CHAPTER 6

L2 intonation perception in learners of Spanish

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While the field of L2 variation, particularly with L2 Spanish, is expanding, to date little is known about the acquisition of variable intonation that occurs in final boundary tones of yes-no questions. The present study investigates the effects of explicit instruction on the accurate identification of utterance type (yes-no questions, broad-focused declarative statements, and wh-questions). Eleven L1 English learners of Spanish in an advanced university level Spanish class listened to 21 Spanish utterances to identify the utterance type before and after receiving explicit in-class instruction. Two L1 Spanish listeners served as a control. Learner gains in identification of utterance type were not significant, and there was no statistically significant effect of explicit instruction on the identification of the utterances.

Keywords: L2 Spanish intonation, variation, yes-no questions, L2 Spanish learners

1. Introduction

Second language (L2) learners often find it difficult to master first language (L1) pronunciation, particularly when learning the target language (TL) as an adult. One area that has caused difficulty in terms of both production and perception is L2 prosody and more specifically L2 intonation (Henriksen 2013). For example, an utterance such as *There is a mosquito* can sound like a statement or a question and can also be stated with irony or sarcasm, all by changing the intonational contours. Saito (2018: 286) claims that the development of L2 intonation is "'gradual' and 'slow' in nature". Problems with suprasegmental features of the language can result in unpleasant exchanges of communication for L2 speakers and their interlocutors (Mennen 2006). Research on the area of L2 intonation in general and also on Spanish has received little attention (Henriksen 2013). However, some recent studies with L2 learners abroad, and cross-sectional studies of learners at

https://doi.org/10.1075/lald.69.06geo

different proficiency levels, shed light on the developmental patterns of L2 Spanish intonation. Familiarity and exposure to target dialect(s) has been shown to benefit the perception of regional varieties by L2 classroom learners (Matsuura et al. 1999; Nibert 2005; Sullivan & Karst 1996; Tauroza & Luk 1997) and by study abroad learners (Schmidt 2009; Trimble 2013).

Previous phonological research has focused on segmental phonology more so than suprasegmental phonology (Henriksen 2013; Flege 2002). Intonational phonology, however, has been explored, quite extensively with L1 Spanish speakers and less so with L2 Spanish speakers (Henriksen 2013). This could be due to the high degree of variation found in L1 speakers (e.g., Prieto & Roseano 2010). The field is growing, and a handful of studies have begun to explore the development of L2 intonation by learners of Spanish.

A particularly interesting case of L2 Spanish intonation to study are statements and questions. In English, a yes-no question is distinct from a statement not only due to intonation (high (H%) vs. low boundary tone (L%), respectively), but also due to word order (Table 1). This is not the case in Spanish, where intonation may be the only cue to distinguish a question from a statement when the word order remains the same (Hualde & Prieto 2015). As a result, L2 learners of Spanish who are English L1 speakers cannot use the same information as in their L1 to distinguish statements from yes-no questions. That is, they cannot solely rely on word order, but they need to primarily use intonational cues. On the other hand, wh-questions follow similar syntactic and intonational patterns in English and Spanish, so the L2 learners do not have to rely on intonation. Statements such as the one shown in Table 1 in both Spanish and English have boundary tones with similar underlying characteristics (Beckman & Pierrehumbert 1986; Estebas-Vilaplana & Prieto 2008).

Table 1. Examples of sentences in English and Spanish with their boundary tones

	English	**Spanish**
Statement	There is a meeting. (L%)	Hay una reunion. (L%)
Yes-no question	Is there a meeting? (H%)	¿Hay una reunion? (H%)
Wh-question	When is the meeting? (L%)	¿Cuándo es la reunion? (L%)

Complicating matters even further for English-speaking learners of Spanish, is the variation found in final boundary tones of L1 Spanish intonation of absolute interrogatives (e.g., Prieto & Roseano 2010). For example, Castilian and Mexican varieties end in a high boundary tone (Face 2008; Willis 2005), while Puerto Rican Spanish ends in a low boundary tone (Quilis 1987). This may also pose

issues for learners of Spanish who may perceive a yes-no question made by a Puerto Rican speaker as a statement.

Provided the similarities between English and Spanish questions in terms of their boundary tones, the intonation of both types of sentences should be easy for L2 learners to perceive. Given, however, the difference in the significance of the intonational information between the two question types in Spanish, it is not clear whether one is easier to learn than the other for L2 learners. The current study seeks to determine if L2 learners of Spanish can perceive the difference between statements and questions with identical word order when they are not given any context clues about the utterance by examining the effects of implicit instruction.

