION #3

The third question this article seeks to answer is: What are the linguistic and social constraints on the acquisition of [j] or [ç]? First, with respect to the BAS versus non-BAS analysis, the factors that significantly influenced L2 production of BAS phonemes were word type, phonological environment—location, time spent abroad, and individual speaker. Factor groups that failed to reach significance included orthographic representation, morphological status, phonological environment—nearby vowels, frequency, SNS, age of member in social network with whom the learner had the most contact, proficiency level, and speech type. Potential reasons for the lack of significance of some of these factors are discussed at the end of this section.

Of the factors that significantly influenced L2 production of BAS phonemes in this study, as seen in the word type factor group, the word *yo* tended to disfavor BAS realizations, words that included vowel-ll-vowel favored BAS realizations, and all other words slightly disfavored BAS realizations. With respect to phonological location, participants produced a BAS phoneme more in word-initial position than in word-medial position. Finally, the more time participants spent abroad, the more BAS phonemes they produced. Speaker as a random effect also influenced participant production of BAS features.

Previous research examining the influence of phonological location on pre-palatal phoneme production among NSs of BAS focused on different phonological positions. In his comparison of voicing in /ʒ/ realizations as opposed to /s/ realizations among 16 NSs of BAS, Rohena-Madrado (2013) found more voicing in intervocalic than in phrase-initial position, while Chang (2008) found no significant effect for phonological location in the voicing analysis. Following Chang (2008), this study explored the influence of phonological position on L2 voicing patterns, focusing on word-initial and word-medial positions. Findings indicate that L2 learners produced a BAS phoneme more in word-initial than in word-medial position. This result is in line with previous research on L2 acquisition of [χ] in Spain, which also found that learners produced the feature more word-initially than word-medially (George, 2013). Nevertheless, this result contrasts with previous research on L2 acquisition of [θ] in Spain, which found that learners produced [θ] more in word-medial position than word-initial position (George, 2013; Knouse, 2013). Although it is unclear why the results of the present study align with those of previous work on L2 acquisition of [χ] but not [θ], we hypothesize that word-initial BAS phonemes may be more noticeable, which may lead learners to produce them more in this position.

It is no surprise that time spent in the target community influenced BAS phoneme production in this study. Previous research on the acquisition of sociolinguistic competence in a SA context has shown that the longer learners are immersed in the host community, the more they produce the target features (Geeslin et al., 2010; Sax, 2003). Also, it is not surprising that individuals differed greatly in their rates of use of BAS variants. Similar results have been found consistently in this line of research (see Geeslin & Gudmestad, 2008; George, 2013, 2014; Hoffman-Gonzalez, 2015; Knouse, 2013; Ringer-Hilfinger, 2013, among others).

Not only did a number of factors constrain BAS phoneme production, but several factors also significantly influenced voicing ([ʃ] versus [ʒ]) among participants: word type, speech style, time, and speaker. The factors that did not significantly influence L2 voicing patterns were orthographic representation, morphological status, phonological environment—location, phonological environment—nearby vowels, frequency, SNSS, age of member in social network with whom the learner had the most contact, and proficiency level. Potential reasons for the lack of significance of some of these factors are discussed later in this section.

Regarding the factors that significantly influenced voicing patterns, within the word type factor group, the word *yo* resisted devoicing, vowel-ll-vowel slightly favored voicing, and all other tokens were relatively neutral but slightly favored voicing. Devoicing was favored the most during the sociolinguistic interviews, voicing was minimally favored in the word list, and voicing was favored somewhat more in the reading task. Finally, as time in the target community increased, so did the amount of devoicing among participants. Speakers also differed greatly in their voicing patterns.