2. Background

Research on the development of L2 Spanish intonation is in its infancy. A handful of studies on production and perception offer valuable insights into the field. This section will highlight some of those contributions by examining studies that focus on the perception of intonation by learners of Spanish as well as the effects of explicit instruction on the development of L2 Spanish intonation.

Research on L2 Spanish intonation perception has shown some differences in the ability to perceive different intonational contours based on proficiency level and also the type of utterance under study (Brandl et al. 2020; Nibert 2005, 2006; Trimble 2013; Zárate-Sández 2018). Brandl et al. (2020), Trimble (2013), and Zárate-Sández (2018) will be discussed in further detail next, since their investigations pertain directly to the current study. In all three studies, L2 Spanish learners were tasked with distinguishing between yes-no questions and declarative statements; Brandl et al. (2020) also examined wh-questions and Trimble (2013) also examined regional differences in yes-no question final boundary tones and how that affected perception.

Zárate-Sández (2018) investigated perception of final boundary tones in 17 intermediate, 20 advanced, and 18 very advanced L2 Spanish learners. The control groups in the study consisted of 17 L1 American English speakers, 17 L1 Spanish speakers (representing 5 macro dialects of Spanish), and 16 English-Spanish bilinguals (heritage speakers of Spanish). To measure perception, participants were asked to listen to an utterance and repeat it, since it was posited that accurate repetition would indicate accurate perception. The original utterance was a declarative sentence uttered by an Argentine Spanish speaker. This sentence was manipulated to create 10 stimuli with increasingly higher final boundary tones in each stimulus. Two L1 Spanish speakers judged each stimulus (the 10 utterances) as sounding native-like, indicating they were unaware they had been manipulated.

By manipulating the location of the final boundary tone on a scale from low to high, the excepted type of utterance was also being manipulated, with declaratives having lower boundary tones and yes-no questions having higher boundary tones. Contrary to the prediction made by the researcher that yes-no questions in Spanish would be more difficult for L2 Spanish-speakers to distinguish from declaratives (since they must rely on intonation and not word-order like in English), the results indicated that all participants were able to perceive higher boundary tones as yes-no questions and lower boundary tones as declarative statements. This was regardless of the proficiency level of the participant.

Brandl et al. (2020) investigated the development of broad and narrow-focused statements, yes-no questions, and wh-questions in a cross section of L1 English learners of L2 Spanish with varying proficiency levels, including 38 low-beginner, 35 high-beginner, 41 low-intermediate, 22 high-intermediate, and 53 advanced, in addition to a control group of 10 L1 Spanish speakers. The proficiency level of the L2 Spanish learners was based on the level of the university Spanish course in which they were enrolled. In this study, upon hearing an utterance, participants also saw an utterance on the screen. Participants were asked to determine if the two utterances matched. For example, if they heard *Daniel iba a Bolivia* 'Daniel went to Bolivia' and saw *¿Daniel iba a Bolivia?* 'Did Daniel went to Bolivia?', that would be a mismatch. If they heard *Daniel iba a Bolivia* 'Daniel went to Bolivia' and saw *Daniel iba a Bolivia* 'Daniel went to Bolivia', that would be a match. The utterances came from 8 speakers of 8 macro-dialects of Spanish. When tasked with identifying utterances that matched, all participants, both L1 Spanish speakers and all learner groups, were above 90% accurate for all utterance types. However, when the utterance's visual appearance did not match its aural form, accuracy in identifying these mismatches decreased and differences among L1 and L2 Spanish speakers were found. L1 Spanish speakers correctly identified mismatches with broad focus declaratives 76% of the time and 81% of the time for narrow focus declaratives. The learner groups ranged from 7% to 34% accuracy, with the advanced learners identifying mismatches significantly more than the other beginner learner groups. For yes-no questions, the L1 Spanish speakers correctly identified mismatches 61% of the time, while the learner groups accuracy was between 6% and 14%, again with advanced learners being more accurate than beginning learners. In terms of wh-questions, L1 Spanish speakers were 98% accurate in identifying mismatches, a level similar to advanced and high-intermediate L2 learners. Low-intermediate learners followed with 83% accuracy, followed by high-beginner learners at 74% and low beginner learners at 66%. In summary, learners more accurately identified mismatches if the mismatch contained a wh-question than if it contained a yes-no question or either type of declarative statement. This study demonstrates that, as predicted, wh-questions are the easiest to

perceive and yes-no questions are the most difficult. In addition, the developmental pattern shows that only learners at the high-intermediate and advanced levels pay attention to intonational cues when listening to questions. Statements are much easier to identify even for beginning learners who demonstrated a high level of accuracy.

Trimble (2013) took macro-dialect under consideration for advanced learners in his perception study. Of the 24 advanced learners in the study, 9 had never studied abroad, 9 recently studied abroad for one semester in North-Central Spain and 6 in Mérida, Venezuela. The control groups consisted of L1 Spanish speakers from Mérida, Venezuela and 19 late-beginning learners. The task was to identify if the utterance was a yes-no question or a declarative statement. The listeners heard three different Spanish speakers, one from Mérida Venezuela, one from the USA and one from North-Central Spain. It should be noted that in Mérida, Venezuela, yes-no questions end in a low final boundary tone unlike in North-Central Spain where they end in a high boundary tone. The utterances were split into parts and the listeners heard either all or part of each utterance. In total, there were 24 utterances by each of the three speakers recorded. When the participants listened, they were tasked with identifying the type of utterance, declarative statement or yes-no question. The results indicated that learners were 58% accurate in identifying the utterance type when they heard part of the utterance and 89% accurate when they heard all of the utterance, indicating that they were relying on final boundary tones to identify the utterance. Participants were more accurate at identifying declaratives (78%) than yes-no questions (63%). The researcher found that L2 advanced learners who had previously studied in Mérida, Venezuela were more accurate at identifying yes-no questions and declaratives than L2 late-beginning learners. However, the same did not hold true for the advanced learners who had previously studied in North-Central Spain in that they did not differ statistically from late-beginning learners due to overall high levels of accuracy in the identification of yes-no questions and statements. Trimble (2013) also found a heavy influence of L1, with learners still associating a final fall in a question to their L1 of English and not the L2 questions in Mérida Venezuelan Spanish.

The aforementioned studies did not examine the teaching and training of L2 Spanish intonation. Exposure to training on variable input has increased perceptive abilities (Bradlow et al. 1997; Nishi & Kewley-Port 2007; Palmeri et al. 1993; Rasmussen & Zampini 2010). Dialectal variations are often not taught in the Spanish classroom (Gallego & Conley 2014), which could be why there are few studies on explicit instruction of this type of variation on L2 development. Two studies that involved training learners to perceive or produce regional dialectal variation will be discussed next.

Regarding training on Spanish phonology for L2 learners, Rasmussen and Zampini (2010) found that explicit instruction aids in the perception of some regional features in L2 learners studying abroad in Andalucía, Spain, but they did not investigate any intonational features or patterns. Addressing this gap, Craft (2015) found no effect of instruction in a group of learners who spent 6 weeks abroad in Valencia, Spain. While the number of participants was limited to 5 in the experimental group (received instruction while abroad) and 3 in the control group (received no instruction while abroad), all participants differed significantly from locals in their production of boundary tones in statements and yes-no questions. Participants in both groups increased their production of low boundary tones in statements from 62% to 81% for the experimental group and from 68% to 91% in the control group. On the contrary, participants in both groups remained steady in their production of high boundary tones for yes-no questions which remained between 96%–100% in the pretest and posttest. While this study did not test perception, it did use perception activities to train learners to produce certain intonational patterns for statements and yes-no questions. No studies, to my knowledge, have examined the effects of instruction on the perception of intonational patterns.

3. Theoretical background

Mennen's (2015: 173) L2 Intonation Learning theory (LILt) attempts to account for the learning of suprasegmentals by offering the following four dimensions where differences between L1 and L2 intonation may reside:

i. the systemic dimension, which refers to the inventory and distribution of structural phonological elements;
ii. the realisational dimension, which refers to the way the systemic elements are phonetically implemented;
iii. the semantic dimension, which refers to how systemic elements are used to signal intonation function; and
iv. the frequency dimension, which refers to the frequency of use of the structural elements.

According to this theory, categories within L1 and L2 intonation systems that are similar will result in the merging into one category and categories that are different will result in two sounds. Along the way, transfer from L1 to L2 may occur. Within this theory, the systemic and semantic dimensions for final boundary tones of statements, yes-no questions, and wh-questions are similar for Spanish and English, apart from dialects of Spanish whose yes-no questions end in a low boundary tone. These similarities should be encouraging to L2 learners of Span-

ish and should result in no difficulties in terms of perceiving the different types of utterances. Dialect identification should also be easy when the final boundary tone of the utterance in the L1 dialect matches that of the L2. When it does not match, learners may have a more difficult time identifying the utterance type. Sociolinguistic variation can play a role in this theory, particularly to the frequency dimension, with some learners being more exposed to the dialects with a low boundary tone for yes-no questions. According to Clopper and Bradlow (2009), L2 learners will attend to phonologically or sociolinguistically relevant cues if they also occur in their L1.

The current study adds to the limited number of studies on the teaching and learning of variable intonation by investigating how L2 learners perceive variable intonational patterns, particularly since L2 Spanish learners in the U.S. are often exposed to different varieties of Spanish through their instructors, contact with Spanish-speakers, and media. Previous studies did not address the role of technology, or the role instruction may play on the perception of intonational phrasing, especially when that phrasing differs from what is found in the L1. To add to the previous studies on the perception of intonation, the current study explores the development of the perception of absolute interrogatives and declaratives in a variety of Spanish dialects, some of which do not mimic American English in terms of intonational phrasing. The following research questions are posed:

- Do L2 Spanish listeners transfer L1 intonational information, specifically final boundary tone, to L2 intonation?
- What, if any, is the role of explicit instruction on the ability to accurately identify utterance types (absolute interrogatives, broad focus declaratives, and wh-questions)?

Based on the previous studies reviewed, it is hypothesized that participants will transfer their knowledge of their L1 to their L2 when distinguishing between wh-questions, yes-no questions, and declaratives. This would mean that they should have few issues in accurately identifying wh-questions. Listeners can rely on both the final falling boundary tone and the interrogative word in the question, similar to English. Listeners may have more difficulty identifying final falling yes-no questions, as is commonly heard in some macro-dialects of Spanish, including Puerto Rican Spanish. This low boundary tone is not heard in English and therefore may not transfer to Spanish. In other words, if participants can transfer L1 prosodic perception to L2, they will be more accurate in identifying the types of utterances; if not, they will be less accurate. It is also hypothesized that instruction will result in increased accuracy of the identification of the three types of utterances and in particular will aid in the identification of yes-no questions with low boundary tones, which are less common than yes-no questions with high boundary tones.

4. Methodology

4.1 Participants

The 11 participants were third- and fourth-year students enrolled in advanced Spanish courses at a large regional university in the Southeastern USA. They were L1 speakers of English ranging in age from 21–42, with an average age of 25.5. On average, they spent 6.77 years learning Spanish. The participants reported varying degrees of contact with primarily L1 Latin American Spanish speakers. Their average proficiency score on a grammar-based 25-point multiple choice test created by Geeslin and Gudmestad (2010) was 75.27%. Two additional adult male L1 speakers of Spanish were also included in the study to serve as a control group. One was from Colombia and the other from Puerto Rico. Two adult female heritage speakers of Spanish were also included in the study. These speakers grew up speaking Spanish at home and attended school in English, with the exception of the Spanish classes they were enrolled in at the university. It is a limitation of the study that more L1 Spanish speakers were not included, and it is suggested to rectify this in the future.

4.2 Instruments

4.2.1 *Pretest*

The participants completed a background questionnaire in which they provided information about their previous experiences learning Spanish. This included the number of years they spent learning Spanish, how and where they learned Spanish, and the geographic variety of Spanish they currently speak or wish to speak. They also completed a 25-question multiple choice Spanish proficiency test based on Geeslin and Gudmestad (2010) which tested both grammar and vocabulary.

4.2.2 *Dialect and utterance identification task*

Prior to receiving any instruction about intonation, the participants completed a pretest where they listened to 21 utterances presented in random order. These utterances were taken from the Interactive Atlas of Spanish Intonation (found here: http://prosodia.upf.edu/atlasentonacion). Then after listening to each utterance, on a sheet of paper, the participants selected the type of utterance (question or statement) and the macrodialect of the speaker based on the country (Mexico, España (Madrid), Argentina, Perú, Colombia, España (Andalucía), Venezuela, Puerto Rico, Ninguno (None)). Of the 21 utterances, there were 7 declaratives, 7 yes-no questions, and 7 wh-questions, each from 7 regional macrodialects

(Colombia, Puerto Rico, Argentina, Mexico, Peru, North-Central Spain, and Southern Spain). While it is possible participants could identify dialects based on other information in the utterances outside of intonation, this was controlled for as much as possible. For example, word-order was not an issue in the yes-no questions and declaratives, and neither were major distinguishing regional phonological features, such as consonant lenition, the interdental fricative instead of the alveolar fricative in North-Central Spain, and the palatal fricative in parts of Argentina. The contours of each dialect for declaratives were similar with either one or two high peaks and ending in a final low boundary tone. For yes-no questions, each utterance ended in a high boundary tone except for the one pronounced by the Puerto Rican speaker. That utterance ended in a low boundary tone. For wh-questions, the intonational contours were also very similar, with one or two high peaks and then a low final boundary tone. Wh-questions could be easily identified due to the interrogative word included in the utterance.

4.2.3 *Input during explicit instruction*

A few days after the pretest, participants received explicit whole-class face-to-face instruction on the intonational contours of the three types of utterances from the instructor for approximately 20 minutes. This involved viewing spectrograms and listening to recordings from the Interactive Atlas of Spanish Intonation. The instructor, who was also the researcher, indicated the various macrodialects by presenting audio recordings from the Atlas of neutral broad-focused declarative statements, information-seeking yes-no questions, and wh-questions, and then highlighting the overall contours and differences in pitch accents and boundary tones for each sentence type along with the origin of each speaker, pointing out regional differences found in the boundary tones of the utterances. The recordings were the same ones used in the pretest and posttest. Prior to this instruction, participants did not appear to know anything about intonation.

4.2.4 *Posttest*

One week after this instruction, participants listened to the 21 utterances again and provided the same information as before, the utterance type and the macrodialect of the speaker of each utterance.

5. Analysis

The researcher recorded the answers from the pretest and the posttest. A correct answer for utterance type received a score of 1 and an incorrect answer received a 0. The scores for each utterance type for each participant were added together

with the highest possible being 7. Given that the data were not normally distributed, the non-parametric Related-Samples Wilcoxon Signed Rank test was performed instead of parametric paired *t*-tests in order to compare increases in the accurate identification of utterance type from the pretest to the posttest.

6. Results

Table 2 displays the average out of a total possible of 7 for each utterance type. The average for identifying declaratives remained the same both before and after explicit instruction. This average increased slightly for yes-no questions and wh-questions, but the increase was not significant.

Table 2. Identification of utterance type by 11 L2 Spanish listeners

Sentence type	Pretest average (SD)	Posttest average (SD)	Related-samples Wilcoxon signed rank test *p*-value
Declaratives ($N=7$)	6.91 (0.31)	6.91 (0.31)	$p=.64$
Yes-no questions ($N=7$)	6.45 (0.69)	6.64 (0.67)	$p=.09$
Wh-questions ($N=7$)	6.45 (0.69)	6.91 (0.30)	$p=.09$

When dividing the utterances into types, significant improvement was not found since the *p*-values for the Related-Samples Wilcoxon Signed Rank tests were all above .05.

Table 3 displays the individual variation evident in the identification of utterance type by the 11 participants in the study. The total possible number of utterances for each type is 7. The macro-dialect of the speaker of the misidentified utterances is shown in parenthesis.

Table 3. Individual identification by utterance type (and in parenthesis the dialects they misidentified)

Participant	Declaratives Pre / Post	Yes-no questions Pre / Post	Wh-questions Pre / Post	Total Pre / Post
1	7 / 7	7 / 7	7 / 7	21 / 21
2	7 / 7	6 / 7 (Puerto Rico)	5 / 7 (Peru, Mexico)	18 / 21

Table 3. *(continued)*

Participant	Declaratives Pre / Post	Yes-no questions Pre / Post	Wh-questions Pre / Post	Total Pre / Post
3	7 / 7	5 / 7 (Colombia, Puerto Rico)	6 / 6 (Mexico / Mexico)	18 / 20
4	7 / 7	6 / 7 (Puerto Rico)	6 / 7 (Puerto Rico)	19 / 21
5	6 / 7 (Puerto Rico)	6 / 7 (Puerto Rico)	6 / 7 (Colombia)	18 / 21
6	7 / 7	7 / 7	7 / 7	21 / 21
7	7 / 7	5 / 6 (Puerto Rico)	6 / 7 (Southern Spain)	18 / 20
8	7 / 7	7 / 7	7 / 7	21 / 21
9	7 / 7	6 / 7 (Puerto Rico)	7 / 7	20 / 21
10	6 / 7 (Argentina)	6 / 7 (Puerto Rico)	7 / 7	19 / 21
11	7 / 7	7 / 7	7 / 7	21 / 21
L1 Spanish listener from Colombia	7 / 7	7 / 7	6 / 7 (Peru)	20 / 21
L1 Spanish listener from Puerto Rico	7 / 7	7 / 7	6 / 7 (Peru)	20 / 21
Heritage listener of Colombian descent	7 / N/A	7 / N/A	7 / N/A	21 / N/A
Heritage listener of Mexican descent	6 / 7 (Southern Spain)	7 / 7	7 / 7	20 / 21

Four of the participants (1, 6, 8, and 11) accurately identified all utterance types on both the pretest and the posttest. The most any participant misidentified for any given utterance type was 2 out of 7 utterances. Three participants became less accurate in their identification of utterance type from pretest to posttest. However, this inaccurate identification was limited to yes-no questions only, where participants misidentified these as declarative statements. Only two participants misidentified a declarative utterance. Both times, these participants identified the utterance as a yes-no question. As suspected, the participants had issues identifying the Puerto Rican yes-no questions, misidentifying them as declarative statements. Two participants identified the Colombian yes-no question as

a declarative. Five participants identified wh-questions as declarative utterances, which is quite surprising given the interrogative word present in the question.

The last five rows of Table 2 include four additional listeners, two who are L1 Spanish speakers and two who are heritage speakers of Spanish. Both L1 Spanish speakers accurately identified the utterance type for all but one utterance, a wh-question produced by a Peruvian speaker misidentified as a declarative. It is a bit unclear why this would have happened. The heritage speaker whose family is from Colombia did not complete the posttest, but accurately identified each utterance type on the pretest. The heritage speaker whose family is from Mexico also exhibited a high degree of accuracy, misidentifying a declarative spoken by a speaker from Southern Spain as a yes-no question. This dialect was most likely unfamiliar to the participant.

7. Discussion

As expected, identification of utterances with similar intonational contours in Spanish and English was high. Seven participants misidentified the Puerto Rican yes-no question as a declarative statement. The L1 Spanish speakers did not, and it is interesting to note that one was from Puerto Rico and one was not. Likewise, the heritage speakers also correctly identified the Puerto Rican yes-no question and neither listener was of Puerto Rican descent or spoke Caribbean Spanish. On the pretest, six L2 Spanish listeners misidentified one or two wh-questions, which is surprising given the interrogative word present in the utterance, making it unnecessary to rely on intonation alone. Identification of all types was highly accurate by all participants. The slight increase by the L2 listeners from the pretest to the posttest was not significant. These findings of fairly high accuracy of the perception of utterance types is in line with previous studies that also found similar results with advanced L2 learners of Spanish who are L1 speakers of English (Brandl et al. 2020; Nibert 2005, 2006; Trimble 2013; Zárate-Sández 2018).

It was hypothesized that the absolute interrogatives from Puerto Rico would result in misidentification since the final boundary tone differs from that found in the other Spanish macrodialects presented to the participants and from English. This hypothesis is partially supported as seven of the eleven L2 Spanish listeners identified the yes-no question by the Puerto Rican speaker as a statement. The only other macrodialect that resulted in misidentifying a yes-no question was the Colombian dialect, which occurred for two participants. Both L1 Spanish participants correctly identified the yes-no question by the Puerto Rican speaker.

The results of this study partially align with those of Brandl et al. (2020), Trimble (2013), and Zárate-Sández (2018) in that most L2 Spanish listeners asso-

ciate a final fall with declaratives and a final rise with yes-no questions. Some participants in Trimble (2013) who had more experience with a Spanish macrodialect consisting of absolute questions with final falls also more frequently distinguished these utterances from declaratives. According to Henriksen et al. (2010), individual variation is in line with what is generally known about second language acquisition: when new elements are added to the interlanguage, variability increases until the more native-like element replaces the element that previously had been in use. The new element in this case for some participants was the final fall on the yes-no question uttered by the Puerto Rican speaker.

In terms of the role of explicit teaching, since there were no significant differences from pretest to posttest on the identification of utterance types, there is no clear link between explicit instruction on different types of utterances and their intonational patterns and the ability to identify these utterances. These nonsignificant differences could also be explained by the fact that several participants were at or near ceiling, so there was no room for improvement. A few participants increased their accuracy in distinguishing the utterances, but only by a little. Therefore, more research would be needed to determine if indeed explicit instruction could be useful. Craft (2015) also found no effect of intonational instruction on the production of statements and yes-no questions since both the control and experimental group produced more target-like productions while studying abroad.

The results also align with Mennen's (2015) LILt. This theory posits that if the two intonational patterns are similar in both languages, they will merge into one system. It seems most participants' ability to distinguish utterance types falls under this category. The high level of accuracy of identifying utterances as declaratives and wh-questions could be a result of similarities between the L1 and L2, aligning with both the systemic dimension and semantic dimension of the theory. For the participants that could accurately distinguish between the yes-no question final fall and the declarative statement final fall, they may not be transferring L1 intonational information to their L2 but instead creating a new category. The role of frequency could also be at play, certainly in terms of how often participants hear yes-no statements as final falls and also in terms of how often they hear declarative statements versus questions.

8. Implications, limitations, and future directions

This research contributes to the scarce research on the teaching of L2 intonation to L2 learners of Spanish. More specifically this included the teaching of variable intonation, which has been known to cause problems even to L1 Spanish speakers

who cannot distinguish a yes-no question from a statement when both end in a low boundary tone which occurs in some regional dialects. Even though advanced learners have a high level of accuracy of identifying sentence-types, they also may benefit from explicit instruction particularly when intonational patterns do not match those of their L1. More research would be needed to determine this.

The limitations of this study include the low number of participants. In the future, including more L1 Spanish speakers as well as heritage speakers of Spanish could provide further evidence to support the LILt. This study did not include a baseline of English utterances, so it is unclear if the participants can distinguish these utterances in English. Furthermore, the participants were considered advanced learners solely due to their previous history taking Spanish courses and the level of the class in which they were enrolled at the time of the study. They also completed a proficiency test, but it assessed grammar and vocabulary as opposed to aural proficiency levels. A more global level of proficiency or an oral measure might provide a clearer picture. Additionally, there may have been a memory effect since the same utterances were used in the pretest and the posttest, although the order was changed. The utterances were also slightly different, and the participants could have detected this and used that to help with identification on the posttest. Finally, participants could be hearing other cues and really should be in some cases. This could be why the scores are so high for wh-questions. Although, in the pretest, the participants also exhibited a similar high average for identifying yes-no questions.

A future study would benefit from not only more participants, but participants with varying levels of proficiency ranging from beginner to very proficient. Additionally, a future study should use a control group of more L1 speakers of each macrodialect as well as heritage speakers of various macrodialects. Perhaps their identification would match that of the participants, although background variables, such as exposure and familiarity with other L1 Spanish dialects, would most likely play a role.

Instruction on the features under study only took place during part of one class period. It could be beneficial to provide more in-depth instruction where learners are able to practice more with the structures under study to increase their accuracy and understanding of variable intonation in Spanish. If this practice includes feedback, Carroll (2001) suggests it could facilitate the learning of the variable structure under study as long as the learners interpret the corrections as feedback, the feedback is relevant to the information being exchanged, and the feedback is used by the learner. If the feedback is in the form of modeling, comprehension may occur more quickly due to the "repeated exposure" that can "strengthen the parsing procedures needed to analyse it" (Carroll 2001: 350). Ask-

ing the participants to reflect on their learning experience could also provide more clarification on how they completed the pretest and posttest.

Finally, examining the production of the utterances in a future study will allow for the investigation of the relationship of production and perception. Only one previous study to date on L2 Spanish intonation has done this, Craft (2015), so adding further studies allows for a clearer picture of L2 intonation to emerge.

9. Conclusions

Of the few studies conducted on L2 Spanish intonation, most focus on production or perception of utterance types, often not considering regional differences in intonational patterns and also leaving out the effects of explicit instruction. The current study reports on the effects of explicit instruction, noting high accuracy of sentence type identification on the pretest and no significant effect of instruction. Difficulty in identifying utterances whose final boundary tone in the L2 differ from that expected in the L1 occurred with more than half of the participants, showing that these participants may be mapping information about intonation from their L1 onto their L2.

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