With respect to speech style, Rohena-Madrado (2013) found that NS participants voiced more in running speech (the reading task) than in isolated words (the word list). The same was true in the present study, in which L2 participants voiced the most in the reading task, a little less in the word list, and the least during the sociolinguistic interview. The results of this study (more [ʃ] production in the sociolinguistic interview than in the word list) are also in line with previous second language acquisition (SLA) research that indicates that learners produce more targetlike forms in more meaning-focused, spontaneous speech (Tarone,

1985). However, these results are opposite those of studies on L2 production of the dialectal features [θ] and [χ] (George, 2013, 2014; Ringer-Hilfinger, 2013), which found more target feature production in the reading passage than in spontaneous speech. Taking this into consideration, conflicting results regarding L2 use of regional features in different speech styles are no surprise in SLA research because attention to form alone does not account for variation in L2 production of targetlike forms (Tarone & Parrish, 1988). In fact, recent research in SLA indicates that L2 style shifting is related to situational factors such as characteristics of the speaker, interlocutor, task, topic, and type of discourse rather than the amount of attention paid to form (Geeslin & Long, 2014).

Additional factors that significantly influenced voicing in the present study included the amount of time spent abroad and individual speaker variation. Findings indicated that the more time participants spent abroad the more they produced devoiced variants. Moreover, there was a significant effect for individual speaker with respect to voicing patterns. The individual variation in devoicing could be due to the complexity of a SA context and the great deal of individual factors at play. Several speakers (five at Time 2 and six at Time 3) who showed no variation, as they were categorical devoicers, were removed from the voicing analyses. The rest of the learners alternated to different degrees among voiced and voiceless realizations. These results are in line with the NS literature, which found that NS devoicers seem to be a stable group, consistently saying [ʃ], whereas voicers tend to voice to varying degrees and/or to alternate between voiced and voiceless variants (Chang, 2008; Rohena-Madrado, 2015).

There were also factors that have been found to significantly influence NS variation in voicing patterns that were not significant predictors of voicing in the present study. For example, age and area of residence as an index of social class are the most significant social factors that affect voicing patterns among NSs of BAS (Chang, 2008; Rohena-Madrado, 2015). In light of this, the present study explored the age of the most prominent member of learners' social networks in relation to L2 voicing patterns but not the role of neighborhood of residence because all participants resided in upper-class neighborhoods during the sojourn. Results of this study indicate that the age of the most prominent member of learners' social networks did not significantly affect learners' voicing patterns. This may be due to the high use of the voiceless variant among NSs, especially younger ones (Chang, 2008; Rohena-Madrado, 2015), which is also gaining ground among upper class speakers, regardless of age (Rohena-Madrado, 2015). Consequently, learners were most likely exposed extensively to voiceless realizations of BAS phonemes when interacting with NSs in the upper-class neighborhoods in which they resided and took classes, regardless of the age of the most prominent member of their social networks.

Results of previous SA research also indicate the importance of factors that did not reach significance in this study. For example, previous research on social networks in SA shows that they tend to be a key factor influencing the acquisition of sociolinguistic variation, specifically regarding phonological variables (see Kennedy, 2012; Kennedy Terry 2017). The difference in the results seen here may be because BAS phonemes ([ʃ] or [ʒ]) are so much more salient than the variables Kennedy Terry studied (e.g., elision of /l/ in third-person singular clitic pronouns) that learners did not need to have great social networks to notice or adopt *sheísmo/zheísmo* in their speech. Still, it is worth noting that the learners who categorically produced BAS phonemes were advanced learners and five out of the six were the only participants to earn high scores on the SNSS. These findings suggest that extensive

social networks in the TL community may be beneficial for achieving categorical BAS phoneme production. However, this is an area for further research.

Finally, the high rate of L2 use of BAS variants, particularly the devoiced variant, has implications for our understanding of the acquisition of sociolinguistic competence more generally. The results of this study suggest that learners of all levels have sociolinguistic awareness of at least some dialectal forms and they are able to adopt them to some extent, particularly if they are widely present. Thus, instructors do not need to reserve the inclusion of sociolinguistic variation for advanced levels and avoid it in lower level language courses. Moreover, unlike commonly studied sociolinguistic variables such as /s/-weakening, which is socially stigmatized, *sheísmo* and *zheísmo* are part of the BAS standard. As such, L2 learners never receive the message that there is something negative about the BAS variants examined in this study and therefore it is logical that they choose to adopt these features while in Buenos Aires.

CONCLUSIONS

This study investigated L2 learner use of phonological features characteristic of BAS, *sheísmo/zheísmo*, during a semester abroad in Buenos Aires, Argentina. Findings demonstrate that participants increased their use of these features throughout SA, with the most dramatic increase occurring during the first 2.5 months abroad. L2 production of these features in Buenos Aires was greater than that of previously studied features of Peninsular Spanish in Spain, perhaps due to the ease of implementation, prestige, saliency, and stability of the BAS phonemes. With respect to the factors that constrain the use of the phonological features under investigation, L2 production of BAS phonemes was significantly influenced by word type, phonological environment—location, time spent abroad, and individual speaker. Similarly, speech style, word type, time spent abroad, and individual speaker were significant predictors of devoicing.

Because there is some variation in voicing patterns among NSs of BAS, we compared the factors that constrained voicing patterns among L2 learners in the present study with those that constrained voicing patterns among NSs in previous literature. Findings indicate that some of the factors (speech style) that influenced L2 voicing also significantly influenced NS voicing while other factors (word type, time spent abroad, individual speaker) did not. These results are in line with what we know about the acquisition of sociolinguistic competence among L2 learners. While interlanguage variation is highly systematic and subject to linguistic and social factors, the constraints operating on L2 language use are not always the same as those operating on NS language, especially across proficiency levels (e.g., Adamson & Regan, 1991; Bayley, 1996; Bayley & Langman, 2004; Kennedy Terry, 2017; Major, 2004).

Although we expected social networks and proficiency level to significantly influence L2 production of the BAS phonemes [ʃ] and [ʒ], and the voiceless variant [ʃ̥] specifically, our findings indicated that this was not the case. We attribute this to the saliency of these features, positing that they are so salient that learners do not need to have extensive social networks or advanced proficiency to acquire them to some degree. Nevertheless, there were six learners who produced BAS phonemes categorically at the end of the semester in Buenos Aires who had advanced proficiency and five of them were the only participants to earn high SNSS scores. As such, advanced proficiency and large/strong social networks

with NSs in the host community seem to be important in achieving categorical use of BAS phonemes. Thus, learners at *all* proficiency levels in SA programs should be provided with ample opportunities to build social networks, especially beginning and intermediate learners who may struggle to establish them on their own.

There were several limitations to this investigation. First, learners' proficiency levels and information about their social networks were self-reported. Second, data was collected virtually via Skype. Despite the use of a quiet space, a fast Internet connection, and earbuds with a microphone during the interviews, at times there was some background noise or a slight lag in the connection. While these issues did not pose a problem for the BAS phoneme analysis, they did occasionally interfere with the voicing analysis. Therefore, when necessary, Audacity was used to reduce background noise and amplify the realizations of the target features and a spectrogram was created in Praat to visually determine whether the segment of interest had a voicing bar. Future studies should attempt to alleviate these challenges by conducting interviews face to face in a quiet space or using soundproof booths during feature elicitation.

Despite these limitations, the present study contributes to our understanding of the acquisition of sociolinguistic competence in a variety of ways. First, it provides one of the first accounts of the acquisition of features characteristic of a variety of Spanish spoken in Latin America, specifically in Buenos Aires, Argentina. Second, it is one of the first (following that of Kennedy, 2012 and Kennedy Terry, 2017) to use a SNSS adapted for SA research and to examine the relationship among social networks and the acquisition of sociolinguistic competence. As such, this article contributes to the growing number of studies on language variation in SLA while extending this work to examine that of L2 learners in a SA context.

NOTES

¹A reviewer suggested that we include values for factor groups that failed to reach significance. We have not done so for two reasons. First, following Young and Bayley (1996), we coded broadly and did not expect all factor groups to reach significance. Second, learners may use a target language form, but they do not necessarily acquire the full range of constraints that govern native speech (Bayley, 1996; Bayley & Langman, 2004). That is what appears to have occurred in this study.

²A goal of any study of linguistic variation is to explain the observed patterns of variation. Thus, speakers who use one or another variant of the variable in question categorically are not part of the analysis because they no longer vary. Although it is important generally, this principle is particularly applicable to studies of features that speakers are in the process of acquiring. In second language acquisition studies of the acquisition of categorical target language features, the goal is to understand which factors influence speakers' use of the feature as acquisition proceeds. However, once learners have fully acquired the feature and are using it categorically, their data is no longer relevant to answer the question of which factors influence variation.

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APPENDIX

Social Network Strength Scale (adapted from Kennedy, 2012; Kennedy Terry, 2017)

Name: Date:

- (1) List each native Spanish-speaking person with whom you have maintained at least a 30-minute conversation in Spanish over the last couple of weeks. List the number of hours per week (*if you spent time with two+ people at the same time, include the number of hours next to one name*), your relationship to this person (e.g., host mom, conversation partner), where each person is from (country, city, neighborhood), and their approximate age.
- (2) Check and/or list all activities in which you participated with this person (e.g., sharing a meal/drink, taking a trip, exercising, celebrating an occasion, playing a sport/board game/cards, going to an event/bar/club) and all of the topic(s) you discussed with this person (e.g., culture, current events, politics, sports, music, movies, TV, problems, plans, school, daily life).

If the NSs here know each other, which ones and how?

Name	Hours/week	Relationship (e.g., host mom, roommate)	Place of origin (neighborhood, city, country)	Age	Activities in which you have participated with this person <i>(Check all that apply/list all others.)</i>	Topic(s) discussed with this person <i>(Check all that apply/list all others.)</i>
					<input type="checkbox"/> share a meal/drink <input type="checkbox"/> take a trip <input type="checkbox"/> exercise <input type="checkbox"/> celebrate an occasion <input type="checkbox"/> play a sport/ board game/cards <input type="checkbox"/> Go to event/bar/club <input type="checkbox"/> Other:	<input type="checkbox"/> culture <input type="checkbox"/> daily life <input type="checkbox"/> TV <input type="checkbox"/> politics <input type="checkbox"/> sports <input type="checkbox"/> school <input type="checkbox"/> music <input type="checkbox"/> movies <input type="checkbox"/> problems <input type="checkbox"/> events <input type="checkbox"/> plans <input type="checkbox"/> Other:
					<input type="checkbox"/> share a meal/drink <input type="checkbox"/> take a trip <input type="checkbox"/> exercise <input type="checkbox"/> celebrate an occasion <input type="checkbox"/> play a sport / board game/cards <input type="checkbox"/> Go to event/bar/club <input type="checkbox"/> Other:	<input type="checkbox"/> culture <input type="checkbox"/> daily life <input type="checkbox"/> TV <input type="checkbox"/> politics <input type="checkbox"/> sports <input type="checkbox"/> school <input type="checkbox"/> music <input type="checkbox"/> movies <input type="checkbox"/> problems <input type="checkbox"/> events <input type="checkbox"/> plans <input type="checkbox"/> Other:
					<input type="checkbox"/> share a meal/drink <input type="checkbox"/> take a trip <input type="checkbox"/> exercise <input type="checkbox"/> celebrate an occasion <input type="checkbox"/> play a sport/ board game/cards <input type="checkbox"/> Go to event/bar/club <input type="checkbox"/> Other:	<input type="checkbox"/> culture <input type="checkbox"/> daily life <input type="checkbox"/> TV <input type="checkbox"/> politics <input type="checkbox"/> sports <input type="checkbox"/> school <input type="checkbox"/> music <input type="checkbox"/> movies <input type="checkbox"/> problems <input type="checkbox"/> events <input type="checkbox"/> plans <input type="checkbox"/> Other: