

The Pennsylvania State University  
The Graduate School  
Department of Spanish, Italian and Portuguese

**VERB FREQUENCY EFFECTS AND MOOD PREFERENCE: IMPLICATIONS FOR  
THE L2 TEACHING AND LEARNING OF NEGATED MATRIX VERBS OF BELIEF**

A Dissertation in  
Spanish  
by  
Tracy Cramer Scaltz

© 2013 Tracy Cramer Scaltz

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

December 2013

The dissertation of Tracy Cramer Scaltz was reviewed and approved\* by the following:

Paola Giuli Dussias  
Professor of Spanish, Linguistics and Psychology  
Dissertation Advisor  
Chair of Committee  
Head, Department of Spanish, Italian and Portuguese

Rena Torres Cacoullos  
Professor of Spanish and Linguistics

Carrie Jackson  
Associate Professor of German and Linguistics

Karen Miller  
Assistant Professor of Spanish Linguistics

Maria Truglio  
Associate Professor of Italian

\*Signatures are on file in the Graduate School

## ABSTRACT

This dissertation examines subtle distinctions of selection between the subjunctive and indicative moods in complement clauses appearing with negated matrix verbs of belief in Spanish. Motivated by the disparity between how native speakers select mood and the stringent prescriptive rules that appear in second language textbooks, I investigate whether three groups of proficient English-Spanish speakers adhere to prescriptive notions, and thereby reject indicative complement clauses when negated verbs of belief are used in the matrix clause, or whether the acceptance of indicative complements is modulated by the frequency with which matrix verbs surface with the indicative mood in subordinate clauses in natural language input.

In Experiment 1, the grammaticality judgments of 60 monolingual Spanish speakers from Granada, Spain, 20 monolingual Spanish speakers from Bogotá, Colombia, 20 Spanish-English secondary students from Valladolid, Spain, 24 English-Spanish teachers of Spanish, 24 English-Spanish non-teachers and 16 English-Spanish now-teachers are analyzed for seven negated matrix verbs of belief. The now-teachers originally pertained to the group of non-teachers and were tested twice: once prior to having any teaching experience, and a second time after having taught for three years. The grammaticality judgments concern whether a subordinate clause that appears after a negated verb of belief in the matrix clause allows an indicative complement, ‘Ella no cree que su novio es guapo’ (*She doesn’t believe that her boyfriend is handsome*), in addition to the widely accepted subjunctive complement, ‘Ella no cree que su novio sea guapo’ (*She doesn’t believe that her boyfriend is handsome*). The results show that the three groups of L1 Spanish speakers judge indicative complements to be acceptable in contexts where the subjunctive mood is normally required by prescriptive grammar rules. Although still not approximating native speaker use, the 24 English-Spanish bilinguals consider indicative

complements to be acceptable for all seven verbs prior to becoming teachers; however, after having taught Spanish for three years, these participants judge indicative complements to be marginally acceptable *only* for the three most frequent, negated matrix verbs of belief that appear in written and spoken Spanish, based on the *Davies* 100-million word corpus, similar to the English-Spanish teachers. This suggests that, in cases of highly frequent verbs, L2 Spanish teachers are able to use statistical verb information to override the influence of prescriptive rules on grammaticality judgments.

A second experiment is conducted using computer-mediated communication to create an authentic, input-rich environment in which the 20 Spanish-English secondary students from Valladolid participate in a synchronous, text-based chat session with 23 intermediate-level, L2 Spanish, U.S. secondary students beginning their study of the Spanish subjunctive. The quantitative findings from Experiment 2 are compared to the results from Experiment 1 to assess whether L1 Spanish speakers demonstrate similar patterns of mood selection across both the grammaticality judgment task and the text-based chat. If so, this would lend support for an exemplar-based model of lexical representation in language learning based on verb frequency information and identifiable patterns of socio-pragmatic intention via real experiences with natural language. Are these patterns robust enough to propose a particular [negated matrix verb of belief] + *que* + [indicative or subjunctive complement] pattern to facilitate L2 learning? The qualitative results are discussed in terms of L2 Spanish learners' reactions to a follow-up analysis task based on their chat experiences with native speakers. L2 Spanish learners report literacy and cultural benefits, increased confidence in language abilities and the capacity to discern how the prescriptive grammar rules of mood selection found in L2 textbooks differ from real native speaker use as evinced in the chat.

Thus, the quantitative L1 Spanish results from Experiments 1 and 2 indicate that each of the seven negated matrix verbs of belief has a replicable acceptability rating and a clear mood preference, regardless of task. The qualitative results from Experiment 2 suggest that using electronic media in the L2 classroom, such as computer-mediated communication using synchronous text-based chat, has linguistic and cultural benefits that extend beyond what the traditional L2 classroom offers. Ideally, L2 Spanish learners' curriculum allows for the participation in native speaker-non-native speaker natural language interactions using electronic media supplemented by the use of revised and updated L2 instructional materials. Informed by the empirical findings from both experiments, one such L2 Spanish pedagogical and curricular improvement is thereby proposed. The new paradigm includes an updated treatment of mood selection to appear in L2 textbooks in which the seven negated matrix verbs are organized into four, distinct categories based on verb frequency information and three classifications based on the native speakers' preferential, socio-pragmatic intentions that emerged from the data.

Taken together, the implications of this research are discussed in terms of how linguistically informed studies can assist pedagogues in the creation of natural language-rich classroom opportunities and updated L2 instructional materials to reflect the ways in which native speakers select mood in the complement clause with negated matrix verbs of belief in Spanish. Taking a natural language, data-driven approach to language learning is arguably one of the most effective ways to promote L2 development of Spanish mood in U.S secondary schools. This dissertation is one of the first to demonstrate, via quantitative and qualitative measures, the necessity of providing language teachers and L2 Spanish learners with grammatical explanations informed by natural language corpora and linguistic research. Future investigations must extend this line of reasoning to other contrastive, L2 grammatical structures.

## TABLE OF CONTENTS

LIST OF FIGURES .....	viii
LIST OF TABLES .....	x
LIST OF ABBREVIATIONS .....	xi
ACKNOWLEDGEMENTS .....	xiii
Chapter 1 Introduction and Background .....	1
1.1 Mood Contrast in Spanish: Indicative or Subjunctive? .....	1
1.2 Prescriptive Rules Oversimplify the Use of the Subjunctive .....	4
1.3 Acquisition of the Spanish Subjunctive.....	6
1.3.1 L1 Acquisition: Variability in Use .....	6
1.3.2 L2 Acquisition: Classroom vs. Study Abroad .....	10
1.4 The Role of Natural Language Input in Learning .....	18
1.4.1 A Usage-Based Exemplar Model of Verb Frequency Effects .....	18
1.4.2 Capturing the Variation of Natural Language: Corpora-Informed L2 Texts.....	24
1.5 Overview .....	27
1.5.1 Structure of the Dissertation .....	27
1.5.2 Goals and Hypotheses of the Present Research.....	28
Chapter 2 Experiment 1: Grammaticality Judgments for Sentences Containing Negated Matrix Verbs of Belief.....	35
2.1 Introduction .....	35
2.2 Participants .....	37
2.3 Materials and Design .....	39
2.3.1 Grammaticality Judgement Task .....	39
2.3.2 <i>Davies</i> corpus.....	41
2.4 Procedure.....	41
2.5 Results .....	42
2.5.1 Analysis 1: Comparison of Complement Types.....	42
2.5.2 Analysis 2: Planned Contrasts of Grammaticality Ratings.....	47
2.5.3 Analysis 3: Individual Verb Comparisons.....	51
2.5.4 Analysis 4: <i>Davies</i> corpus .....	60
2.6 Discussion.....	63
Chapter 3 Experiment 2: Text-Based Chat in the L2 Classroom .....	71
3.1 Introduction .....	71
3.2 Participants .....	73
3.3 Tasks and Procedure.....	74
3.4 Quantitative Analyses & Discussion: Text-Chat & L1 Spanish GJT Comparison .....	77

3.4.1 Analysis 5: Comparison of Complement Types from Chat.....	78
3.4.2 Analysis 6: Comparison of Complment Types: Chat & GJT L1 Spanish Response "A" .....	80
3.4.3 Analysis 7: Individual Verb Comparisons: Chat & GJT L1 Spanish Response "A" .....	82
3.4.4 Analysis 8: L1 Spanish GJT & Chat Comparison CREER .....	88
3.4.5 Analysis 9: L1 Spanish GJT & Chat Comparison PARECERSE .....	89
3.4.6 Analysis 10: L1 Spanish GJT & Chat Comparison SUPONER.....	92
3.4.7 Analysis 11: L1 Spanish GJT & Chat Comparison PENSAR.....	95
3.4.8 Analysis 12: L1 Spanish GJT & Chat Comparison IMAGINARSE .....	97
3.4.9 Analysis 13: L1 Spanish GJT & Chat Comparison ESTAR SEGURO .....	98
3.4.10 Analysis 14: L1 Spanish GJT & Chat Comparison E. CONVENCIDO .....	101
3.4.11 Discussion of Quantitative Results .....	102
3.5 Qualitative Analysis & Discussion: L2 Learners' Feedback from NS-NNS Chat.....	111
3.5.1 Impressions of Overall Literacy/Cultural Benefits to Chat .....	113
3.5.2 Reactions to Conflict between NS Mood use and L2 Textbooks .....	117
3.5.3 Perceptions of L2 Textbook Learning versus Authentic Contexts .....	121
3.5.4 Discussion of Qualitative Results.....	124
Chapter 4 Conclusions and Implications.....	129
4.1 Summary of Findings .....	130
4.2 Linguistic Implications.....	134
4.3 Pedagogical Implications.....	138
4.4 Future Directions .....	143
References .....	148
Appendix A Language History Questionnaire .....	163
Appendix B Grammaticality Judgment Task .....	164
Appendix C Experiment 1 Stimuli Set .....	167
Appendix D Holistic Speaking Rubric for Student Growth.....	168
Appendix E Experiment 2 Stimuli Set .....	169
Appendix F Post-Chat Analysis Task .....	170

## LIST OF FIGURES

Figure 1: L2 Proficiency by Self-Report of English-Spanish Bilinguals.....	39
Figure 2: Comparison of Mean % Acceptability for each Complement Type.....	43
Figure 3: Mean % Acceptability for Indicative Complements by Grammatical Ratings.....	45
Figure 4: Mean % Acceptability for Subjunctive Complements by Grammatical Ratings .....	46
Figure 5: Mean % Acceptability for both Complement Types by Grammatical Ratings .....	46
Figure 6: Planned Contrasts for "Grammatical" (Response A).....	48
Figure 7: Planned Contrasts for "Acceptable" (Response B).....	49
Figure 8: Planned Contrasts for "Ungrammatical" (Response C).....	50
Figure 9: Monolingual Spanish Granada Pairwise Comparisons for Individual Verbs.....	52
Figure 10: Monolingual Spanish Bogotá Pairwise Comparisons for Individual Verbs.....	53
Figure 11: Spanish-English Valladolid Pairwise Comparisons for Individual Verbs.....	55
Figure 12: English-Spanish Teachers Pairwise Comparisons for Individual Verbs.....	56
Figure 13: English-Spanish Non-Teachers Pairwise Comparisons for Individual Verbs.....	58
Figure 14: English-Spanish Now-Teachers Pairwise Comparisons for Individual Verbs.....	59
Figure 15: Spanish-English Valladolid Mean % Production of each Complement Type.....	79
Figure 16: L1 Spanish Mean % Chat Production with GJT Response "A" Elicitation.....	81
Figure 17: L1 Spanish GJT Mean % Response "A" with Chat for CREER .....	89
Figure 18: L1 Spanish GJT Mean % Response "A" with Chat for PARECERSE.....	90
Figure 19: L1 Spanish GJT Mean % Response "A" & "B" with Chat for PARECERSE.....	92
Figure 20: L1 Spanish GJT Mean % Response "A" with Chat for SUPONER.....	93
Figure 21: L1 Spanish GJT Mean % Response "A" & "B" with Chat for SUPONER.....	95
Figure 22: L1 Spanish GJT Mean % Response "A" with Chat for PENSAR.....	96
Figure 23: L1 Spanish GJT Mean % Response "A" with Chat for IMAGINARSE.....	98



Figure 24: L1 Spanish GJT Mean % Response "A" with Chat for ESTAR SEGURO.....	99
Figure 25: L1 Spanish GJT Mean % Response "A" & "B" with Chat for E. SEGURO.....	100
Figure 26: L1 Spanish GJT Mean % Response "A" with Chat for E. CONVENCIDO .....	102
Figure 27: Sample L2 Textbook Page Reflecting Revised Treatment of Mood Contrast.....	110

## LIST OF TABLES

Table 1: Monolingual Spanish Granada Means for Individual Verbs.....	52
Table 2: Monolingual Spanish Bogotá Means for Individual Verbs.....	54
Table 3: Spanish-English Valladolid Means for Individual Verbs .....	55
Table 4: English-Spanish Teachers Means for Individual Verbs.....	57
Table 5: English-Spanish Non-Teachers Means for Individual Verbs.....	58
Table 6: English-Spanish Now-Teachers Means for Individual Verbs.....	59
Table 7: <i>Davies</i> 100 million word corpus of Spanish for Individual Verbs.....	61
Table 8: Chat Valladolid Pairwise Comparisons for Individual Verbs.....	83
Table 9: GJT Granada Pairwise Comparisons for Individual Verbs Response “A” .....	85
Table 10: GJT Bogotá Pairwise Comparisons for Individual Verbs Response “A” .....	86
Table 11: GJT Valladolid Pairwise Comparisons for Individual Verbs Response “A” .....	87

**LIST OF ABBREVIATIONS**

ALM	Audio-Lingual Method
ANOVA	Analysis of Variance
AVE	Aula Virtual de Español
BL	Blended Learning
BT	Blended Teaching
CCSS	Common Core State Standards
CMC	Computer-mediated Communication
DDL	Data-Driven Learning
EFL	English as a Foreign Language
FL	Foreign Language
G-chat	<i>Gmail</i> chat
GJ	Grammaticality Judgment
GJT	Grammaticality Judgment Task
L1	First Language
L2	Second Language
LHQ	Language History Questionnaire
NS	Native Speaker
NNS	Non-Native Speaker
PARCC	Partnership for Assessment of Readiness for College & Careers
SLA	Second Language Acquisition
STEM	Science, Technology, Engineering and Math

*To my daughter, Gianna L'Wren, and my husband, Anthony, whose love and patience provided  
me with the resolution to complete this project.*

## ACKNOWLEDGEMENTS

“The best teachers have showed me that things have to be done bit by bit. Nothing that means anything happens quickly--we only think it does. The motion of drawing back a bow and sending an arrow straight into a target takes only a split second, but it is a skill many years in the making. So it is with a life, anyone's life. I may list things that might be described as my accomplishments in these few pages, but they are only shadows of the larger truth, fragments separated from the whole cycle of becoming...” (Joseph Bruchac)

I would like to acknowledge a few of the people who have helped me along the way, and to whom I offer my heartfelt gratitude.

First and foremost, I want to thank my dissertation director and advisor, Giuli Dussias. Through our travels together collecting data and presenting at professional conferences, you have shown me the world. I am indebted for your support, guidance, training, expertise, friendship, and most importantly, for giving me a second chance to complete my Ph.D.

I would like to thank my committee members, Rena Torres Cacoulllos, Carrie Jackson, Karen Miller and Maria Truglio for your invaluable guidance and expertise in the upcoming months as I write, revise, defend and complete this chapter in my life. I am grateful for your participation on this committee and look forward to your insights and collaboration.

To Teresa Bajo, Cristina Bayon, and Maria Lujan Tubio, thank you for allowing me to collect data with your students in Granada, Valladolid and Bogotá. Without your collaboration, this dissertation would not have been possible.

To Emily Martin, Emilia Alonso Semeño and Maureen Weissenrieder, you three were the genuine inspiration behind my love for the Spanish language. At very different stages of my academic career, each of you pushed me to enroll in the subsequent level of study. It is because of your inspiration that I am completing my Ph.D. in Spanish Linguistics.

To my dear colleague and friend at River Hill High School, Maureen Miller, thank you for your encouragement, mentorship, and for meeting me for coffee during this working summer.

To the best canine friend anyone could ever ask for, Trébol, you came into my life precisely two months before I embarked on my PSU graduate school journey in 2002. Whether you were saving me from intruders in the middle of the night or lying across my feet as I read, wrote or analyzed data, you truly deserve the title of “loyal companion”.

To my mother, Joan Cramer, I don’t even know where to begin. You have been my greatest advocate and enthusiast throughout the years. You are the only one who I can bring to tears when I shine. Thank you for always being there for me.

Above all I thank my husband, Anthony. You stood by me, encouraged me, and took on the role of “Mr. Mom” as you watched our two-year-old daughter, Gianna, during your summer vacation while I spent countless hours creating this document. Not only are your editing skills priceless, but also your constant love and support have made my work lighter by far. There are no words to express my gratitude to you.

To my beautiful daughter, Gianna L’Wren, I love you more than anything in this world! I can only hope that one day when you read this you are proud of your “Monny”. I treasure every second that I am able to spend with you.

Lastly, to my father, Norman Cramer, I wish you could be here to see this. What began as a promise to you many years ago is now becoming a reality.

## Chapter 1

### Introduction and Background

#### 1.1 Mood Contrast in Spanish: Indicative or Subjunctive?

Considerable attention has been allocated to the contrastive subjunctive and indicative moods in the Spanish second language acquisition (SLA) literature in an effort to understand how English second language (L2) learners of Spanish make a distinction that is not salient<sup>1</sup> in their native language (e.g., Collentine, 1995, 1997, 1998, 2004; Collentine, Collentine, Clark, & Friginal, 2002; Gudmestad, 2006; Isabelli, 2007; Isabeli & Nishida, 2005; Lee, 1987; Lee & Rodríguez, 1997; Leow, 1993, 1995; Lubbers Quesada, 1998; Pereira, 1996; Stokes, 1988; Stokes & Krashen, 1990; Segalowitz, Freed, Collentine, Lafford, Lazar, Díaz-Campos, 2004; Terrell, Baycroft, & Perrone; 1987). Although these studies agree that L2 learners in the second language classroom and in study-abroad contexts require exposure to a vast amount of input in order to integrate the semantic nuances that distinguish between the subjunctive and indicative moods, they provide conflicting evidence as to the most effective ways to promote L2 development of Spanish mood.

Mood is a set of inflectional verb forms that indicates the speaker's attitude toward the factuality or likelihood of the action or condition expressed. While mood describes the mode or manner in which the action of a verb is represented, it also expresses the relationship of a verb with reality and intent. The indicative mood is used to make factual statements, and its pragmatic function is often one of assertion. The subjunctive mood is considered to have low informational

---

<sup>1</sup> Although they do exist, subjunctive forms are often morphologically weak in English. Only in the 3<sup>rd</sup> person singular does the indicative and subjunctive verb morphology differ in English (e.g., Kolln & Funk, 1998).

value and indicates that something is probable, unlikely, hoped for or feared. Because mood selection in the complement clause in Spanish is dependent on semantic factors such as presupposition, by electing either the subjunctive or indicative mood, speakers have the opportunity to choose the subtle shade of meaning that they wish to convey (Rivero, 1971). To illustrate this idea, two examples from Rivero are provided in (1) and (2).

- (1) 'Los corredores no creen que el belga ganara la carrera'  
*(The runners don't believe that the Belgian won the race)*
- (2) 'Los corredores no creen que el belga ganó la carrera'  
*(The runners don't believe that the Belgian won the race)*

In (1), the negated verb 'no creen' (*they don't believe*) appears in the matrix clause and is followed by the subjunctive complement 'ganara' (*s/he won*); in (2), the same negated matrix verb is followed by the indicative complement 'ganó' (*s/he won*). When using the subjunctive complement in (1), the speaker reports the runners' belief about the Belgian winning the race, while abstaining from sharing his or her personal belief. When the indicative complement is used in (2), the speaker states that the Belgian did win the race, regardless of whether the runners had believed that the Belgian would win or lose.

Despite the intricacies of Spanish mood, the prescriptive rules appearing in L2 textbooks suggest that the governance of mood selection can be articulated in simple terms. For instance, the grammatical explanations found in L2 textbooks list numerous verbs, each requiring either subjunctive or indicative complements depending upon the category to which the matrix verb has been rigidly assigned. One particular rule states that only subjunctive complements are grammatical with negated matrix verbs of belief in Spanish; however, if we consider the ways in which monolingual Spanish speakers use mood to express a particular meaning, as exemplified in (1) and (2), mood selection is not as straightforward as the prescriptive rules presented in L2 textbooks suggest.



Although many foreign language programs take a “communicative” approach to language instruction, teachers take much care in developing classroom activities so that the target structure is reinforced based on prescriptive notions. Not much has changed over the past four decades from the time when the Audio-lingual Method (ALM) was the language teaching methodology of choice. Based on the principles of behaviorist psychology, which state that languages are learned through the formation of habits, it was the teacher’s job to ensure that all of the learners’ utterances fell within a practiced pattern. Still today, some teachers believe that students will become confused if presented with naturally occurring input that contains any grammatical variant from the prescriptive rules appearing in L2 textbooks. Theoretical evidence now exists in the SLA literature suggesting that this is not the case.

A recent corpus-based analysis, which examined the linking adverbial *though*, was compared to the prescriptive, grammatical explanations found in four English as a Second Language (ESL) textbooks. Conrad (2004, p. 68-69) found that by ignoring the variation that exists in natural language input, the effectiveness of teaching materials is undermined. Her study is one of the first to demonstrate through empirical evidence that, by underestimating the importance of language variation, L2 textbooks misrepresent the way language is used by native speakers (NSs), and teachers create false grammatical expectations for their students.

When second language teachers allow prescriptive rules to dominate learners’ input, the inaccurate representation of Spanish mood is disseminated through the instructor’s monitored speech and classroom exercises, which are designed to reinforce rules. One can conclude that if learners are only exposed to classroom input, the ability to discriminate between the subjunctive and indicative moods is learned particularly late and gradually over time after learners are exposed to substantial natural language input (e.g., Stokes, Krashen & Kartchner, 1998).

The remainder of this chapter is organized as follows: in §2, I review the literature that supports the premise that prescriptive rules found in second language textbooks oversimplify the

variability that exists when native Spanish speakers use semantic and pragmatic information in mood selection. In §3 I describe L1 child acquisition patterns and adult variability in L1 Spanish subjunctive use. I also discuss how the learning context (classroom or study abroad) contributes to the L2 acquisition of the subjunctive. §4 examines the role of verb frequency in language learning and highlights the systematic variation present in naturally occurring language. It also identifies ways that variation in natural language can be captured in L2 instructional materials informed by corpora. Finally, in §5 I outline the structure of the remaining chapters of this dissertation and state the goals and hypotheses of the present research.

### **1.2 Prescriptive Rules Oversimplify the Use of the Subjunctive**

Second language textbooks are notorious for oversimplifying the use of the subjunctive mood in complement clauses with negated matrix verbs of belief. For example, one rule that is found in numerous L2 textbooks<sup>2</sup> states that when a negated verb of belief is present in the matrix clause, the use of a subjunctive complement in the subordinate clause is mandatory. In contrast to textbook rules, however, scholars readily acknowledge that depending on a speaker's belief concerning the truth of the proposition, indicative complements are a viable option (e.g., Bell, 1980; Bolinger, 1974; DeMello, 1992; Farley, 2000; Fernández Ramírez, 1986; Klein, 1977; Lipski, 1978; Lozano, 1972; Rivero, 1971; Solano-Araya, 1982), as illustrated in (1) and (2) above.

The complexity of a proposition is heightened when the first person singular of the matrix verb is used with subjunctive and indicative complements illustrated in (3) and (4) respectively (e.g., Terrell & Hooper, 1974).

---

<sup>2</sup> A complete review of five recently published, L2 Spanish textbooks is provided in Chapter 3 §4.11 of this dissertation.

(3) ‘No creo que tenga suficiente dinero’  
*(I don’t believe that he has enough money)*

(4) ‘No creo que tiene suficiente dinero’  
 I-don’t believe that he has enough money (lit.)  
*(It’s my opinion that he doesn’t have enough money)*

Similar to the rationale provided by Rivero (1971), Terrell & Hooper suggest that (3) and (4) have opposite interpretations: the former expresses doubt on behalf of the speaker, while the latter emphasizes the speaker’s strong assertion regarding the truth of the proposition.

Scholars have recognized that a handful of NSs try to avoid sentences such as the one expressed in (4) because the admission of an indicative complement in this sentence creates a contradiction, which forces the speaker to assert what he or she explicitly rejects as the truth (e.g., DeMello, 1992; Fernández Ramírez, 1986; Isabelli & Nishida, 2005; Klein, 1977; Silva-Corvalán, 1994a, 1994b; Solano-Araya, 1982). Instead of using the sentence in (4) to express the speakers’ affirmation that the complement clause is true, some NSs prefer to use the syntactic structure given in (5), comprised of an affirmative matrix verb followed by a negated complement clause, to convey the same meaning.

(5) ‘Creo que no tiene suficiente dinero’  
 I-believe that he doesn’t have enough money (lit.)  
*(I don’t believe that he has enough money)*

To summarize, scholars acknowledge that the ‘rules of thumb’ appearing in L2 textbooks are inconsistent with the ways in which NSs assign meaning to their utterances. When teachers only reinforce the prescriptive rules governing mood selection, L2 learners are naïve to NS variability concerning an entire gamut of semantic possibilities that can be expressed by using indicative complements (e.g., Lafford & Ryan, 1995; Suñer & Padilla-Rivera, 1987). Not only are L1 Spanish speakers variable in their selection of mood, there is evidence of language change

towards increased indicative use among NSs (e.g., Silva-Corvalán, 1994a, 1994b). As we will see in the next section, because there is a great deal of variability in the use of the Spanish subjunctive by NSs, teachers must ensure that L2 learners have ample opportunities for exposure to natural language input. When opportunities for natural language exposure are implemented as part of the foreign language curriculum, learners are presented with a more accurate representation of how NSs select mood. In the context of this reasoning, one might ask whether English-Spanish speakers are able to override the influence of prescriptive rules regarding mood selection after extensive exposure to a natural language environment. Can non-native speakers (NNSs) of Spanish learn the subjunctive from prescriptive rules<sup>3</sup> alone, or is exposure to subjunctive forms in the natural language environment necessary? In order to determine the extent to which exposure to classroom and natural language input influences L2 learners' subjunctive development, L1 variability in subjunctive use is examined, and the literature on L2 acquisition of the Spanish subjunctive in classroom and study abroad contexts is reviewed.

### **1.3 Acquisition of the Spanish Subjunctive**

#### **1.3.1 L1 Acquisition: Variability in Use**

L1 speakers' mood use in Spanish is variable. This variation has been noted across geographical boundaries, in language contact situations and has been known to correlate with education level. Silva-Corvalán (1985) explains that in many contexts, the use of the subjunctive is being replaced with the use of the indicative and conditional forms. This creates an additional challenge for L2 learners: not only are L2 learners tasked with ignoring the misleading

---

<sup>3</sup> Here I am referring to the ways in which prescriptive rules are *presently* stated in L2 textbooks regarding mood selection in the complement clause with negated matrix verbs of belief.

prescriptive rules present in L2 textbooks, but they must also understand the complexities that this variation suggests with the end goal of approximating the speech of NSs. Recent research has shown that it is possible for L2 learners to make the subjunctive leap. As evinced from oral elicitation data, Gudmestad (2012) demonstrates that adult L2 learners can reach near-native use of verbal moods; however she is not suggesting that the majority of L2 speakers will obtain this level of modal precision. As the result of L1 variability in use, how does one sort out whether L2 learners have acquired the subtle socio-pragmatic nuances of use or whether modal selection is indiscriminate across a variety of contexts? For the majority of L2 learners whose intuitive command of the language will never approximate that of NSs, a corpora-driven, frequency-informed paradigm might be instated in L2 textbooks in place of current prescriptive notions to assist with modal selection. This paradigm will be elaborated in Chapter 3. Let us first turn to the literature on L1 acquisition to examine how mood develops in children, and how mood has undergone a process of morphological simplification in the case of Spanish heritage speakers.

Even highly educated Spanish monolingual speakers struggle with the Spanish subjunctive. It is one of the last grammatical structures to be fully acquired due to the complex relative clause structure in conjunction with subtle semantic and pragmatic considerations; however, not every aspect of acquiring the subjunctive is difficult. It is not unreasonable for children to acquire the subjunctive's morphology by age two (e.g., Hernandez-Pina, 1984; Lopez-Ornat, Fernandez, Gallo & Mariscal, 1994). From age two through preschool, children begin to experiment with, and productively use, the present subjunctive in a variety of contexts. Researchers have suggested that, at this early stage of subjunctive development, children use lexical-cues and semantic strategies (e.g., Blake, 1983; Gili Gaya, 1972). Blake (1983) investigated the mood selection strategies of 134 Mexican children between the ages of four and twelve in six distinct syntactic constructions. He found a predictable acquisition pattern: volitional constructions and adjunct clauses were acquired first, followed by relative clauses, and

finally, dubitative and affective constructions. Epistemic modality in complement clauses with verbs of doubt, attitude and assertion is acquired last. Similarly, Clark (1985) examined subjunctive use in complex constructions with L1 French children and found that the subjunctive is acquired much later than the indicative. Demonstrated deficiencies in subjunctive use were found in children who had not yet reached adolescence.

As L1 Spanish speakers cognitively mature, they gradually acquire more complex uses of the subjunctive through input-rich language experiences as well as extra-linguistic factors<sup>4</sup>. Pérez-Leroux (1998) supports the idea that cognitive factors play an important role in L1 acquisition of the Spanish subjunctive. She argues that children must be cognitively capable of acknowledging false beliefs and attributing them to others (i.e., epistemic aspects of the semantics) before this use of the subjunctive can be mastered. Reinforcing the challenge that the acquisition of the Spanish subjunctive presents, Sanchez-Naranjo & Pérez-Leroux (2010) examined children's ability to use the subjunctive in temporal clauses. Their findings suggest that there is nothing inherently difficult about the subjunctive itself per se; the increased cognitive demands of the task in conjunction with an interaction between tense and mood contribute to the difficulty in acquiring this advanced construction.

To recapitulate, a brief review of the L1 Spanish child acquisition literature suggests that the acquisition of the Spanish subjunctive is a staged process that occurs gradually and relies upon natural language experiences and cognitive maturity from a developmental standpoint. Only when children are cognitively ready are they able to integrate variables such as tense, aspect, mood, affect, etc., into their grammars. Given the intricacy of L1 acquisition for functionally monolingual Spanish children, the difficulty that awaits heritage speakers of Spanish should come as no surprise. Just as variability in child language could be the result of incomplete acquisition,

---

<sup>4</sup> Collentine (2003) suggests that societal pressures urge adolescents to conform to linguistic norms regarding mood use.

adding attrition as an additional variable represents the challenge that adult heritage speakers must tackle.

Many heritage speakers never acquire the full realm of semantic and pragmatic capabilities associated with native-like subjunctive use. Those who do achieve native-like use are vulnerable to attrition (e.g., Lipski, 1993; Montrul, 2007; Silva-Corvalán, 1994a). It is not uncommon for Spanish speaking children (around age five) who live in a contact environment to have an abrupt decrease in the amount of input they are exposed to when they begin formal instruction in English. The decrease in input, coupled with the lack of formal instruction in the L1, decreases the likelihood that complete acquisition will occur (e.g., Potowski, Jegerski, & Morgan-Short, 2009).

As discussed above, the decreased input opportunities aside, the full gamut of intricate subtleties of subjunctive use is not acquired until adolescence, even for monolingual Spanish speakers in language-rich home and school environments. For those L1 speakers who lack educational opportunities in their native language, some of the more complex grammatical structures never develop (e.g., Silva-Corvalán, 1994a, 1994b). To compensate for this deficiency, many contexts that once obligatorily required the subjunctive are now used with the indicative. In a study on the loss of mood distinction in Los Angeles, Silva-Corvalán (1994a) analyzed the conversations of 17 Mexican-American bilinguals. She found that simplification and loss of subjunctive morphology occurred most readily in contexts where subjunctive use was optional, as is the case with negated matrix verbs of belief. When negated matrix verbs of belief are followed by a subjunctive complement, the result is a hypothetical interpretation. Many of Silva-Corvalán's heritage speakers did not possess the level of Spanish proficiency required to hypothesize in the language; in contexts like (6) and (7), although not pragmatically synonymous, (6) is likely preferred due to both the subjective evaluation of the situation and the reluctance to discuss hypothetical situations (e.g., Silva-Corvalán, 1994a, 1994b).

(6) ‘No creo que tiene fiebre’

*(I don't believe that he/she has a fever)*

(7) ‘No creo que tenga fiebre’

*(I don't believe that he/she may have a fever)*

If mood selection in a particular context is optional, and indicative complements are more frequent in the input, from a processing perspective it is more economical to retrieve the most readily available indicative forms. Silva-Corvalán states that, “with respect to cognitive processes, a simplified system with fewer morphological oppositions should be simpler to store, remember, and use” (1994a, p. 269). In particular, hypothetical situations and contexts that require speculations increase cognitive demands and also require a heightened level of proficiency. This rationale would go far in explaining why L2 learners experience such difficulty in using subjunctive complements in similar linguistic contexts. The next section takes a closer look at two distinct learning contexts and their impacts on L2 subjunctive acquisition.

### **1.3.2 L2 Acquisition: Classroom vs. Study Abroad**

Research on the L2 grammatical development of the Spanish subjunctive in formal classroom and study abroad contexts has identified several important variables that warrant consideration in SLA research. These factors, some of which are either developmental or methodological, can help to explain 1) why mood selection is exceedingly difficult for non-native Spanish speakers, and 2) why past empirical research has reached diverse conclusions.

Classroom studies have shown that L2 learners do not possess sufficient cognitive resources through the intermediate-level of proficiency, especially in the area of oral production, to generate and process complex syntactic structures, which are namely a precursor for subjunctive use in the subordinate clause (e.g., Collentine, 1995, 1998; Pereira, 1996; Terrell,



Baycroft, & Perrone, 1987). A related classroom study found that the rate at which the subjunctive was learned could be accelerated if learners were explicitly taught how to process complex syntax followed immediately by subjunctive instruction (e.g., Collentine, Collentine, Clark & Friginal, 2002). Conversely, some classroom studies have attributed poor subjunctive performance not to syntactic complexity, but to insufficient perceptual saliency of the morphological verb form, which decreases the likelihood that L2 learners are able to detect subjunctive forms (e.g., Collentine, 1997; Lee & Rodriguez, 1997). In contrast, another study credited the uncompromised facility to comprehend L2 reading passages to learners' inability to detect subjunctive forms (e.g., Lee, 1987). Still other classroom studies have shown that the detection of verbal morphology and intake of subjunctive forms are modulated by proficiency; in both the written and aural domains, learners' ability to intake the morphological features that serve to identify the subjunctive improves as proficiency increases (e.g., Gudmestad, 2006; Leow, 1993, 1995). Taken together, the general consensus with L2 classroom research is that formal instruction alone does not provide learners with sufficient input to learn the subjunctive.

Stokes (1988) and Stokes & Krashen (1990) examined the impact of study abroad on the performance of twenty-seven advanced university-level L2 learners, who had differing amounts of classroom instruction and exposure to a natural language environment, on a sentence completion task where learners were asked to complete an affirmative matrix clause with an original statement. Correlation analyses were run for the sentence completion task data, semesters of formal classroom instruction, and years of natural language exposure. The authors found a significant correlation between natural language exposure and knowledge of the subjunctive; classroom instruction did not correlate with the other two factors, even after five consecutive days of explicit subjunctive instruction.

Lubbers Quesada (1998) analyzed the variability in L2 learners' subjunctive use with six different classes of matrix verbs, including the 'no creer' (*not to believe*) type verbs. Her data

consisted of two sets of oral interviews that were conducted during an intensive Spanish-language summer-abroad program in Mexico. Given to participants after three months abroad, the results from the second oral interview revealed that all nine of the tokens of 'no creer' produced by L2 learners appeared with indicative complements. Of the six classes of matrix verbs examined, Lubbers Quesada concluded that subjunctive use is the most infrequent in complement clauses following the matrix verb 'no creer'. She attributes this finding to the role that pragmatics plays in determining the speaker's intention.

Collentine (2004) investigated the effects of learning context on the grammatical abilities of two groups of L2 language learners (N=46) before and after a semester-long study abroad program in Alicante, Spain. The data are comprised of two oral interviews conducted both prior to and after participants' semester in either the U.S. classroom or Alicante. The results showed that the study abroad group improved their narrative abilities, but the L2 classroom setting proved to be more advantageous for learning the subjunctive mood as a result of the emphasis placed upon verbs and subordinate conjunctions during formal instruction. In terms of grammatical accuracy, the L2 classroom participants' mean percentage correct for the subjunctive was 15% and 17.5% for the pretest and posttest respectively. For the study abroad group, the mean percentage of correct subjunctive utterances at the pretest was 23.1 % and decreased to 21.2% at the posttest. Unfortunately, Collentine did not address how grammatical accuracy of the subjunctive was determined. Presumably, when the prescriptive rule was followed, the utterance was considered to be grammatical, and for cases in which it was not the utterance was considered to be ungrammatical. If prescriptive rules were used as a measure to assess L2 learning, this is a methodological flaw in the coding of grammatical accuracy that may explain why, as the study abroad groups' proficiency increased over the course of the semester, there was a proportionate decrease in subjunctive accuracy.

Segalowitz, Freed, Collentine, Lafford, Lazar & Díaz-Campos (2004) measured the L2 acquisition of numerous aspects of Spanish grammar in classroom and study abroad settings. Oral proficiency interviews were administered prior and post-experiment to 46 participants. Additional proficiency measures were collected consisting of a read-aloud pronunciation activity, the SAT II Spanish test and a set of computer-based cognitive tests. The results revealed that L2 learners that studied abroad showed significant gains in oral proficiency and fluency as compared to the classroom learners; however, similar to the results reported in Collentine (2004), the classroom learners had the advantage over study abroad learners in terms of superior subjunctive performance. Segalowitz et. al. (2004) suggest that the improved grammatical performance exhibited by the classroom learners was a result of the painstaking manner in which the subjunctive is reinforced in the second language classroom.

Isabelli & Nishida (2005) studied the L2 development of the subjunctive over a nine-month study abroad program. There were three groups of participants: 29 third-year university-level L2 learners participating in a year-long study abroad program in Barcelona, Spain, and two groups of intermediate US classroom learners, which consisted of 16 fifth-semester Spanish students and 16 sixth-semester students. Data was collected over three intervals (0, 4 and 9 months) for the study abroad learners and at the end of the fifth and sixth semesters respectively, for the classroom learners. The study abroad learners out-performed both groups of classroom learners using the subjunctive in oral productions. Isabelli & Nishida concluded that the study abroad learners improved considerably in their oral productions of the subjunctive over the nine-month period abroad, but learners failed to fully understand the semantic implications for subjunctive morphology in the subordinate clause.

Cheng & Mojica-Díaz (2006) examined the effects of four-weeks of formal subjunctive instruction on the oral discourse of advanced<sup>5</sup> learners of Spanish participating in an eight-week study abroad program in Mexico. The participants consisted of six English-speaking, advanced learners of Spanish, who were graduate students, and in-service teachers of Spanish at secondary schools in the U.S. They received traditional grammar instruction for five days a week, two-hours each day, over a period of four sequential weeks. One day each week, the instruction addressed pedagogical concerns, as participants were allowed to address the actual usage of target structures they came into contact with outside of class. One pre-test and two post-tests were collected over three intervals (.5, 4, 9 weeks). The results demonstrate that there were no significant gains in the participants' use of target subjunctive forms before or after explicit grammar instruction. After instruction, clear improvement was noted in the area of learners' abilities to produce more tightly structured argumentation. One learner was able to consistently and accurately employ the subjunctive in hypothetical discourse. Although consideration was given to the acceptance of both indicative and subjunctive complements in subordinate clauses in this study, Cheng & Mojica-Díaz had neither examples of negated matrix verbs, nor any negation whatsoever in the experimental discourse stimuli presented.

Velasco-Zárate (2006) employed an interpretation task that consisted of story-like scenarios to determine whether L1 English and L1 Japanese speakers, who were long immersed<sup>6</sup> in the L2 Spanish, would correctly interpret Spanish relative clauses. The stimuli consisted of four distinct contexts: [+spec+def], [-spec+def], [+spec-def] and [-spec-def]. Participants were asked to read each scenario and to select a verb in the subjunctive if the context biased a non-specific reading. In scenarios where the context biased a specific reading, participants were

---

<sup>5</sup> All participants were at Advanced levels of language proficiency as measured by the ACTFL scale during the pre-test.

<sup>6</sup> There is no explanation of the precise time period of exposure that constitutes "long-immersed."

instructed to select a verb in the indicative. The results showed neither L1 English nor L1 Japanese speakers performed like NSs of Spanish in areas in which there were no cross-linguistic overlap between participants' L1 and L2. When linking the subjunctive mood with the non-specific interpretation, the L1 Japanese speakers out-performed the L1 English speakers. This finding is interpreted in terms of L1 transfer.

Isabelli (2007) measured the development of the Spanish subjunctive used in adverbial clauses after exposure to grammatical instruction with two distinct participant groups. The first group consisted of 24 L2 learners who received classroom-based instruction on the Spanish subjunctive in adverbial clauses after returning from a study abroad program (see review of Isabelli & Nishida, 2005 for details). The second group consisted of 19 L2 learners who received the same explicit grammar instruction but had never studied abroad. Both groups were exposed to explicit instruction on mood selection in nominal, adjectival, and adverbial clauses and completed activities that consisted of focusing on form and meaning. The instruction was conducted in English for five-hours a day over the span of three days. After instruction, the participants were asked to complete a series of worksheets in which roughly 60% of the grammatical exercises contained adverbial clauses. The results indicate that the participants who had studied abroad were able to produce more syntactically and semantically complex phrases than those who had only received grammar instruction at home. Isabelli concludes that explicit linguistic instruction and negative evidence, coupled with study abroad, lead to substantial gains in L2 subjunctive learning.

Besides Lubbers Quesada's study, Isabelli & Nishida have conducted the only empirical research to date that has examined learners' L2 subjunctive development of the negated matrix verb 'no creo' (*I don't believe*). A notable weakness of Isabelli & Nishida's study is their classification of this negated matrix verb as an obligatory subjunctive trigger based on the intuitions of four NSs. By categorizing the negated matrix verb 'no creo' as a subjunctive-related

structure, the authors reinforced the prescriptive notions regarding mood selection and overlooked the semantic possibility for speakers to assert the truth of a proposition by using an indicative complement. Thus, Isabelli & Nishida's (2005) classification of 'no creo' as an obligatory subjunctive-trigger stands in direct opposition to Lubber Quesada's (1998) finding that the indicative mood is preferential in the complement clause of 'no creo' due to the speakers' more frequent pragmatic intention being expressed with the indicative. Isabelli & Nishida (2005, p. 85) mention that they found it to be "curious that 'no creo' scored the highest usage rate throughout the nine-month period among the three most frequently used triggers". The authors never return to address this issue. Even though Isabelli (2007) is a follow-up investigation to the Isabelli & Nishida's (2005) study, unfortunately this "curiosity" was never re-addressed.

Isabelli & Nishida, however, do present the number of tokens and the number of subjunctive forms produced for 'no creo' over the three testing periods (0, 4 and 9 months). At months 0 and 9, the study abroad learners produced 1 token of 'no creo' appearing with a subjunctive complement. At month 4, a total of 5 'no creo' tokens were produced, 3 of which were followed by subjunctive complements. It is possible that by month 4, learners were beginning to experiment with the acceptance of indicative complements with this negated matrix verb. Through exposure to naturally-occurring input, L2 learners seemed to be moving away from prescriptive rules, while beginning to tune their developing language system into the ways in which NSs assign meaning to their utterances.

Another prominent weakness of Isabelli & Nishida's study is that they gave no description of the type of feedback that learners received after each interview session, if any feedback was given to participants at all. If learners were debriefed about their performance in the oral interview at month 4 for example, when informed that the two indicative complements that they produced were ungrammatical, this would explain why learners reverted back to producing only 1 token of 'no creo' with a subjunctive complement at month 9, parallel to their performance

when tested at month 0. If, however, no feedback was given to learners, it is possible that because learners produced more instances of ‘no creo’ at month 4, this provided for more variability in use, or it gave the researchers additional opportunities to count indicative complements as incorrect.

To summarize, of the studies that examined classroom versus study abroad gains for the L2 acquisition of the Spanish subjunctive, Stokes (1988), Stokes & Krashen (1990), Lubbers Quesada (1998), Isabelli & Nishida (2005), Velasco-Zárata (2006)<sup>7</sup> and Isabelli (2007) suggested that L2 learners who study abroad are more successful in terms of subjunctive acquisition than classroom learners, regardless of their inability to grasp the meaning behind the subjunctive morphology<sup>8</sup>. Although Cheng & Mojica-Díaz (2006) did not witness considerable advances after study abroad with the subjunctive, they did find that certain aspects of the L2 were enhanced. On the contrary, Collentine (2004) and Segalowitz et. al. (2004) indicated that for the grammatical aspects that the Spanish curriculum emphasizes (i.e., subjunctive), the classroom context was more advantageous. These latter two studies seem to suggest that even after study abroad, L2 learners are largely unsuccessful at using the subjunctive. This result was unexpected since Lubbers Quesada and Isabelli & Nishida’s studies revealed that after just three and four months abroad respectively, L2 learners had begun to tune their linguistic systems to accept indicative complements with the matrix verb ‘no creo’, which surfaces frequently in natural language input.

Perhaps the inconsistencies in the literature can be partly attributed to the way that scholars have examined their data. If researchers have not analyzed their data carefully and have considered only the instances in which the subjunctive is used prescriptively, which would not be the correct approach, to arrive at the conclusion that L2 learners still have difficulties with the

---

<sup>7</sup> Although Velasco-Zárata (2006) did not make a direct comparison to classroom learners in her study, the results are discussed in terms of learners’ extensive exposure to natural L2 language that would not be present in a traditional classroom environment.

<sup>8</sup> Isabelli (2007, p. 336) does state that, “study abroad learners appear to understand better what subjunctive morphology semantically represents.”

subjunctive, this calls into question the validity of the conclusions reached in many of the studies outlined above. Precisely how has L2 learning of the Spanish subjunctive been tested in empirical research? If scholars have used prescriptive notions as the basis to judge grammaticality, while only counting subjunctive complements as grammatical with negated matrix verbs of belief, not only have they failed to analyze their data carefully, but they have also considered indicative complements to be incorrect on the premise that a subjunctive complement was anticipated, disregarding the literature reviewed in the previous section. Another variable that has received little attention over the past thirty years of SLA research, and a question that I address in Experiments 1 and 2 of this dissertation, is how does the frequency with which verbs appear with alternate structures influence acquisition? In §4, the role that verb frequency plays in the context of language learning is discussed.

## **1.4 The Role of Natural Language Input in Learning**

### **1.4.1 A Usage-Based Exemplar Model of Verb Frequency Effects**

Unarguably, frequency is a key determinant of language learning that is based on the summation of the learners' previous encounters with natural language input (e.g., Bybee, 2003; Ellis, 2002). The idea that a learner's accumulated experiences contribute to the cognitive representation of one's grammar is not new (e.g., Hopper, 1987). The statistical probabilities from the input (e.g. Goldberg, 2006; Harrington & Dennis, 2002; Tomasello, 2003) and the frequent repetition of the structure under scrutiny (e.g., Givon, 1979; Hopper, 1987; Hopper & Thompson, 1993) play a fundamental role in the development of a learners' emerging grammar.

A usage-based approach to language learning explores the properties of stored linguistic experience in which the actual tokens of use are thought to be stored in memory. Empirical



research has revealed that the higher the frequency of a token in natural language input, the higher the level of resting activation it has, making the token easier to access and more resistant to change (e.g., Bybee, 1998, 2006). Grammatical entities have different lexical strengths; the structures that surface frequently in the input have strong representations in memory, but structures that seldom appear have a weaker or potentially no representation in memory. This idea was originally instituted for morphologically complex words (e.g., Bybee, 2001, 2003). For example, Bybee explains that the grammatical forms of low frequency verbs, which have relatively weak representations in memory, evolve in tandem with the changing syntax of a particular language (i.e., *wept* becomes *weeped*). On the other hand, because highly frequent verbs have strong representations in memory that resist change, the older morphosyntactic characteristics that were once properties of all verbs are conserved and become conventionalized (i.e., *kept* is not becoming *keeped*) (2003, p. 621).

Bybee's usage-based proposal views grammar and the lexicon as being closely linked to language learning and performance. She posits that some degree of storage takes place in memory for highly frequent verbs. Because speakers are able to store in memory much more than merely single words, recent research has moved toward a model of lexical representation that encompasses multi-word units such as prefabricated routines & patterns (e.g. Hakuta, 1974), lexico-grammatical associations (e.g., Conrad, 2000; Hunston & Francis, 1998, 2000; Sinclair, 1991), multi-word formulaic chunks (e.g., Wray, 2002), lexical bundles (e.g., Biber, Conrad, & Cortes, 2004), collocations (e.g., Jiang, 2009, McEnery & Xiao, 2010; Partington, 1998) and other syntactic expressions that are frequent in one's language experience. This model is exemplar-based and provides a lexical representation of language structure based on speakers' linguistic experiences and language use.

An exemplar model<sup>9</sup> of lexical representation suggests that speakers store extensive, detailed memories of the utterances and words they encounter in language use and are able to make generalizations about subsequent related structures based on these memories (e.g., Bybee, 2001; Pierrehumbert, 2001). Memories and experiences are embodied within lexical representations; thus, variation in language use and change over time is an essential facet of such models (e.g., Bybee & Torres Cacoulios, 2008). In exemplar-based models, lexical representations themselves are built from a compilation of related-exemplars based on token frequency and semantic similarity. In a corpus study that examined the subjunctive in Canadian French, Poplack (1992, 1995) found that [matrix verb] + que + [subjunctive or indicative complement] constructions are generated from highly entrenched phrases or ‘routines’ that, together with specific lexical items, are stored and assessed in production. Her study was one of the first to extend this line of reasoning to encompass not only the exemplars<sup>10</sup> of individual tokens, but also to high-frequency grammatical form-meaning pairings or *constructions*. In a corpus-based study looking at English-language data, Conrad (2000) examined the connection between the grammar and lexicon as evinced by the association between three verbs (*know*, *say* and *think*) and two complements clauses (*that*- and *to*-complement clauses). She found that a clear preference existed for all three verbs to appear with *that*-complement clauses. She suggests that, because strong connections exist between particular verbs and their complements, these [matrix verb] + that + [complement constructions] should be taught as a lexico-grammatical association in L2 textbooks. Bybee & Eddington (2006) also lend support to the idea that specific

---

<sup>9</sup> According to exemplar-based models of language acquisition, there are no explicit rules of grammar; rather, one’s grammar arises out of analogical generalizations over stored chunks of previous language experiences. Unique to this type of model, an exemplar is strengthened directly with each additional token of use (see also Bod & Cochran, 2007).

<sup>10</sup> Exemplars refer to the resulting representations in memory of tokens. If subsequent tokens encountered are identical to an already present exemplar in memory, the token is mapped onto the existing representation in memory and strengthens it.

instances of use affect entire representations in memory. They examined individual tokens of linguistic experience from Spanish-language corpora to determine the acceptability of four high frequency Spanish verbs appearing together with adjectives and prepositional phrases. The authors found that the speaker's choice of [matrix verb] + que + [subjunctive or indicative complement] construction is based on his/her accumulated experience with the use of these constructions. Bybee & Eddington suggest that this information can then be employed to predict subsequent uses of similar constructions.

Because one of the major goals of this dissertation is to examine the ways in which acceptability ratings for the seven negated matrix verbs of belief differ between NSs and NNSs when followed by indicative and subjunctive complements, it will be interesting to see whether speakers demonstrate a particular [negated matrix verb] + que + [indicative or subjunctive complement] construction for each of the seven negated matrix verbs of belief and whether this construction is sensitive to verb frequency information. If speakers do show a preference for a particular [negated matrix verb] + que + [indicative or subjunctive complement], this would be evidence that their lexical representations have been strengthened with similar tokens as the result of language experience and the contribution of speakers' socio-pragmatic intention. It is crucial to examine not only the types, but also the sources of input to which NSs and NNSs are exposed.

Natural language input is frequent, variable in nature, and scaffolded for children (e.g., Tomasello & Brooks, 1998); it seems plausible for one's native language to gradually and efficiently develop with a wealth of opportunities to build strengthening exemplars from language experiences. In L1 learning, the first sources of input to which children are exposed are the most reliable and robust cues in the language. As evidence of this, recent studies have found that from as early as four years of age, children extract the same information from the input as fluent adult speakers during sentence comprehension (e.g., Clahsen & Felser, 2006; but see Karanth & Suchitra, 1993). When learning a first language, children gather knowledge about the behavior of

lexical items in their language through exposure to the frequency with which these items surface in the natural environment. Children have been found to be very accurate in their estimation of how frequently verbs appear in particular tenses or moods in their native language. In a recent study, Kidd, Lievan, & Tomasello (2009) found that children between the ages of four and six years of age performed better on a sentence recall/lexical priming task with sentences that contained high frequency verbs than sentences containing verbs with lower saliency in natural language. Can this same rationale be extended to second language learning? Does exposure to natural language input enable L2 learners to accurately estimate verb frequency information in the L2 and use this information to better understand how lexical items behave in the second language? To address this question, it is necessary to specify the nature and origin of the input in second language learning.

The classroom environment, which is the hub for most L2 instruction, distorts the patterns of language exposure, diminishes the varied functions of language, and restricts the media through which language is exposed. In addition, social interactions are largely contrived and unnatural in this environment (e.g., Ellis & Laporte, 1997). Second language learners are constrained, at least initially, to learn the statistical probabilities with which verbs appear in particular tenses, moods and syntactic configurations from L2 textbooks and filtered classroom input. Thus, the collection of experiences that L2 learners build constitutes a repertoire of prescriptive rules. Because the nature of the second language learning experience is simulated, L2 learners become rather skilled in the mechanized production of these rules. For instance, one might encounter the following formula in L2 textbooks: for a particular grammatical structure, the conditional probability is that a subjunctive complement X will appear in the subordinate clause given a negated verb of belief Y is present in the matrix clause. After memorizing this blueprint for mood selection, which eludes acknowledgement of a speaker's socio-pragmatic intention, the L2 learner may develop an artificial sense about the frequency with which negated matrix verbs

of belief appear with *subjunctive* complements in natural language input. This might happen as the result of the large amount of explicit positive evidence<sup>11</sup> that learners receive through classroom interactions supporting the prescriptive rule. Swain (1995, 1998) has argued that having consistent opportunities to produce output from the earliest stages of learning may sensitize learners in a way that makes future input more salient. By participating in an interactional input and output-producing activity with NSs, L2 learners will be faced with multiple exemplars of how NSs are using the particular structure. A similar interactional input and output-producing activity to which Swain is referring, via computer-mediated communication (CMC) using synchronous text-based chat with NSs and NNSs, is described in Chapter 3.

To summarize, the learning of grammatical structures in both a first language (L1) and a second language (L2) is contingent upon sufficient exposure to language input that contains the specific linguistic features under scrutiny. The source of the input is often very different depending on whether L1 or L2 learning is the goal. If critical exemplars of a particular structure are left out of filtered classroom input to more quickly reach an instructional goal for example, L2 learners may not have the same opportunities that NSs have to gather a collection of language experiences that are needed to tune their developing second language linguistic systems. In the context of this reasoning, one may ask whether verbal information will influence the NNSs' second language grammar in a manner similar to the way in which the NSs' grammar is affected? Are the aspects of the NSs' grammar that are resistant to change the same areas that are resilient in the NNSs' grammar?

A usage-based approach emphasizes that one's cognitive representation of language is strongly linked to the experiences that a speaker has had with that language. It is essential to expose L2 learners to natural language input with NSs of the language. It may be unreasonable to

---

<sup>11</sup> Isabelli & Nishida (2005, p. 89) define explicit positive evidence as “descriptive information about the language in a tutored environment.”

assume that ample opportunity exists in the foreign language classroom to expose L2 learners to authentic input on a daily basis; however, it is not unreasonable to suggest that there are avenues that instructors can pursue to incorporate more natural language into the curriculum than what exists at present. Strides can also be taken to update the prescriptive rules found in L2 textbooks to reflect the ways in which NSs use language. §1.4.2 explores the ways in which natural language corpora can inform L2 textbooks.

#### **1.4.2 Capturing the Variation of Natural Language: Corpora-Informed L2 Texts**

As the situation exists at present, two of the most critical tools that L2 learners have at their disposal, in terms of learning a second language, are their language instructor and their L2 textbook. In many cases, neither source provides an accurate representation of how the second language is used in the real world. L2 learners spend years practicing language patterns only to find out that the patterns and skills that they have been long practicing, and on which they have taken an entire gamut of assessments, are at best uncommon in the situations for which they are preparing in real life. In terms of the L2 instructor, teachers lack planning time and accurate resources. With the many demands placed on teachers today, only a fraction of the day is spent on actual planning and instruction. Particularly, novice teachers rely heavily on L2 textbooks and ancillaries (e.g., Gregory & Lunn, 2012). When L2 textbooks lack the variation found in naturally occurring language, the instructor's lesson lacks this critical component as well. An additional factor that contributes to the misrepresentation of Spanish mood in the L2 classroom relates to the fact that many L2 instructors are themselves NNSs. This is not to say that their language abilities are lacking; it is probable that their own language skills are affected by the prescriptive rules they are confronted with on a daily basis when they teach their language classes. Second language textbooks today ignore the variation that exists in natural language. Conrad (2004) has suggested

that ignoring the importance of variation in second language learning has undermined the effectiveness of teaching materials. She argues that, “by minimizing the importance of variation, we are misrepresenting language in materials that we use with students” (2004, p. 68-69).

The previous section on frequency provided convincing evidence that there are indeed robust patterns in language use. It is only when we incorporate these patterns into our instruction and teaching materials that L2 learners will begin to understand language variation and actual NS use. Language researchers in the field of corpus linguistics are taking a step in the right direction by proposing that L2 materials must be informed by corpus data. A handful of studies have examined the language appearing in L2 textbooks and have compared it to the language used in corpora (e.g., Biber & Reppen, 2002; Conrad, 2004; Romer, 2004). Each of these studies has demonstrated the misrepresentation between the way that grammar is presented in L2 textbooks and the way in which it appears in corpus data.

Biber & Reppen (2002) argued against the decision to cover the present progressive tense in L2 textbooks prior to covering the much more frequent present tense. They posit that meaningful input could be increased for L2 learners if only materials would reflect actual frequency and context of use. Although textbook writers have taken frequency information into account for years, Biber & Reppen explain that such lists of common verbs, etc. are merely based on intuition, rather than empirical research (2002, p. 207). Similarly, Conrad (2004) compared a textbook lecture containing the linking adverbial *though* with one extracted from natural language corpora. She found that the lecture from the textbook misrepresented the variation between conversation and academic prose. Romer (2004) investigated modal auxiliaries in several German EFL textbooks. He revealed discrepancies between the information included in EFL textbooks and the ways in which English is used in natural language. Together, these studies point toward the inevitability of including data-driven, corpus-based L2 textbooks into the second language curriculum if L2 learners are going to stand a chance at approximating NS language.

We are currently in the midst of a revolution in way in which teaching and learning occurs in secondary schools. With the adoption of the Common Core State Standards (CCSS) and the new Partnership for Assessment of Readiness for College and Careers (PARCC) assessments that will be implemented during the 2015-2016 school year, the focus will be on data and what these numbers can tell us to improve teaching practices to best assist secondary learners. The primary emphasis will be placed on English Language Arts and Mathematics. Nonetheless, all secondary students will be required to pass the PARCC assessments as a graduation requirement beginning with the class of 2016. These students will also be assessed on reading passages that include information about the linguistic and cultural aspects of World Languages. What better time than the present to revamp our L2 Spanish curricular materials and move towards commercially available corpus-based L2 textbooks? (e.g., see Conrad & LeVelle, 2008, for a similar suggestion)

Nearly two decades ago, Johns (1994) urged for language teachers to forge ahead with an idea known as Data-Driven Learning (DDL). DDL can be realized with either learner data or NS data. For intermediate-advanced L2 learners, using learner data to find errors in material that has already been covered in the classroom can have positive outcomes. Fan, Greaves, & Warren explain that learners find it motivating to identify and analyze mistakes (1999, p. 187). Instead of focusing on the mistake, the learner's intent is to identify and focus on correcting the error. Bernardini (2004) notes that DDL activities are motivating for learners and create autonomy. Experiment 2 of this dissertation uses a DDL approach in which L2 Spanish learners use CMC utilizing synchronous text-based chat with NSs so that L2 learners have the opportunity for natural language exposure to the ways in which NSs employ mood in the complement clauses of these constructions in real-time. L2 Spanish learners become investigators and researchers of the language they produce together with their NS chat partners. Through DDL, they are afforded the opportunity to inductively discover the discrepancies that exist between NS use and the



information presented in L2 textbooks regarding mood selection in complement clauses with negated matrix verbs of belief. In line with one of the principle goals of the CCSS, the use of text-based chat in the L2 classroom will provide learners with 21<sup>st</sup> century skills, emphasizing language innovation, information media and technology skills.

## **1.5 Overview**

### **1.5.1 Structure of the Dissertation**

The central approach taken in this dissertation is inherently cross-disciplinary. Building on the linguistic treatment of Spanish mood, the pedagogical misrepresentation of mood in L2 teaching materials, and SLA context of learning reviewed in the previous sections of this chapter, this dissertation seeks to be one of the first to use linguistic theory and research to inform L2 teaching and instructional materials. A myriad of participant groups are included in this dissertation spanning various geographical regions, proficiency levels, professions, educational settings, etc. These groups include: native Spanish monolinguals, highly proficient English-Spanish bilinguals<sup>12</sup>, English-Spanish bilingual teachers, Spanish-English secondary students from Spain and English-Spanish secondary students from the U.S. Using quantitative and qualitative methodologies, Experiments 1 and 2 explore verb frequency in Spanish including lexical strengths of grammatical entities, L2 learner exposure to variation in naturally-occurring language via CMC using synchronous text-based chat, and insights from language corpora as a means of informing L2 instructional practices and teaching materials based on the ways in which native Spanish speakers use language.

---

<sup>12</sup> As the term is referred to throughout this dissertation, I define bilingual as an individual who has functional proficiency in the second language and who initiated exposure to the Spanish language after age 12.

More specifically, the purpose of this dissertation is twofold. First, this research investigates the detrimental effects that current pedagogy and prescriptive grammatical rules have on highly proficient L2 English-Spanish bilinguals who teach Spanish. Second, this dissertation examines the contribution of statistical verb probabilities and mood selection preferences across judgment and production tasks for seven negated matrix verbs of belief to inform and update L2 instructional practices and textbooks based on natural language corpora. A new context of indicative/subjunctive L2 learning is prompted via text-based chat with NSs. By incorporating authentic language experiences via text-based chat into the classroom together with L2 textbooks informed by research that reflect how NSs use language, L2 learners will learn the statistical probabilities of matrix verbs and mood preferences of their complements from the earliest stages of learning.

The remaining chapters of this dissertation are organized as follows: Chapter 2 tests the methodology by examining the grammaticality judgments of six participant groups for negated matrix verbs of belief appearing with indicative and subjunctive complements. In Chapter 3, I discuss the extant literature on CMC using synchronous text-based chat and present the results of a NS-NNS chat session. The quantitative and qualitative data collected during the chat session provided a wealth of natural language input that enriched cultural awareness and piqued L2 learners' interest in socio-pragmatic subtleties of Spanish verbal mood. Finally, I close the thesis in Chapter 4 with a general discussion that concludes with linguistic and pedagogical implications for future research.

### **1.5.2 Goals and Hypotheses of Present Research**

Motivated by the discrepancies that exist between what NSs do with language and how L2 textbooks represent the exclusive use of subjunctive complements with negated matrix verbs

of belief, the present experiments were designed to assess the extent to which there is a predictable pattern of mood selection in the complement clause for each of the seven negated matrix verbs of belief and the role that frequency plays in this process. Using a grammaticality judgment task (GJT) in Experiment 1, the first and second research questions are addressed. The third and fourth research questions are discussed using a quantitative and qualitative, respectively, treatment of the text-based chat data presented in Experiment 2. The following four research questions are posed:

(RQ1) *How do English-Spanish speakers behave when inconsistencies exist between natural language input and the prescriptive rules regarding mood selection that appear in L2 textbooks?*

(RQ2) *Is the acceptance of indicative complements modulated by the frequency with which negated matrix verbs of belief surface with the indicative mood in subordinate clauses in natural language input?*

(RQ3) *Do L1 Spanish speakers demonstrate similar patterns of mood selection across both the elicitation GJT and the production text-based chat? Are these patterns robust enough to propose a particular [negated matrix verb of belief] + que + [indicative or subjunctive complement] pattern to facilitate L2 learning?*

(RQ4) *How do L2 Spanish learners react to their first natural language encounter with native Spanish speakers via CMC using synchronous text-based chat? Do L2 Spanish learners notice the discrepancies between the prescriptive mood selection rules appearing in L2 textbooks and the way in which NSs select mood in the complement clause with negated matrix verbs of belief?*

The first question will be addressed in terms of how the results from the grammaticality judgment (GJ) elicitation (Experiment 1) and the text-based chat production (Experiment 2) differ from the prescriptive rules regarding mood selection frequent in L2 textbooks. Specifically, the first research question addresses the behavior of the English-Spanish bilingual teachers, non-teachers and now-teachers in Experiment 1. Although not involved directly yet, the answer to the first research question will allow for data-supported predictions to be made concerning the path

that L2 Spanish secondary students will follow as they learn about Spanish mood. If both Experiments 1 and 2 reveal inconsistencies between L1 Spanish mood use and the ways in which L2 textbooks represent mood selection in the complement clause with these negated matrices, the two groups of English-Spanish teachers, in particular, will be faced with a contradiction that requires resolution. The prediction that the teachers and now-teachers will be affected to the greatest extent follows from the impact that several years of receiving L2 classroom instruction rich in misleading prescriptive rules, coupled with the recent reinforcement of prescriptive rules through one's own teaching<sup>13</sup>, have had on the GJs of these two groups.

These English-Spanish bilinguals spent the majority of their formative years of L2 Spanish language study in U.S secondary schools. They received instruction in classroom environments that were far from ideal. Natural language input was minimally available, if at all, and prescriptive rules were rampant. For a considerable portion of their language study, these speakers lived under the assumption that only subjunctive complements were permissible with negated matrix verbs of belief. Unfortunately, the majority of L2 Spanish students in U.S secondary schools still live under this false pretense. Although the English-Spanish bilinguals presumably achieved their bilingual status after spending a considerable amount of time post-secondary school in the L1-dominant language culture, I suspect that the reintroduction and repeated exposure via teaching to the prescriptive rules they once memorized will produce linguistic insecurity, resulting in hypercorrection of the prescriptive-based lexical representations from their past. En masse, I predict that only the group of English-Spanish bilinguals who have

---

<sup>13</sup> The reader might wonder why a teacher would reinforce the very same prescriptive rules with his/her students that lead him or her astray as a language student. My response to his is unfortunately, as secondary instructors of Spanish we must teach to the county curriculum and tests such as the SAT II and AP exams. Experience has taught me that neither of these national exams will accept indicative complements as the correct answer to multiple-choice items that include negated matrix verbs of belief. These exams teach textbook grammar, which at present, is divergent from NS use.

never re-examined prescriptive notions vis-à-vis teaching, will have GJs that approximate those of Spanish NSs.

The L2 Spanish secondary students included in Experiment 2 will also be affected by prescriptive rules. The aim of Experiment 2 is to create a natural language, text-based chat environment using CMC in which L2 Spanish learners, who are embarking on their study of the subjunctive, can interact with NSs in real-time. I predict that there will be some degree of confusion, as the result of the NS input differing from the information presented in L2 textbooks. In sum, based on the first research question, this dissertation seeks to identify the nature of the differences in mood selection between natural language and prescriptive notions. L2 pedagogical practices and resources can then be updated to reflect the findings from empirical research and thus present a more accurate depiction of mood use to L2 learners.

The second research question is relevant because, as stated above, the English-Spanish speakers included in Experiment 1 have had extensive exposure to a natural language environment and continue to interact frequently with native Spanish speakers. Thus, the frequency with which matrix verbs surface with indicative complements in naturally occurring language might play an important role when speakers assign meaning to sentences in the second language (e.g., Ellis, 2002). As a result of the growing autonomy of verbs that occur frequently in natural language input and the array of new discourse functions being assigned to them (e.g., Bybee, 2003), English-Spanish speakers may exhibit variability regarding the acceptance of indicative complements with matrix verbs that frequently surface in natural language input.

Experiments 1 and 2 probe into Lubbers Quesada's (1998) findings that for one particular negative matrix verb of belief 'no creo' (*I don't believe*), L2 learners are able to use the statistical probabilities related to frequency from natural language input and to accept indicative complements. Instances in which matrix verbs appear most frequently in natural language corpora, based on the *Davies* corpus, will be the most informative. I predict that for highly

frequent verbs, the two groups of English-Spanish teachers (teachers and now-teachers) will be able to effectively suppress the re-activation of lexical representations from their past study of prescriptive rules surrounding mood selection. This prediction follows from exemplar-based models of learning in which it is believed that each subsequent language experience contributes to the overall lexical representation of the structure in memory. The English-Spanish bilingual non-teachers should not be affected in this domain, and as stated above, their GJs should approximate those of L1 Spanish speakers.

The third research question addresses whether the GJ results (Experiment 1) hold for the text-based chat (Experiment 2). Due to the variability in subjunctive and indicative use among L1 Spanish speakers, Experiment 1 comprises three groups of native Spanish speakers representing distinct geographic regions and age groups. The English-Spanish secondary students from Valladolid, Spain, are included in the first experiment to serve as the age-matched baseline for comparison with the U.S L2 Spanish secondary students included in the second experiment. Indeed, if the mood preferences that result from the GJT hold for the text-based chat, a solid argument can be made regarding how L1 Spanish speakers employ these constructions in natural language. Because the use of the indicative mood or subjunctive mood in the complement clause with negated matrix verbs of belief is optional, L1 Spanish speakers will likely base their GJs and text-based chat productions on their native intuitions of the semantic and pragmatic contexts they perceive.

In contrast to the highly proficient English-Spanish bilingual groups included in Experiment 1, native intuitions regarding the subtle semantic and pragmatic nuances associated with mood are not available to most L2 Spanish learners (but see Gudmestad, 2012). It is nearly impossible that, with only four to seven years of intermittent language study<sup>14</sup>, U.S. secondary

---

<sup>14</sup> Four years would be the norm if students begin language study in high school with a possible maximum of seven years of formal language study if they participate in

students have acquired the same subtleties that take more than a decade for NSs, and even longer for highly proficient English-Spanish bilinguals. It is important to note that Experiment 2 does not investigate U.S. English-Spanish secondary students' ability to make native-like use of the subjunctive; it only qualitatively describes these learners' observations of and reactions about their natural language experiences after the chat. Because L2 Spanish secondary learners are not cognitively ready to intuit in Spanish, demonstrated NS consistencies in mood selection-preferences could be made available to L2 learners through updated L2 textbooks that highlight the NS mood selection pattern for each negated matrix verb of belief.

The fourth research question examines how L2 Spanish learners react to their first natural language encounter with native Spanish speakers via CMC using synchronous text-based chat. It also addresses whether these learners notice the discrepancies between the prescriptive mood selection rules appearing in L2 textbooks and the way in which NSs select mood in the complement clause with negated matrix verbs of belief. From a perspective of quantitative analysis, if L1 Spanish speakers do demonstrate a reliably consistent [negated matrix verb] + *que* + [indicative or subjunctive complement] construction for each of the seven negated matrix verbs of belief, L2 Spanish curricula and instructional materials must be effectively updated to reflect this corpora-driven, frequency-informed paradigm of mood selection in the complement clause for negated matrix verbs of belief. This proposal will by no means take the place of providing learners with natural language opportunities that will add evidence to their own developing lexical representations of the language; the statistical probability of a particular matrix verb co-occurring with a particular complement type will sustain them in an informed and intelligible way until they acquire purposeful, intuitive abilities in the L2. From a qualitative perspective, if L2 Spanish secondary students have a positive NS-NNS text-based chat interaction, this will likely

---

the middle school option in which Spanish 1 is spread out over a three year time period (meeting every other day for fifty minutes) and enroll through Spanish 5AP.

increase motivation, enthusiasm and confidence as well as increase literacy and demonstrate cultural gains.

In summation, in cases where exposure to natural language corpora or NSs is not possible, L2 learners will have a revised set of guidelines instated in place of current prescriptive notions to assist with modal selection until another opportunity arises for natural language exposure or interaction to strengthen their own exemplars in memory. Again, this is not to diminish the inclusion of input-rich opportunities in the classroom using CMC such as text-based chat; it is to simply encourage it. That said, I am optimistic that the quantitative and qualitative data included in this dissertation and the discussion thereof will prompt a comprehensive re-evaluation of L2 Spanish instructional methodologies and materials and thus result in pedagogical improvements for U.S secondary school Spanish programs.



## Chapter 2

### **Experiment 1: Grammaticality Judgments for Sentences Containing Negated Matrix Verbs of Belief**

#### **2.1 Introduction**

Experiment 1 addresses two research questions. First, how do English-Spanish speakers behave when inconsistencies exist between natural language input and the prescriptive rules regarding mood selection that appear in L2 textbooks? In addition to three groups of NS controls, I tested two groups of proficient English-Spanish speakers: a group of English-Spanish teachers of Spanish and a group of English-Spanish bilinguals who were tested twice: once prior to having any teaching experience and a second time after having taught for three years. As described above, based on research that has shown that indicative complements are acceptable with negated matrix verbs of belief in Spanish (e.g., Rivero, 1971; Terrell & Hooper, 1974), proficient English-Spanish speakers should accept indicative complements with negated matrix verbs of belief as a result of having been exposed to substantial, positive, natural language evidence indicating that indicative complements are acceptable. In order to test this prediction, a GJT was administered to determine how proficient NNSs of Spanish rate sentences containing indicative complements after exposure to conflicting information: the prescriptive rules suggest that indicative complements are ungrammatical, while natural language input suggests that indicative complements are grammatical.

It is not evident whether the literature on L2 subjunctive acquisition supports or refutes this prediction. Although several empirical studies have suggested that L2 learners who study abroad are more successful at learning the subjunctive than classroom learners (e.g., Isabelli,

2007; Isabelli & Nishida, 2005; Lubbers Quesada, 1998; Stokes, 1988; Stokes & Krashen, 1990; Velasco-Zárate, 2006), other studies have shown that classroom learners fare better than study abroad learners because the subjunctive is a grammatical aspect emphasized within the Spanish curriculum (e.g., Collentine, 2004; Segalowitz et. al., 2004). Nonetheless, it is not apparent how L2 learning of the subjunctive has been measured in these studies. If scholars have not analyzed their data carefully and only prescriptive notions of Spanish mood have been considered, instances in which learners produced indicative complements with negated matrix verbs of belief were likely counted as incorrect, leading to the erroneous conclusion that learners have not acquired the subjunctive.

Second, is the acceptance of indicative complements modulated by the frequency with which negated matrix verbs of belief surface with the indicative mood in subordinate clauses in natural language input? Based on empirical data showing that L2 learners accept indicative complements in study abroad contexts with the frequently occurring negated matrix verb ‘*creer*’ (*to believe*) (e.g., Lubbers Quesada, 1998), proficient English-Spanish speakers should accept indicative complements with additional negated matrix verbs that are also frequent in natural language input. This prediction follows from the literature on usage-based approaches to second language learning. The L2 grammar is based on individual learners’ collection of second language experiences (e.g., Bybee, 2003; Ellis, 2002), and the idea is that tokens and multi-word units of language experience map to categorical exemplars that provide a lexical representation of language structure in memory. Highly accessed forms that are frequent in the input are resistant to change, which demonstrates that frequency is a key component in language learning. If a usage-based exemplar-model of language learning is correct, English-Spanish speakers with significant exposure to natural language input should be influenced by verb frequency information. The higher the frequency of the verb appearing with both subjunctive and indicative complements in natural language input, the more likely English-Spanish speakers should be to judge indicative

complements as grammatical. To test this prediction, responses from the GJT will be compared to frequency ratings for the seven negated matrix verbs included in this study and their appearance together with indicative complements according to the *Davies* 100-million word corpus of Spanish.

## 2.2 Participants

Sixty monolingual Spanish speakers who were students in their first or second year of study in the psychology program at the *Universidad de Granada* in Granada, Spain (monolingual Spanish Granada), twenty monolingual Spanish speakers who were students in their first year of study in the economics program at the *Universidad EAN* in Bogotá, Colombia (monolingual Spanish Bogotá), and twenty L1 Spanish-L2 English secondary students<sup>15</sup> enrolled at *El Instituto Maria Moliner* in Valladolid, Spain (Spanish-English Valladolid), participated in this study for course credit. Both groups of monolingual Spanish speakers were between the ages of 19-28. The Spanish-English speakers from Valladolid were NSs of Spanish between the ages of 13-17 and were late-learners of English. In addition, two groups of proficient English-Spanish bilinguals from a large Northeastern U.S. university participated voluntarily. A group of twenty-four English-Spanish teachers of Spanish (teachers) and twenty-four English-Spanish bilinguals were tested twice: once prior to having any teaching experience (non-teachers), and sixteen of the twenty-four returned to be tested a second time after having taught for three years (now-teachers).

The non-teachers consisted of new students in the graduate program in Spanish, and none had previously taught Spanish language courses. All of the now-teachers had taught Spanish 3, a 15-week course that focuses primarily on the subjunctive mood. The teachers had also taught

---

<sup>15</sup> The group of Spanish-English secondary students from Valladolid is included in Experiment 1 for the unique purpose of establishing a group of age-matched controls for the U.S. English-Spanish secondary students included in Experiment 2.

Spanish 3 for minimally one semester. Collectively, they were NSs of English between the ages of 19-28 and were late-learners of Spanish. These English-Spanish speakers had all lived in a Spanish-speaking country for at least ten months prior to their participation in this study and were chosen to participate precisely because they had been exposed to more complex structures as a result of several years of language study, frequent travels abroad and daily interactions with NSs. At the time of data collection, the NNSs had either earned or were working towards advanced degrees in Spanish language or literature.

All participants completed an informed consent form and the English-Spanish speakers completed a language history questionnaire (LHQ) (see Appendix A), which allowed them to assess their language proficiency by self-report<sup>16</sup>. The English-Spanish participants were asked to rate their second language proficiency in four areas (i.e., reading, writing, speaking and listening) on a ten-point scale (e.g., 1= not fluent at all, 10= very fluent). The LHQ revealed that the teachers formally studied Spanish for an average of 11.9 years and had spent an average of 12.8 months in a Spanish-speaking country. The teachers' average rating for Spanish reading proficiency was 9 ( $SD= .71$ ), writing proficiency 8.8 ( $SD= .43$ ), speaking abilities 8.5 ( $SD= .65$ ) and listening comprehension 9.2 ( $SD= .88$ ). The non-teachers formally studied Spanish for an average of 10.3 years and had spent an average of 10.2 months in a Spanish-speaking country. The non-teachers' average rating for Spanish reading proficiency was 8.5 ( $SD= .86$ ), writing proficiency 8.2 ( $SD= .54$ ), speaking abilities 8.3 ( $SD= .79$ ) and listening comprehension 8.9 ( $SD= .91$ ). The now-teachers reported to have studied Spanish for an average of 12.6 years and had spent an average of 11.4 months in a Spanish-speaking country prior to participating in this study the second time. The now-teachers' average rating for Spanish reading proficiency was 9 ( $SD= .56$ ), writing proficiency 9 ( $SD= .49$ ), speaking abilities 9.1 ( $SD= .72$ ) and listening

---

<sup>16</sup> Additionally, oral production data should have been elicited for all groups of bilingual participants in order to determine whether the L2 speakers produce indicative complements with these negated matrices.

comprehension 9.4 ( $SD = .98$ ). Figure 1 depicts the English-Spanish bilingual participants' L2 proficiency by self-report.

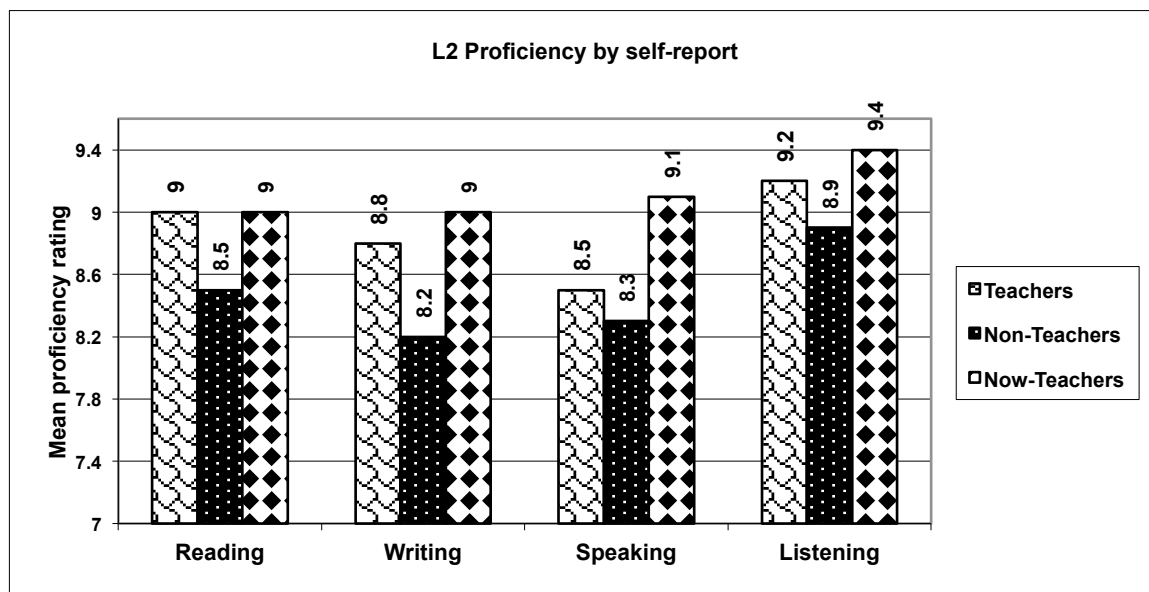


Figure 1: L2 Proficiency by Self-Report of English-Spanish Bilinguals

## 2.3 Materials & Design

### 2.3.1 Grammaticality Judgment Task

Monolingual Spanish speakers, Spanish-English speakers and two groups of English-Spanish speakers completed a paper and pencil GJT (see Appendix B), whereby participants were asked to choose among three levels of grammaticality: grammatical, acceptable and ungrammatical. The “grammatical” designation was given to an item when the sentence was unquestionably ‘grammatically correct’. The “acceptable” designation referred to a sentence that participants would use; however, this was not their preferred option. The “ungrammatical”

designation indicated that the participant would never say this particular sentence. Items for which participants provided an ungrammatical rating were accompanied by error correction and justification<sup>17</sup> (e.g., Alderson, Clapham, Wall & Stoyhoff, 1996; Gass, 1983; Leow, 1996; Masny & d'Anglejan, 1985).

The stimuli consisted of 14 experimental sentences (see Appendix C), comprised of the two experimental sentence types illustrated in (6)-(7). Each of the seven negated matrix verbs appeared twice: once with a subjunctive complement and once with an indicative complement. Eighteen distracter sentences similar in length and clause structure to the experimental sentences were included. The distracter items contained additional grammatical contrasts of Spanish. A pilot study conducted with a separate group of NS controls judged roughly half of the distracter items to be grammatical and the other half to be ungrammatical. The judgments given to the distracter items were not taken into account during the final data analysis, but this information was used initially to eliminate participants who reached a 15% error rate.

- |     |                        |  |
|-----|------------------------|--|
| (6) | Indicative complement  | <p><u>No estoy convencida de que tienen</u><br/>la respuesta correcta.</p> <p>[I am not convinced that they have<br/>the correct answer]</p> |
| (7) | Subjunctive complement | <p><u>No estoy convencida de que tengan</u><br/>una idea equivocada.</p> <p>[I am not convinced that they have<br/>the wrong idea]</p>       |

---

<sup>17</sup> In order to validate the grammaticality judgments obtained, participants were to correct any ungrammatical sentences and justify that they knew the grammatical rule that accounted for the error. This was done to ensure the reliability of the results and to avoid grammaticality judgments based solely on intuitions.

### **2.3.2 Davies corpus**

The *Davies* corpus is a 100-million word corpus of written and spoken Spanish language data (Davies, 2002-) that was used to examine the frequency with which the seven negated matrix verbs of belief included in this study have occurred with indicative and subjunctive complements in natural language input from the 1900's to the present. The corpus data was comprised of interviews and political speeches from Argentina, Bolivia, Chile, Colombia, Cuba, Peru, Puerto Rico, Mexico, Spain and Venezuela. When searching for the frequency with which indicative and subjunctive complements appeared together with these seven negated matrix verbs, the only tabulated tokens were those followed by the complementizer 'que' (*that*) and which also included a matrix verb in the same tense and person specified by the experimental stimuli. Corpus data containing substantial material intervening between the matrix verb, complementizer and complement were excluded.

### **2.4 Procedure**

The GJ questionnaires were distributed to the monolingual Spanish speakers at the *Universidad de Granada* in Granada, Spain. The questionnaires were filled-out under my supervision. The monolingual Spanish speakers from Bogotá and the English-Spanish speakers from Valladolid completed the questionnaires under the supervision of two colleagues at their respective educational institutions. The questionnaires were then scanned and sent to me via e-mail. The two groups of English-Spanish speakers completed the GJ questionnaires at a large Northeastern U.S. university under my supervision or via e-mail. After the compilation of all completed questionnaires, the GJ ratings were tabulated and statistical analyses were run. In order to calculate the mean GJ ratings given to experimental sentences, values were assigned in the

following manner: ungrammatical items were assigned a score of 1, acceptable items were assigned a score of 2 and grammatical items were assigned a score of 3. The average rating was calculated for both indicative and subjunctive complements<sup>18</sup>.

## 2.5 Results

The first research question will be addressed in two ways. The first analysis compares the acceptability of subjunctive and indicative complements in sentences containing negated matrix verbs of belief for each participant group. In the analyses reported herein, the GJT data were submitted to separate repeated measures ANOVAs by participants ( $F_1$ ) to test for variance across the population and by items ( $F_2$ ) to test for variance across the stimuli set. Results are discussed in what follows.

### 2.5.1 Analysis 1: Comparison of Complement Types

A one-way repeated measures analysis of variance (ANOVA) that examined type (subjunctive vs. indicative) as the within subjects factor and group (monolingual Spanish Granada, monolingual Spanish Bogotá, Spanish-English Valladolid, teachers, non-teachers and now-teachers) as the between subjects factor revealed that there was a main effect of type by subjects [ $F_1(1,158)= 552.085, MSE= .074, p< .001$ ] and by items [ $F_2(1,36)= 153.045, MSE= .088,$

---

<sup>18</sup> For example, out of the seven possible ratings that were given to indicative complements, a participant that gave three of the indicative complements a grammatical (A) rating, two of the indicative complements an acceptable (B) rating and two of the indicative complements an ungrammatical (C) rating would have the following average score out of 3 for indicative complements: (3 grammatical multiplied by a value of “3” + 2 acceptable multiplied by a value of “2” + 2 ungrammatical multiplied by a value of “1” = 9+4+2 or 15 divided by the total number of ratings (7) given for indicative complements =2.14).



$p < .001$ ] by items. Subjunctive complements ( $M = 2.72$ ,  $SD = .019$ ) were judged to be more acceptable in terms of grammaticality than indicative complements ( $M = 1.95$ ,  $SD = .027$ ). A significant interaction between type and group emerged in the ANOVA by subjects [ $F_1(5,158) = 72.997$ ,  $MSE = .074$ ,  $p < .001$ ] and by items [ $F_2(5,36) = 16.090$ ,  $MSE = .088$ ,  $p < .001$ ]. Follow-up  $t$ -tests comparing the acceptance of subjunctive and indicative complements appearing with negated matrix verbs of belief were conducted for each group and revealed a difference between the two complement types by subjects  $t(59) = -6.016$ ,  $p < .001$ , but not by items  $t(6) = -1.662$ ,  $p = .148$  for monolingual Spanish Granada; by subjects  $t(19) = -4.355$ ,  $p < .001$ , but not by items  $t(6) = -1.201$ ,  $p = .275$  for monolingual Spanish Bogotá; neither by subjects  $t(19) = -1.111$ ,  $p = .280$ , nor by items  $t(6) = -1.319$ ,  $p = .235$  for Spanish-English Valladolid; by subjects  $t(23) = -33.833$ ,  $p < .001$  and by items  $t(6) = -23.304$ ,  $p < .001$  for the teachers; by subjects  $t(23) = -7.229$ ,  $p < .001$  and by items  $t(6) = -10.477$ ,  $p < .001$  for the non-teachers and by subjects  $t(15) = -31.629$ ,  $p < .001$  and by items  $t(6) = -8.060$ ,  $p < .001$  for the now-teachers. Figure 2 shows the comparison between all six groups in terms of mean percent acceptability for both complement types.

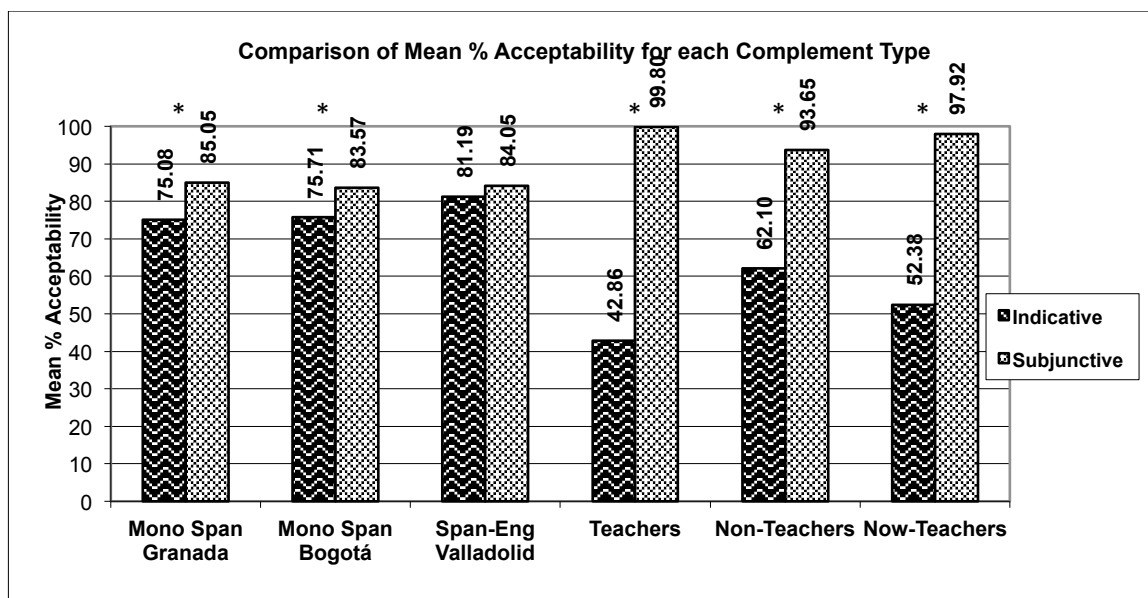


Figure 2: Mean % Acceptability for each Complement Type

To summarize, the results of the one-way ANOVA revealed that five of the six participant groups statistically preferred subjunctive complements to indicative complements appearing with negated matrix verbs of belief in Spanish. Spanish-English Valladolid did not demonstrate a significant difference in acceptability between indicative and subjunctive complements. That said, subjunctive complements were judged to be grammatical in nearly all cases by all groups of participants. Regarding indicative complements, monolingual Spanish Granada, monolingual Spanish Bogotá and Spanish-English Valladolid performed similarly on the GJT and judged indicative complements to be grammatical, or at least acceptable in most cases. Spanish-English Valladolid judged indicative complements to be acceptable at over 80%. The English-Spanish non-teachers were above 60% in their acceptance of indicative complements, whereas the teachers and the now-teachers fell at or below 50% in their acceptance of indicative complements.

When each groups' responses are broken down even further by their selection among each of the three possible grammaticality ratings, an even more concrete idea about these speakers' acceptability judgments emerges. Figure 3 illustrates all groups' mean % acceptability for indicative complements for each of the three grammaticality ratings. Figure 4 shows all groups' mean % acceptability for subjunctive complements. Figure 5 depicts all groups' mean % acceptability for both indicative and subjunctive complements side-by-side for each of the three grammaticality ratings. These figures provide a pictorial representation of whether the English-Spanish speakers are behaving prescriptively according to L2 textbook rules or whether they have learned, through exposure to natural language input, that indicative complements are also grammatical in this particular syntactic construction.

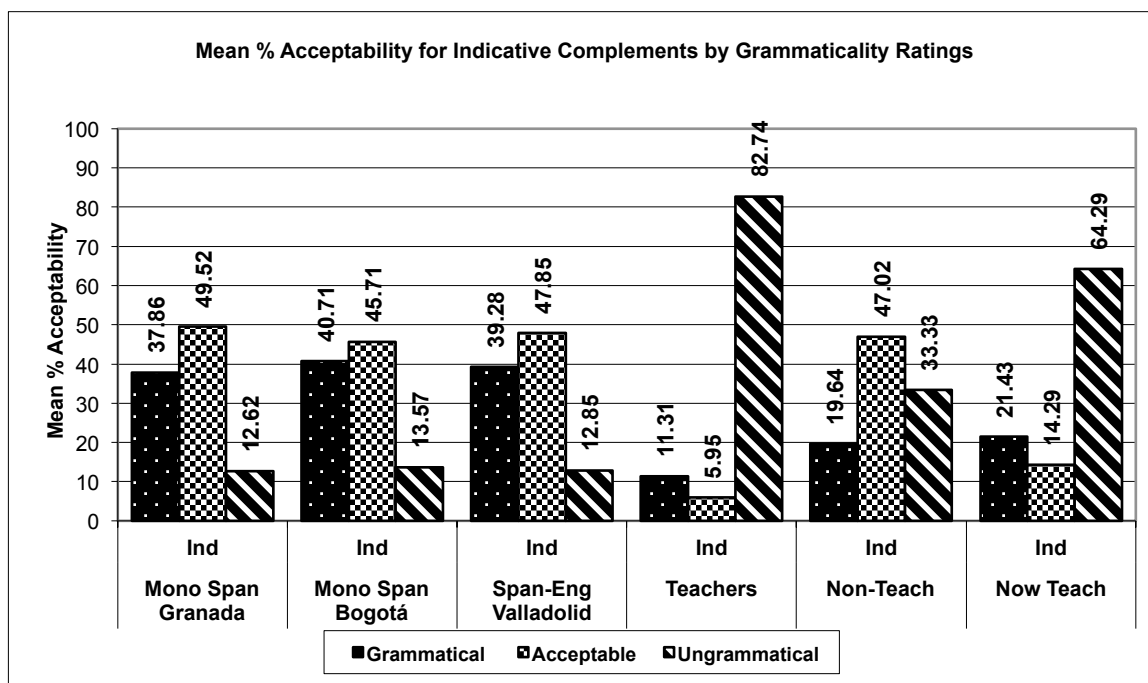


Figure 3: Mean % Acceptability for Indicative Complements by Grammaticality Ratings

Collectively, the data clearly demonstrate that the teachers and now-teachers predominantly rate indicative complements as ungrammatical. This suggests that the teachers and the now-teachers have been influenced by the prescriptive rules of mood selection that are prevalent in second language textbooks. In the next analysis, each of three grammaticality ratings (i.e., grammatical, acceptable and ungrammatical) will be examined separately comparing the judgments for indicative and subjunctive complements by rating for each participant group.

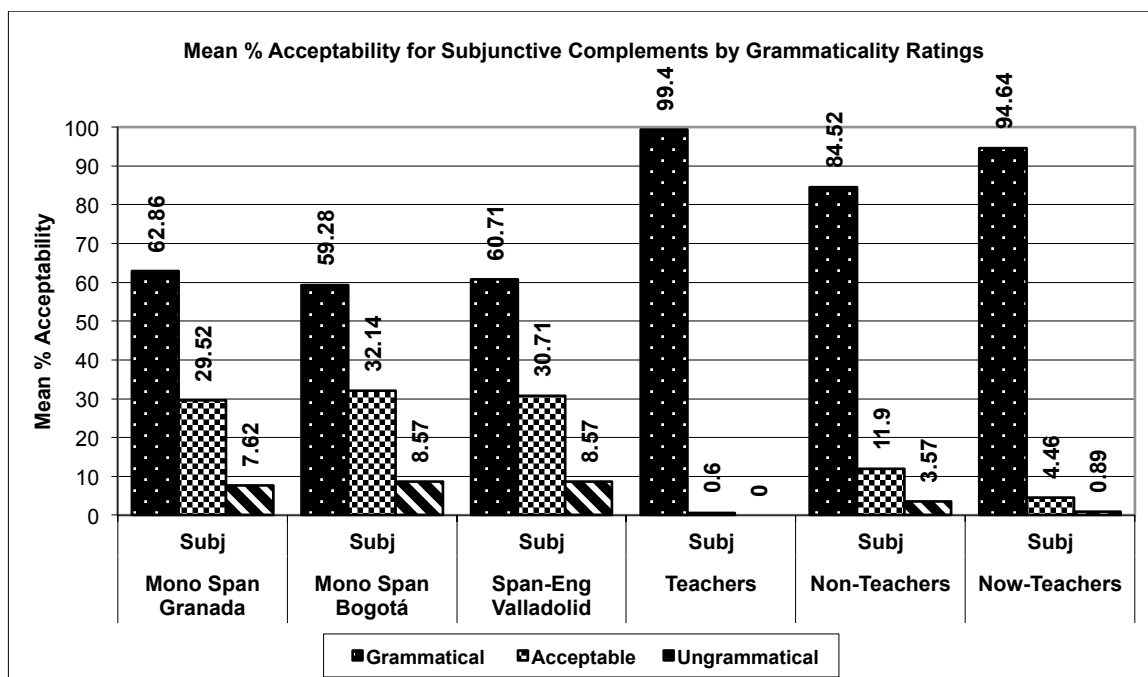


Figure 4: Mean % Acceptability for Subjunctive Complements by Grammaticality Ratings

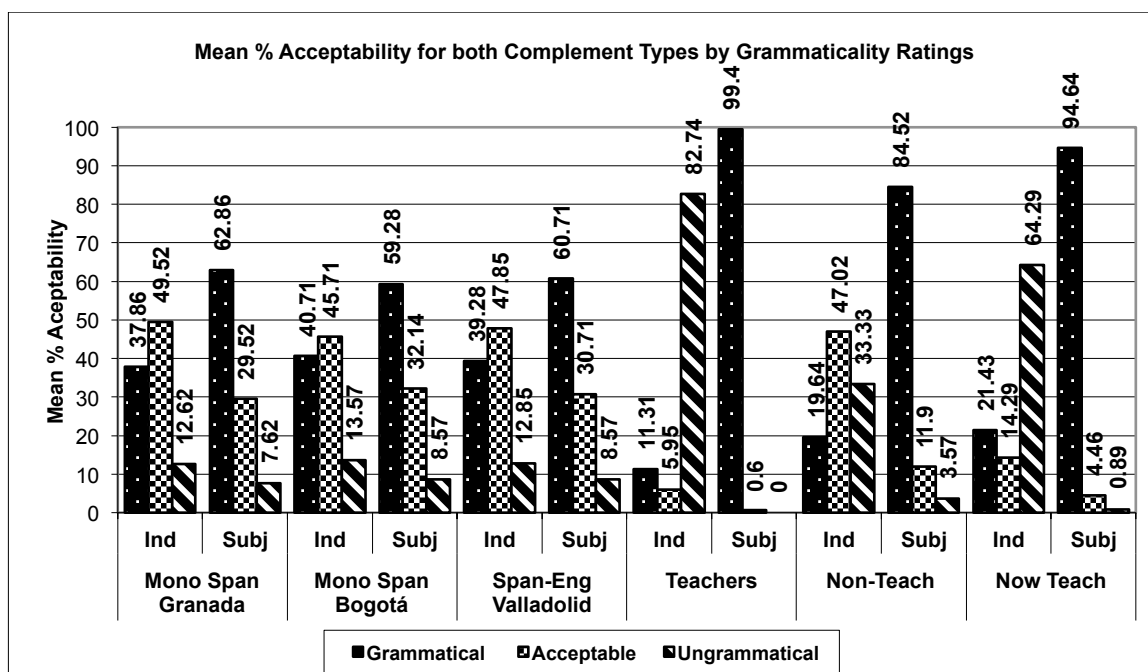


Figure 5: Mean % Acceptability for both Complement Types by Grammaticality Ratings

### 2.5.2 Analysis 2: Planned Contrasts for Grammaticality Ratings

The second analysis consists of planned contrasts that will determine whether significant differences exist between participants' selection among three grammaticality ratings. This will inform the first research question by indicating whether participants provided similar judgments to indicative and subjunctive complements or whether there were significant differences between the two complement types regarding what was considered to be grammatical. Significant differences were found between sentences containing indicative and subjunctive complements that received a grammatical (A) rating by subjects [ $F_1(1,59)= 46.881, MSE= 399.948, p< .001$ ] and approached significance by items [ $F_2(1,6)= 4.655, MSE= 469.907, p= .074$ ] for monolingual Spanish Granada; by subjects [ $F_1(1,19)= 13.900, MSE= 248.120, p= .001$ ] but not by items [ $F_2(1,6)= 2.570, MSE= 469.643, p= .160$ ] for monolingual Spanish Bogotá; by subjects [ $F_1(1,19)= 8.876, MSE= 278.195, p= .008$ ] but not by items [ $F_2(1,6)= 3.277, MSE= 490.476, p= .120$ ] for Spanish-English Valladolid; by subjects [ $F_1(1,23)= 1369.000, MSE= 68.027, p< .001$ ] and by items [ $F_2(1,6)= 509.395, MSE= 53.323, p< .001$ ] for the teachers; by subjects [ $F_1(1,23)= 81.352, MSE= 620.933, p< .001$ ] and by items [ $F_2(1,6)= 131.040, MSE= 112.434, p< .001$ ] for the non-teachers and by subjects [ $F_1(1,15)= 646.538, MSE= 66.327, p< .001$ ] and by items [ $F_2(1,6)= 69.082, MSE= 271.577, p< .001$ ] for the now-teachers. Figure 6 displays the planned contrasts for sentences deemed to be fully “grammatical” (response A).

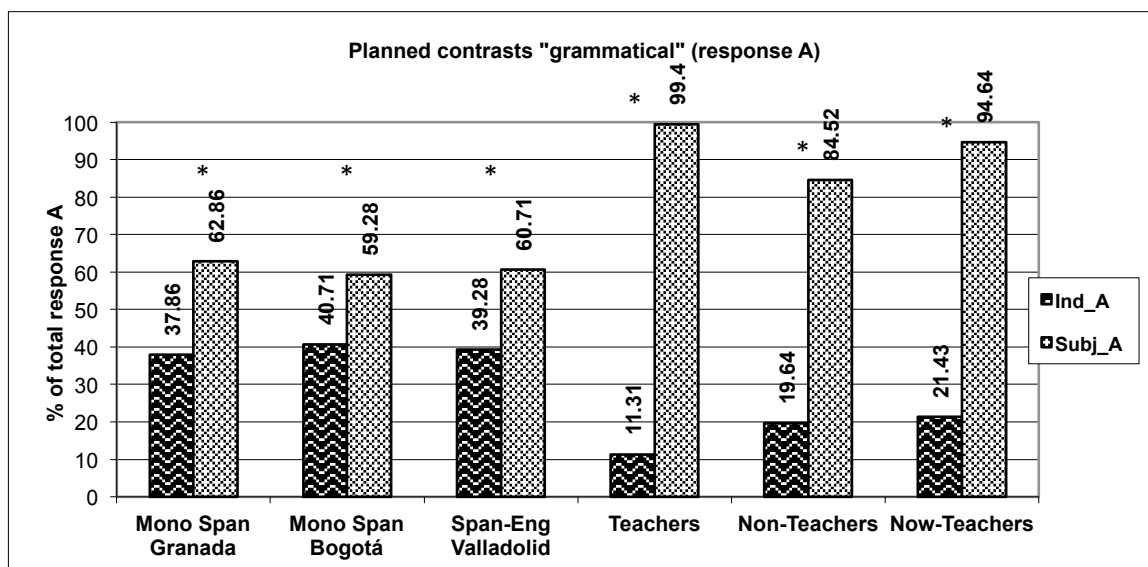


Figure 6: Planned Contrasts for "Grammatical" (Response A)

For sentences that received an acceptable (B) rating, a significant difference was found between the two complement types by subjects [ $F_1(1,59)= 34.972$ ,  $MSE= 343.134$ ,  $p< .001$ ] and by items [ $F_2(1,6)= 6.531$ ,  $MSE= 214.352$ ,  $p< .05$ ] for monolingual Spanish Granada; by subjects [ $F_1(1,19)= 4.576$ ,  $MSE= 402.524$ ,  $p< .05$ ] and by items [ $F_2(1,6)= 7.125$ ,  $MSE= 90.476$ ,  $p< .05$ ] for monolingual Spanish Bogotá; by subjects [ $F_1(1,19)= 8.143$ ,  $MSE= 360.902$ ,  $p= .010$ ] and by items [ $F_2(1,6)= 6.353$ ,  $MSE= 161.905$ ,  $p< .05$ ] for Spanish-English Valladolid; by subjects [ $F_1(1,23)= 8.065$ ,  $MSE= 42.702$ ,  $p= .009$ ] and approached significance by items [ $F_2(1,6)= 5.170$ ,  $MSE= 19.428$ ,  $p= .063$ ] for the teachers; by subjects [ $F_1(1,23)= 59.615$ ,  $MSE= 248.262$ ,  $p< .001$ ] and by items [ $F_2(1,6)= 49.967$ ,  $MSE= 86.392$ ,  $p< .001$ ] for the non-teachers and by subjects [ $F_1(1,15)= 8.442$ ,  $MSE= 91.412$ ,  $p= .011$ ] and by items [ $F_2(1,6)= 8.854$ ,  $MSE= 38.132$ ,  $p= .025$ ] for the now-teachers. Figure 7 describes the planned contrasts for sentences judged to be "acceptable" (response B).

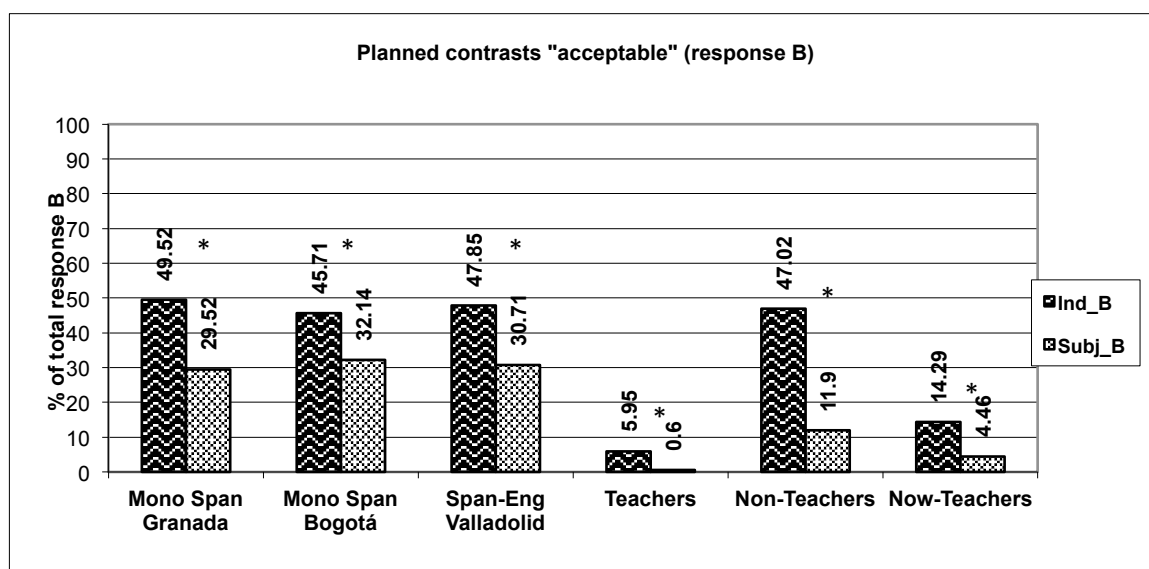


Figure 7: Planned Contrasts for "Acceptable" (Response B)

The final group of planned contrasts probed if there were significant differences between sentences containing indicative and subjunctive complements that received an ungrammatical (C) rating. For monolingual Spanish Granada differences were found by subjects [ $F_1(1,59)= 5.184$ ,  $MSE= 144.673$ ,  $p= .026$ ] but not by items [ $F_2(1,6)= .422$ ,  $MSE= 207.407$ ,  $p= .540$ ]; neither by subjects [ $F_1(1,19)= 2.509$ ,  $MSE= 99.624$ ,  $p= .130$ ] nor by items [ $F_2(1,6)= .350$ ,  $MSE= 250.000$ ,  $p= .576$ ] for monolingual Spanish Bogotá; neither by subjects [ $F_1(1,19)= 1.541$ ,  $MSE= 119.227$ ,  $p= .230$ ] nor by items [ $F_2(1,6)= .251$ ,  $MSE= 255.952$ ,  $p= .634$ ] for Spanish-English Valladolid; by subjects [ $F_1(1,23)= 772.840$ ,  $MSE= 106.293$ ,  $p< .001$ ] and by items [ $F_2(1,6)= 475.107$ ,  $MSE= 50.430$ ,  $p< .001$ ] for the teachers; by subjects [ $F_1(1,23)= 19.993$ ,  $MSE= 531.647$ ,  $p< .001$ ] and by items [ $F_2(1,6)= 42.135$ ,  $MSE= 73.578$ ,  $p= .001$ ] for the non-teachers and by subjects [ $F_1(1,15)= 595.394$ ,  $MSE= 53.997$ ,  $p< .001$ ] and by items [ $F_2(1,6)= 56.219$ ,  $MSE= 250.186$ ,  $p< .001$ ] for the now-teachers. Figure 8 illustrates the planned contrasts for sentences considered to be “ungrammatical” (response C).

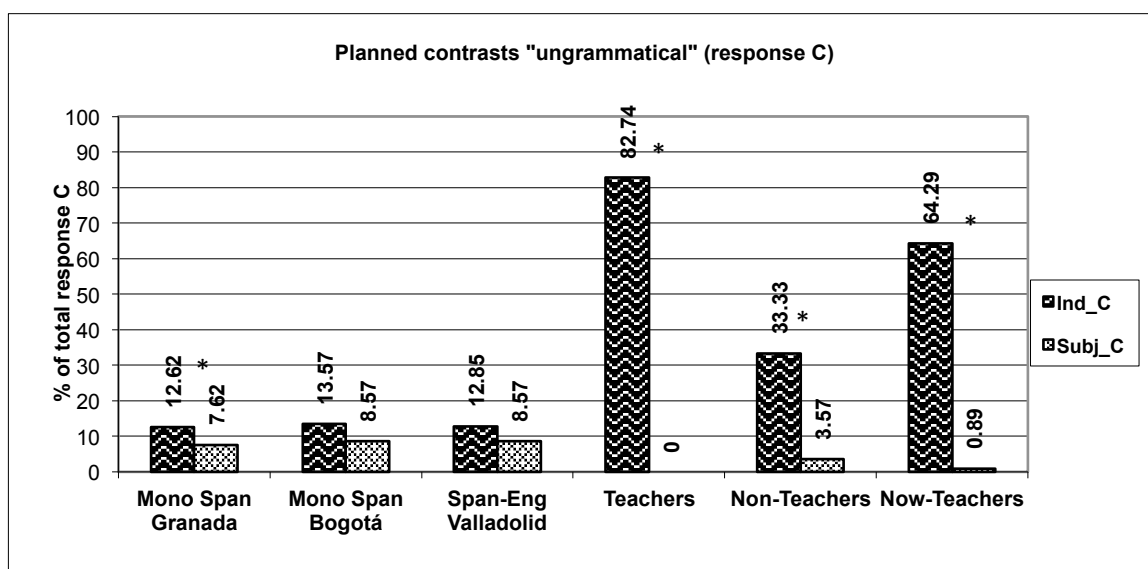


Figure 8: Planned Contrasts for "Ungrammatical" (Response C)

To reiterate, the pairwise comparisons demonstrated significant differences for all six groups when indicative and subjunctive complements were placed in contrast with each other in terms of 'grammatical' judgments (response A) and 'acceptable' judgments (response B) by subjects; however, the three L1 Spanish groups (monolingual Spanish Granada, monolingual Spanish Bogotá and Spanish-English Valladolid) did not demonstrate a significant difference by items for response A and five of the six groups showed a significant difference by items for response B. The teachers only approached significance by items for response B at  $p = .063$ . In the case of 'ungrammatical' judgments (response C), monolingual Spanish Bogotá and Spanish-English Valladolid did not indicate a significant difference between the two complement types by subjects. By items, monolingual Spanish Granada demonstrated judgments similar to monolingual Spanish Bogotá and Spanish-English Valladolid by not indicating a significant difference between the two complement types for response C and thus, often considered indicative and subjunctive complements to be ungrammatical equally often.



### 2.5.3 Analysis 3: Individual Verb Comparisons

The second research question will also be addressed in two ways. The third analysis will measure whether a preference to appear with indicative complements emerges for one or a few of the seven negated matrix verbs. This may also indicate which of the seven negated matrix verbs of belief have appeared with indicative complements most frequently in the English-Spanish speakers' natural language input.

A two-way ANOVA with the within subjects factors of verb (7 levels) and complement type (2 levels) and group as the between subjects factor produced a three-way significant interaction between verb, type and group [ $F(30,948)= 4.380$ ,  $MSE= .303$ ,  $p<.001$ ]. Follow-up analyses were then conducted to evaluate the GJs for each group individually. Both a main effect of verb [ $F_1(6,354)= 14.303$ ,  $MSE= .356$ ,  $p< .001$ ] and type [ $F_1(1,59)= 52.142$ ,  $MSE= .362$ ,  $p< .001$ ] were statistically significant for monolingual Spanish Granada. In addition, a significant interaction emerged between verb and type [ $F_1(6,354)= 20.584$ ,  $MSE= .332$ ,  $p< .001$ ]. Pairwise comparisons indicated that five of the seven examined verbs contributed to the interaction effect. This group considered indicative complements for the negated matrix verbs 'parecerse' (*to seem*) ( $M= 2.25$ ,  $SD= .600$ ) and 'suponer' (*to suppose*) ( $M= 2.47$ ,  $SD= .503$ ) to be more acceptable than the subjunctive complements ( $M= 2.02$ ,  $SD= .833$ ) and ( $M= 2.23$ ,  $SD= .593$ ), respectively. Monolingual Spanish Granada did not indicate a significant difference between either complement type for the two verbs 'parecerse' (*to seem*) and 'estar seguro' (*to be sure*). Figure 9 depicts the pairwise comparisons for individual verbs for monolingual Spanish Granada. Table 1 represents the seven individual verb means for subjunctive and indicative complements for this group of speakers.

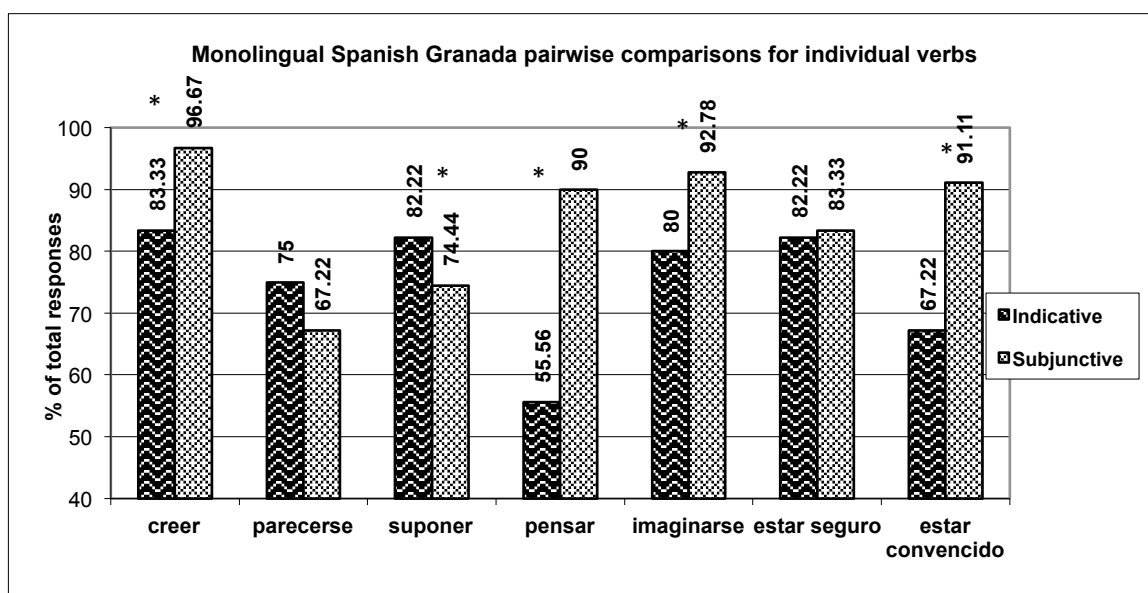


Figure 9: Monolingual Spanish Granada Pairwise Comparisons for Individual Verbs

Spanish Monolingual Granada Verb	Indicative mean	Indicative <i>SD</i>	Subjunctive mean	Subjunctive <i>SD</i>	<i>P</i>
no cree	2.50	.504	2.90	.354	.000
no me parece	2.25	.600	2.02	.833	.109
no suponía	2.47	.503	2.23	.593	.015
no pienso	1.67	.601	2.70	.462	.000
no se imaginaba	2.40	.616	2.78	.415	.000
no estaba seguro	2.47	.700	2.50	.597	.760
no estoy convencido	2.02	.676	2.73	.548	.000

Table 1: Monolingual Spanish Granada Means for Individual Verbs

For monolingual Spanish Bogotá both a main effect of verb [ $F_{1(6,114)}= 4.564$ ,  $MSE= .432$ ,  $p < .001$ ] and type [ $F_{1(1,19)}= 18.965$ ,  $MSE= .205$ ,  $p < .001$ ] emerged. A significant interaction was revealed between verb and type [ $F_{1(6,114)}= 8.656$ ,  $MSE= .312$ ,  $p < .001$ ]. Pairwise comparisons indicated that four of the seven verbs examined contributed to the interaction effect. Similar to monolingual Spanish Granada, this group also considered indicative complements for the negated matrix verbs ‘parecerse’ (*to seem*) ( $M= 2.35$ ,  $SD= .671$ ) and ‘suponer’ (*to suppose*) ( $M= 2.40$ ,  $SD= .503$ ) to be more acceptable than their respective subjunctive complements ( $M= 1.95$ ,  $SD= .826$ ) and ( $M= 2.10$ ,  $SD= .641$ ). Monolingual Spanish Bogotá did not indicate a significant difference between either complement type for the following three negated matrix verbs: ‘parecerse’ (*to seem*), ‘suponer’ (*to suppose*) and ‘estar seguro’ (*to be sure*). Figure 10 shows the pairwise comparisons for individual verbs for monolingual Spanish Bogotá. Table 2 displays the means for both complement types.

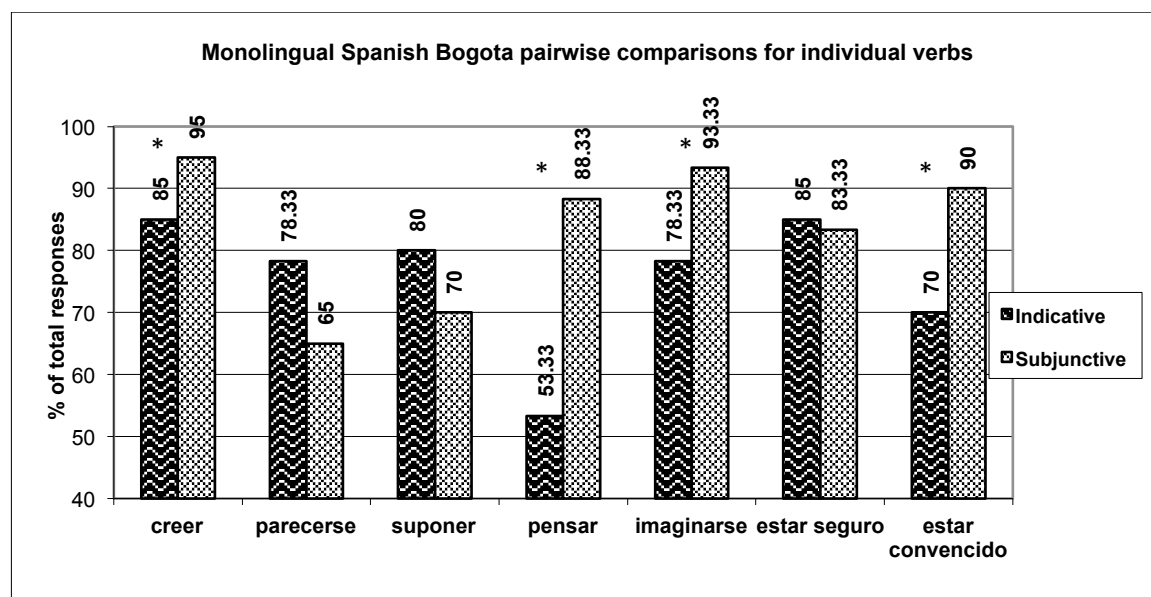


Figure 10: Monolingual Spanish Bogotá Pairwise Comparisons for Individual Verbs

Spanish Monolingual Bogotá Verb	Indicative mean	Indicative SD	Subjunctive mean	Subjunctive SD	<i>P</i>
no cree	2.55	.510	2.85	.366	.010
no me parece	2.35	.671	1.95	.826	.134
no suponía	2.40	.503	2.10	.641	.110
no pienso	1.60	.503	2.65	.489	.000
no se imaginaba	2.35	.671	2.80	.410	.001
no estaba seguro	2.55	.686	2.50	.688	.772
no estoy convencido	2.10	.788	2.70	.470	.000

Table 2: Monolingual Spanish Bogotá Means for Individual Verbs

For Spanish-English Valladolid, both a main effect of verb [ $F_1(6,114)= 3.560$ ,  $MSE=.425$ ,  $p=.003$ ] and type [ $F_1(1,19)= 14.798$ ,  $MSE=.313$ ,  $p=.001$ ] emerged. In addition, a significant interaction resulted between verb and type [ $F_1(6,114)= 9.349$ ,  $MSE=.285$ ,  $p<.001$ ]. Pairwise comparisons indicated that five of the seven examined verbs contributed to the interaction effect. Nearly identical to monolingual Spanish Granada and monolingual Spanish Bogotá, this group also considered indicative complements for the negated matrix verbs ‘parecerse’ (*to seem*) ( $M= 2.35$ ,  $SD=.587$ ) and ‘suponer’ (*to suppose*) ( $M= 2.45$ ,  $SD=.510$ ) to be more acceptable than their respective subjunctive complements ( $M= 2.00$ ,  $SD=.858$ ) and ( $M= 2.10$ ,  $SD=.641$ ). Spanish-English Valladolid did not indicate a significant difference between either complement type for the following two negated matrix verbs: ‘suponer’ (*to suppose*) and ‘estar seguro’ (*to be sure*); however, the verb ‘suponer’ approached significance ( $p=.069$ ) in

favor of indicative complements. Figure 11 demonstrates the pairwise comparisons for individual verbs from Spanish-English Valladolid. Table 3 reveals the means for both complement types.

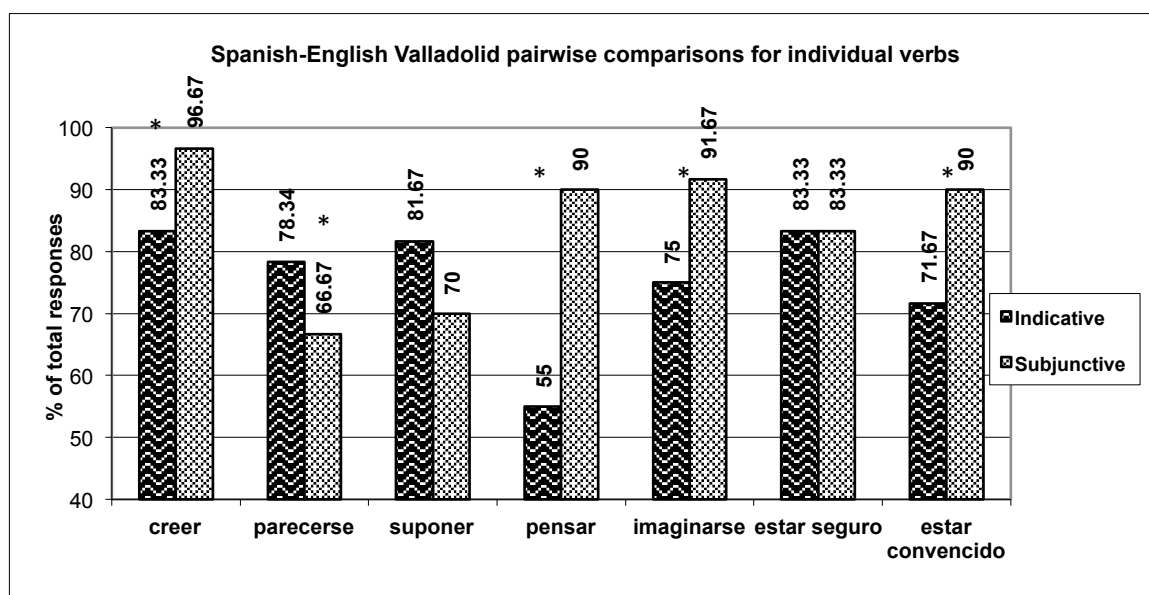


Figure 11: Spanish-English Valladolid Pairwise Comparisons for Individual Verbs

Spanish-English Valladolid Verb	Indicative mean	Indicative <i>SD</i>	Subjunctive mean	Subjunctive <i>SD</i>	<i>P</i>
no cree	2.50	.513	2.90	.308	.008
no me parece	2.35	.587	2.00	.858	.049
no suponía	2.45	.510	2.10	.641	.069
no pienso	1.65	.587	2.70	.470	.000
no se imaginaba	2.25	.716	2.75	.444	.008
no estaba seguro	2.50	.688	2.50	.607	1.000
no estoy convencido	2.15	.745	2.70	.571	.017

Table 3: Spanish-English Valladolid Means for Individual Verbs

For the teachers, a main effect of verb [ $F_1(6,138)= 2.439, MSE= .196, p< .05$ ] and type [ $F_1(1,23)= 975.032, MSE= .251, p< .001$ ] was found, and the interaction between verb and type was significant [ $F_1(6,138)= 2.319, MSE= .356, p< .05$ ]. Follow-up t-tests were run to compare the subjunctive and indicative complement pairs for each verb. The pairwise comparisons revealed that a significant difference exists ( $p< .001$ ) for all seven verbs. The subjunctive complements ( $M= 2.99, SD= .006$ ) were judged to be considerably more grammatical than indicative complements ( $M= 1.29, SD= .055$ ) for all verbs tested. The verb ‘pensar’ (*to think*) was the most widely accepted to appear with indicative complements by this group ( $M= 1.67, SD= .917$ ); nevertheless, it did not reach the determination “acceptable” which would have been ( $M= 2.00$ ). The English-Spanish teachers demonstrated a decline in the acceptability of indicative complements as compared to the three L1 Spanish groups; however, the teachers accepted subjunctive complements at nearly 100%. Figure 12 represents the English-Spanish teachers’ pairwise comparisons for individual verbs. Table 4 shows the means for both complement types.

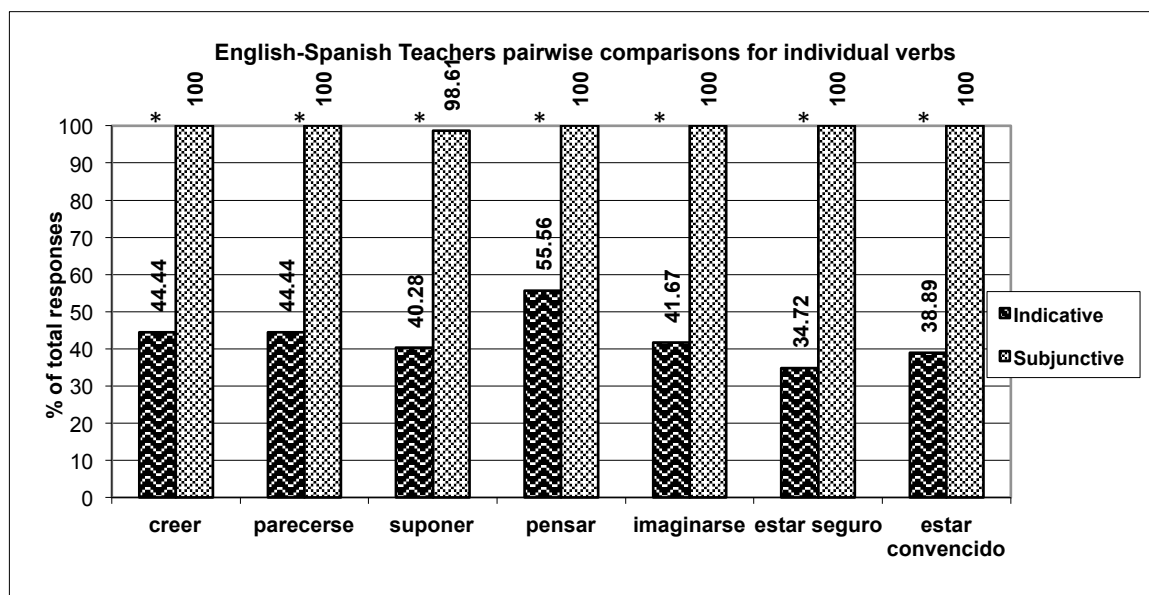


Figure 12: English-Spanish Teacher Pairwise Comparisons for Individual Verbs

English-Spanish Teachers Verb	Indicative mean	Indicative <i>SD</i>	Subjunctive mean	Subjunctive <i>SD</i>	<i>P</i>
no cree	1.33	.761	3.00	.000	.000
no me parece	1.33	.702	3.00	.000	.000
no suponía	1.21	.588	2.96	.204	.000
no pienso	1.67	.917	3.00	.000	.000
no se imaginaba	1.25	.608	3.00	.000	.000
no estaba seguro	1.04	.204	3.00	.000	.000
no estoy convencido	1.17	.381	3.00	.000	.000

Table 4: English-Spanish Teacher Means for Individual Verbs

For the non-teachers, there was only a main effect of type [ $F_1(1,23)= 195.977$ ,  $MSE=.384$ ,  $p<.001$ ], which suggests that subjunctive complements ( $M= 2.82$ ,  $SD=.028$ ) were judged to be significantly more grammatical than indicative complements ( $M= 1.86$ ,  $SD=.061$ ). The interaction between verb and type only approached significance ( $p=.064$ ). Figure 13 depicts the English-Spanish non-teachers' pairwise comparisons for individual verbs, whereas Table 5 represents the means for both complement types.

There was a main effect of verb [ $F_1(6,90)= 4.330$ ,  $MSE=.299$ ,  $p=.001$ ], type [ $F_1(1,15)= 281.584$ ,  $MSE=.371$ ,  $p<.001$ ] and a significant interaction between these two factors [ $F_1(6,90)= 5.031$ ,  $MSE=.320$ ,  $p<.001$ ] for the now-teachers. Pairwise comparisons revealed that there was a significant difference between subjunctive and indicative complements for all seven verbs. Comprehensively, subjunctive complements ( $M= 2.94$ ,  $SD=.029$ ) were judged to be significantly more grammatical than indicative complements ( $M= 1.57$ ,  $SD=.075$ ). Figure 14 demonstrates the

English-Spanish now-teachers pairwise comparisons for individual verbs and Table 6, the means.

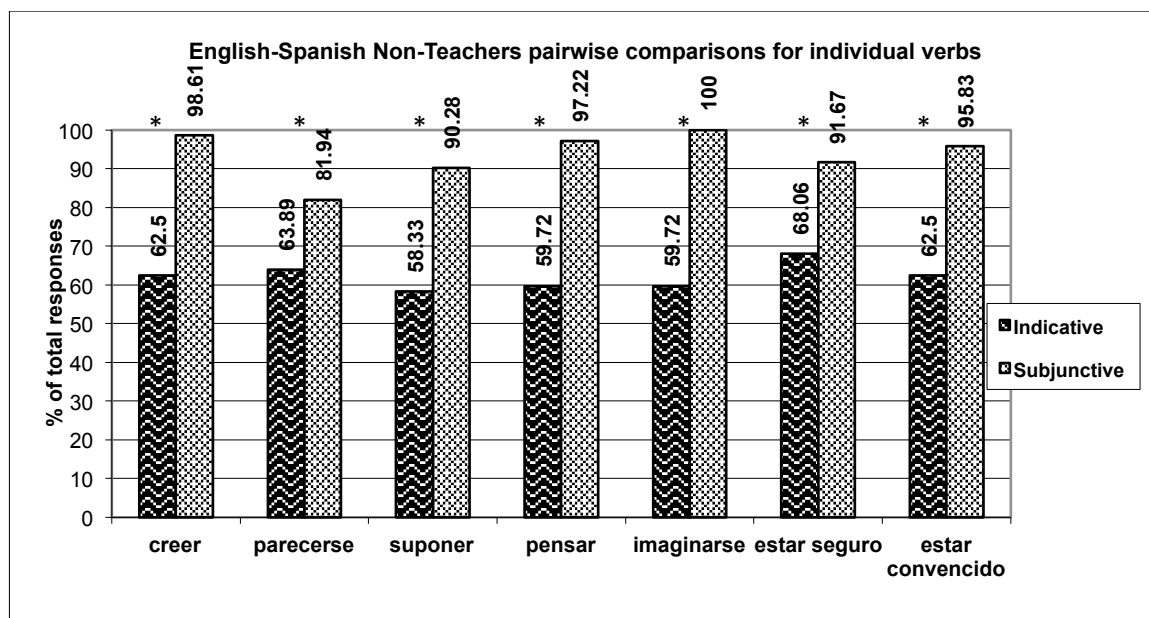


Figure 13: English-Spanish Non-Teacher Pairwise Comparisons for Individual Verbs

English-Spanish Non-Teachers  Verb	Indicative mean	Indicative <i>SD</i>	Subjunctive mean	Subjunctive <i>SD</i>	<i>P</i>
no cree	1.88	.797	2.96	.204	.000
no me parece	1.92	.717	2.46	.779	.012
no suponía	1.75	.737	2.71	.550	.000
no pienso	1.79	.509	2.92	.282	.000
no se imaginaba	1.79	.833	3.00	.000	.000
no estaba seguro	2.04	.690	2.75	.532	.000
no estoy convencido	1.88	.741	2.88	.338	.000

Table 5: English-Spanish Non-Teacher Means for Individual Verbs



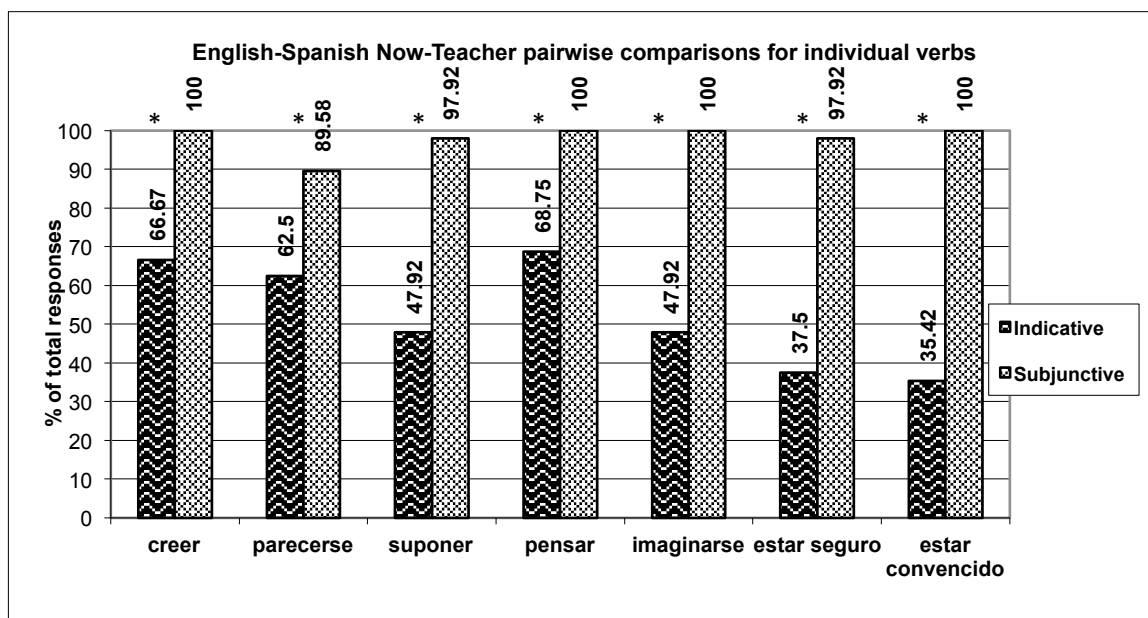


Figure 14: English-Spanish Now-Teacher Pairwise Comparisons for Individual Verbs

English-Spanish Now-Teachers  Verb	Indicative mean	Indicative <i>SD</i>	Subjunctive mean	Subjunctive <i>SD</i>	<i>P</i>
no cree	2.00	.966	3.00	.000	.001
no me parece	1.88	.957	2.69	.602	.010
no suponía	1.44	.727	2.94	.250	.000
no pienso	2.06	.929	3.00	.000	.001
no se imaginaba	1.44	.727	3.00	.000	.000
no estaba seguro no estoy	1.13	.342	2.94	.250	.000
convencido	1.06	.250	3.00	.000	.000

Table 6: English-Spanish Now-Teacher Means for Individual Verbs

In summary, the two-way ANOVA indicated that although the English-Spanish speakers consistently judged subjunctive complements to be more acceptable than indicative complements, NNSs did permit indicative complements to appear in the subordinate clause of this particular syntactic construction on occasion. Even so, the L2 Spanish participants behaved very differently from L1 Spanish participants in this regard. Keeping in mind the results from the third analysis, the fourth analysis will enable us to compare the matrix verbs for which English-Spanish speakers accepted indicative complements in the GJT with the matrix verbs that surface most frequently in written and spoken Spanish natural language corpora.

#### **2.5.4 Analysis 4: Davies Corpus**

Of the 163 tokens where ‘no cree’ (*s/he doesn't believe*) appeared together with the complementizer ‘que’ (*that*) followed by a complement clause, indicative complements appeared in a few more than half of the spoken utterances, and a subjunctive complement appeared in the remaining, lesser half of the utterances. The second and third most frequently appearing matrix verbs were ‘no pienso’ (*I don't think*) and ‘no me parece’ (*It doesn't seem to me*) at 149 and 148 tokens respectively. Two-thirds of the tokens for ‘no pienso’ (*I don't think*) and ‘no me parece’ (*It doesn't seem to me*) contained subjunctive complements, leaving the residual one-third to be comprised of indicative complements. On the contrary, due to its infrequent use in the natural language environment, ‘no estoy convencido’ (*I am not convinced*) only appeared once with a subjunctive complement in the entire corpus. Table 7 illustrates the *Davies* corpus comparisons for individual verbs.

<i>Davies 100 million word corpus of Spanish</i>	Total	Oral	Literature	Text
no cree	163	91	39	33
no pienso	149	79	65	5
no me parece	148	95	37	16
no estaba seguro	22	3	17	2
no suponía	7	1	1	5
no se imaginaba	5	0	5	0
no estoy convencido	1	0	0	1

Table 7: *Davies* 100 million word corpus of Spanish for Individual Verbs

To recapitulate, upon examination of verb frequency information in the *Davies* corpus and comparing this information to the results from this chapter, the verb frequency effects exhibited by the English-Spanish speakers were confirmed. The teachers and the now-teachers did consistently accept indicative complements for the three of the seven negated matrix verbs of belief examined that surfaced most frequently in written and spoken Spanish. The teachers accepted indicative complements between 44% and 55% for ‘no cree’ (*s/he doesn’t believe*), ‘no pienso’ (*I don’t think*) and ‘no me parece’ (*it doesn’t seem to me*), while the now-teachers accepted indicative complements between 62% and 68% for these same verbs. Moreover, the now-teachers’ acceptance of indicative complements fell shy of the judgments given by the two monolingual Spanish groups and the Spanish-English speakers, which reached 85% acceptance

for ‘no cree’ (*s/he doesn’t believe*), 78% acceptance for ‘no me parece’ (*it doesn’t seem to me*) and 55% for ‘no pienso’ (*I don’t think*)<sup>19</sup>.

These data suggest that the performance of the English-Spanish speakers before becoming teachers (non-teachers) and after completing three years of teaching (now-teachers) changed considerably. The non-teachers accepted indicative complements with negated matrix verbs of belief at the roughly same rate across the board for all seven verbs. This group did not make acceptability judgments by relying on verb frequency information. Just the reverse was true for the now-teachers who demonstrated higher acceptability ratings for the three most salient verbs based on corpus data and thus experienced sensitivity to verb frequency information. For the negated matrix verbs that appear infrequently in natural language data, the teachers and now-teachers likely applied a prescriptive rule, resulting in more frequent rejections of indicative complements with verbs of this type.

To answer the first and second research questions posed above, the teachers and now-teachers were affected by the prescriptive notions appearing in L2 textbooks for four of the seven negated matrix verbs of belief; nevertheless, verb frequency information played a role in the teachers’ and now-teachers’ acceptance of indicative complements for the three most salient negated matrices in natural language input.

---

<sup>19</sup> If following the argumentation outlined in example (4), whereby scholars have acknowledged that some NSs try to avoid indicative complements with negated matrix verbs of belief appearing the 1<sup>st</sup> person singular due to the contradiction that is created when the speaker is forced to assert what he or she explicitly rejects as the truth (e.g., DeMello, 1992; Fernández Ramírez, 1986; Isabelli & Nishida, 2005; Klein, 1977; Solano-Araya, 1982), the savvy reader might wonder why the verb ‘no me parece’ (*it doesn’t seem to me*), which theoretically appears in the 1<sup>st</sup> person singular conjugation, is widely accepted with indicative complements by the monolingual Spanish informants unlike the verb ‘no pienso’ (*I don’t think*). In my view, the verb ‘no me parece’ is not a true 1<sup>st</sup> person singular matrix since it really means “it doesn’t seem to me”. Arguably, the emphasis in this example is placed on the 3<sup>rd</sup> person singular notion it.

## 2.6 Discussion

Simply stated, second language learners need to be exposed to natural language input. Experiment 1 has been the first to examine proficient English-Spanish speakers who have had substantial exposure to natural language input through their travels abroad and frequent interactions with NSs. The most striking finding was revealed for the group of English-Spanish bilinguals that were tested twice: once prior to having teaching experience (non-teachers) and a second time after three years as instructors (now-teachers). The non-teachers, who were unarguably proficient speakers of Spanish, had GJs that approximated the judgments given by the native Spanish speakers. Like the natives, the non-teachers considered indicative complements to be acceptable with negated matrix verbs of belief; however, when tested the second time, the now-teachers rejected indicative complements with negated matrix verbs of belief for four of the seven verbs. Interestingly, the three verbs for which the now-teachers accepted indicative complements at a higher rate are the same three most frequent verbs according to the *Davies* corpus. This is evidence that verb frequency has played a role.

A usage-based exemplar-model of language learning can explain these data. Speakers likely have strong lexical representations in memory for each [negated matrix verb of belief] + que + [indicative or subjunctive complement] construction. It is probable that this information will be employed to predict subsequent uses of similar constructions (e.g., Bybee & Eddington, 2006; Conrad, 2000; Poplack, 1992, 1995). Verb frequency, coupled with the reinforcement through language experiences of a particular mood in the complement clause for each of the seven negated matrix verbs, offers a promising explanation of the data. In Experiment 1, the domain that was impervious to prescriptive rules was the area where negated matrix verbs appeared frequently with both subjunctive and indicative complements. It is likely that when the highly proficient teachers and now-teachers accepted indicative complements with this syntactic

construction, they did so with a particular semantic and pragmatic intention in mind (e.g., Cabeza, 1996). Because the teachers and now-teachers were able to extract verb frequency information from natural language input, it seems that proficient NNSs are influenced by the same lexical, semantic and pragmatic information as L1 Spanish speakers (e.g., Clahsen & Felser, 2006). An additional possibility as to why teachers and now-teachers rejected indicative complements with four of the seven negated matrix verbs of belief could be that the nature of the GJT prompted both groups to call upon their readily accessible, declarative knowledge of prescriptive rules.

The use of GJs has been the object of much scrutiny in the L2 acquisition literature (e.g., Birdsong, 1989; Cowan & Hatasa, 1994; Davies & Kaplan, 1998, to name a few). Some scholars have suggested that GJs are an accurate reflection of the syntactic structures and rules that constitute second language competence (e.g., Gass, 1994), while others contend that GJs are not a direct window into L2 speakers' competence because judgments are inconsistent and unreliable when learners are unsure about the grammaticality of a particular structure (e.g., Chomsky, 1986; Chaudron, 1983; Ellis, 1991; Han, 2000; Schachter, Tyson & Diffley, 1976; Schwartz, 1993; Schachter & Yip, 1990). Still others have proposed that metalinguistic judgments are a reflection of performance rather than competence (e.g., Altenberg & Vago, 2004), and that level of proficiency, classroom performance and language aptitude all crucially affect speakers' varying abilities to make GJs in a second language (e.g., Masny, 1983).

A central concern that arises when eliciting GJs is whether participants' judgments are reliable when tested over several sessions. Johnson, Shenkman, Newport, & Medin (1996) found that NSs' GJs remained consistent over two sessions, but the L2 speakers' judgments were inconsistent (but see Han, 2006). Likewise, Davies & Kaplan (1998) compared the GJs given by NSs and NNSs, and they too found that NSs and NNSs use different strategies to judge grammaticality. The NNSs relied predominantly on guessing, translations and using prescriptive rules, while NSs' judgments were more representative of their linguistic competence. In many

cases, the grammars of L2 learners are not fully determinate, and because indeterminacy is modulated by language proficiency, an inverse relationship can be established: indeterminacy decreases as proficiency increases (e.g., Gass, 1994). These empirical studies revealed that L1 and L2 GJs are not directly comparable; however, to better understand why they are not equivalent, let us turn to the language processing literature that describes the representation of knowledge in memory.

As defined by Tileston (2004), declarative knowledge, or controlled, rule-based, metalinguistic knowledge, is frequently linked to explicit instruction (see Robinson, 1997), while procedural knowledge refers to automatic, memory-based knowledge and is linked to linguistic competence (e.g., Paradis, 2004). Drawing a distinction between L1 and L2 learning, L1 processing involves declarative and procedural memory systems, while L2 processing predominantly depends on the declarative system (e.g., Ullman, 2001). Although some scholars support the view that the procedural memory system is less available for L2 processing (e.g., Paradis, 1994, 1997, 2004; but see Hahne, Müller & Clahsen, 2003), others suggest that because grammar and the lexicon are linked to language performance, L2 speakers can enlist their procedural memory system depending on level of proficiency, amount of naturalistic exposure to relevant input, frequency and repetition, as well as the amount of practice that NNSs have with a particular structure (e.g., Bybee, 1998; Clahsen & Felser, 2006). Similarly, in the reading acquisition literature, Bitan & Karni (2004) lend support to this claim with their finding that both letter decoding and word recognition can become proceduralized given sufficient practice. As these studies suggest, a key factor that determines whether knowledge is represented by the declarative or the procedural memory system depends on the frequency with which a particular item is practiced or rehearsed. Nevertheless, whether or not the procedural memory system is available to L2 speakers is still a matter of scholarly debate.

GJTs have been used in empirical research to assess L2 learners' metalinguistic knowledge of a number of different morpho-syntactic structures; however, the majority of these grammatical structures are routinely the subject of explicit classroom instruction (e.g., Mandell, 1999). To my knowledge, there is no institution of which I am aware that explicitly teaches that indicative complements have the potential to appear with negated matrix verbs of belief. For a grammatical construction that is not explicitly taught, learners are left with no recourse but to deduce the pattern [negated matrix verb of belief] + que + [indicative complement] from natural language input. Even if learners are able to successfully detect the potential for indicative complements with negated matrix verbs of belief (as will be seen in Experiment 2 with L2 Spanish secondary students), they are afforded few opportunities to practice the form, and thus the potential for this structure to become a part of their linguistic competence, or procedural memory system, becomes increasingly unlikely.

As the situation exists at present, the selection of the indicative mood in the complement clause of sentences that contain negated matrix verbs of belief is unlikely to surface in the classroom input, since it is virtually unheard of for either instructors or contemporary L2 textbooks to make explicit mention of this use. Because explicit knowledge does not lead to L2 competence, but the practicing of the relevant form without conscious awareness does (e.g., Paradis, 1994), valuable instructional time is being wasted by not including this possibility in L2 textbooks and classroom input. If indicative complements were included, L2 speakers would not have to rely upon verb frequency information, nor would they have to begin to assign new pragmatic functions to this construction years after learning that indicative complements were ungrammatical in this context. Only when natural language data contradicts the L2 prescriptive



rules<sup>20</sup> do L2 learners begin to accumulate authentic language experiences reflecting the actual sentences that NSs produce.

Experiment 1 has added to the growing body of L2 acquisition research by revealing that the acceptance of indicative complements is modulated by verb frequency information; namely, because three of the negated matrix verbs of belief appeared frequently in natural language input with both subjunctive and indicative complements and were thus highly accessed, they proved to be the area of the English-Spanish teachers' and now-teachers' L2 grammar that was resilient to change. Although verb frequency information can assist teachers in the un-learning of prescriptive rules, this is not to suggest that verb frequency information necessarily predicts the mood-preference in the complement clause of a particular negated matrix verb of belief. For example, when negated matrix verbs of belief are highly frequent in natural language such as 'no cree' (*s/he doesn't believe*) and 'no pienso' (*I don't think*), the role that frequency plays might be sufficient to reactivate the lexical representations reminiscent of the days prior to teaching when indicative complements were permissible; this is not to suggest that the indicative mood is necessarily the preferred mood of the complement clause, nor is it to insinuate that NNSs have access to L1 mood-preferences. It may be the case that, although NSs consider indicative complements to be acceptable with a particular verb, they may demonstrate that subjunctive complements are preferred or that there is no preference one way or the other for either complement type. This is likely based on the resultant socio-pragmatic interpretation that is created by the NSs' selection of indicative or subjunctive mood in the complement clause with each of the seven negated matrix verbs of belief. Thus, the differences observed in the GJs given by the group of English-Spanish bilinguals who were tested twice (the non-teachers and now-teachers) can be best explained by usage-based theories of second language learning. Without

---

<sup>20</sup> The author is referring to the way in which the prescriptive rules regarding mood selection are described in L2 textbooks to date.

adequate exemplars of natural language input where indicative complements surface with negated matrix verbs of belief, it would be difficult, if not impossible, to expect L2 speakers to accept indicative complements in this environment.

Returning to Lubbers Quesada's (1998) finding that the verb 'no creer' (*not to believe*) appeared with indicative complements no longer seems to be best explained as an artifact of incomplete L2 acquisition, as most scholars might suggest. Conversely, Lubbers Quesada explains her findings in terms of L2 learner acquisition of the subtle yet distinct pragmatic functions that each complement type can suggest. This explanation also seems unlikely since the L2 learners had only been part of an intensive Spanish-language summer abroad program for three months. Silva-Corvalán (1994b) suggested that even for L1 heritage learners the increased cognitive demands of hypothesizing in a language requires a high level of proficiency, which presumably these L2 learners have not attained. The findings from Experiment 1 of this dissertation suggest a more likely scenario would be that verb frequency information played a role for the L2 learners in Lubber Quesada's study. Through natural language encounters, the L2 learners were exposed to tokens of indicative-mood use in the complement clause with the negated matrix verb 'no creer' to the extent that these language experiences were, at least, weakly reflected in L2 learners' lexical representations in memory. It would have been even more informative to see how L2 learners performed after more extensive exposure to tokens of 'no creer.' This might have revealed the mood-preference in the complement clause that NSs in Mexico assign to the verb 'no creer.' If the results did shift back in favor of the use of subjunctive complements with the verb 'no creer', as was the case in Isabelli & Nishida's (2005) work, it may be the case that a) L2 learners had been corrected to such an extent that they reverted back to respect the prescriptive rule, or 2) that the verb 'no creer' demonstrates a mood-preference to be followed by subjunctive complements, regardless of the permissibility of indicative complements.

In summation, the results from Experiment 1 indicate that for the verbs ‘no creer’, ‘no pensar’, ‘no imaginarse’ and ‘no estar convencido’ all three groups of L1 Spanish speakers rated subjunctive complements higher than indicative complements. The reverse was true for the verbs ‘no parecerse’ and ‘no suponer’, as L1 Spanish speakers judged indicative complements to be more grammatical than subjunctive complements. In the case of the verb ‘no estar seguro’, there was no clear demonstrated mood-preference by any of the three L1 Spanish groups. Although frequency information assisted the two teaching groups (teachers and now-teachers) in their acceptance of indicative complements for the three most frequent of the seven verbs; however, the three groups of English-Spanish bilinguals preferred subjunctive complements over indicative complements for all seven negated matrix verbs, regardless of teaching status. This finding suggests that highly proficient English-Spanish bilinguals still do not possess lexical representations that approximate those of native Spanish speakers with respect to complement clause mood-selection preferences. It may be the case that, in terms of Spanish mood-preferences, NNSs do not have procedural knowledge available to them (e.g., Paradis, 2004), regardless of L2 language proficiency.

This could be the result of NNSs spending their formative L2 language learning years confronted with the prescriptive rules found in L2 textbooks that do not reflect NS use. In the case of the grammatical construction examined here, English-Spanish bilinguals’ lexical representations may be so strongly impacted by the declarative knowledge of L2 prescriptive rules, regardless of how many tokens of indicative-mood use they encounter throughout natural language later in life, any mood-preference other than the subjunctive-mood will most likely not create an exemplar in memory strong enough to override prescriptive rules. As flawless of an account that the second option (presented on p. 68) to explain Isabelli & Nishida’s finding for the verb ‘no creer’ would suggest, the first option is likely accurate based on the GJs of the highly proficient English-Spanish bilinguals included in Experiment 1 of this dissertation. At the stage of

learning reported in their (2005) study, it is doubtful that Isabelli & Nishida's L2 learners were able to intuit and accurately produce socio-pragmatic intention in the L2. The results may have been very different if L2 textbooks would have reflected NSs' natural language use from the start.

The goal of Experiment 2 is to examine what happens quantitatively when the L1 Spanish results of the GJT from Experiment 1 are compared to the findings from the text-based chat. If there are clear mood-preferences for individual negated matrix verbs of belief that emerge from the joint-contribution of L1 Spanish results from Experiments 1 and 2, a new paradigm of [negated matrix verb] + que + [indicative or subjunctive complement] construction will be proposed for each of the seven negated matrix verbs of belief. It is hoped that these revised 'rules of thumb' would replace inaccurate prescriptive rules regarding mood selection that appear in present-day L2 textbooks. In the absence of misleading L2 prescriptive rules, L2 Spanish learners might be able to one day access procedural knowledge with respect to mood-preferences, a feat arguably unavailable to even highly proficient English-Spanish bilinguals. From a qualitative standpoint, the responses and reactions to a series of questions asked of L2 Spanish learners post-chat will undoubtedly reveal the potential benefits to using data-driven, natural language CMC using synchronous text-based chat to supplement grammar instruction in the L2 classroom.

## Chapter 3

### Experiment 2: Text-based Chat in the L2 Classroom

#### 3.1 Introduction

When used as a L2 learning tool, synchronous interaction in real-time with NSs of the target language affords L2 learners a unique opportunity for natural language exposure, providing “a form of virtual immersion and socialization experience” without ever having to leave the classroom (e.g., Tudini, 2007, p. 577). Particularly, CMC using text-based chat activities is comparable to a face-to-face communication in terms of interactivity (e.g., Chun, 1994). CMC has changed the way in which L2 learners perceive language learning; real-world discourse using natural language as the vehicle is neither available through L2 textbooks, nor is it accessible through traditional classroom instruction (e.g., Furstenberg et. al., 2001). Past research has shown that CMC often leads to increased motivation, creates a low-anxiety learning environment, positively impacts attitudes toward the study of the L2 and elicits a socio-pragmatic awareness of the language used in an effort to build intercultural social relationships with chat partners (e.g., Darhower, 2008; Dörnyei, 2001; Freiermuth & Huang, 2012; Kern, 1995; Warschauer, 1996).

While the majority of telecollaborative exchanges have focused on learners’ development of grammatical competence either between L2 learners in the same classroom (e.g., Abrams, 2003; Blake, 2000; Pellettieri, 2000; Smith, 2003) or between NSs of the target language and L2 learners (e.g., Dussias, 2006; Lee, 2004, 2006; Toyoda & Harrison, 2002; Tudini, 2003), only one descriptive research study to date has focused on the *perceptions* of L2 Spanish learners regarding their online exchanges with NSs (e.g., Lee, 2004)<sup>21</sup>. Using the network collaboration ‘Virtual

---

<sup>21</sup> Due to vast differences in methodological decisions including, NS participants who were neither age-matched, nor living in their country of origin, insufficient NS computer literacy and the variance in L2 learners’ language proficiency, this research study is not

Classroom' from Blackboard, Lee (2004) investigated L2 Spanish learners' perceptions regarding the requisite learning conditions that facilitate NS-NNS interactions. A group of 13 NSs participated with the 13 NNSs in an open-ended, two-way information exchange task based on a list of provided topics pertaining to real-life situations. The results indicate that L2 Spanish learners viewed this experience as a vital opportunity for natural language exposure in a socially engaging, real-world setting.

There is a void in the literature pertaining to what L2 learners perceive as the necessary conditions for creating an engaging, corpus-based and data-driven online learning environment. The L2 learning experience must be authentic, linguistically and culturally-rich, evoke confidence, foster enthusiasm, and intrigue even the dispassionate L2 Spanish learner into wanting to learn and discover more about the Spanish language and culture. Such a pivotal opportunity would be difficult to afford to L2 learners through classroom instruction and L2 textbooks alone. Toyota & Harrison (2002) argue that opportunities to chat with NSs provide L2 learners with a wealth of linguistic information critical for communication that they would not otherwise encounter in a L2 classroom environment. Research has shown that by placing L2 learners in telecollaborative interactions with NSs, they exhibit increased desire to learn the subtle socio-pragmatic nuances of a language (e.g., Pearson, 1996) while demonstrating gains in intercultural learning (e.g., Belz, 2002; Belz & Kinginger, 2003). Given the fast-evolving technological developments in our society, pedagogues must adapt curriculum as well as pedagogical approaches as a result of these innovations in order to keep L2 learners engaged.

Belz (2006) encourages L2 instructors, in general, and language program directors, specifically, to revise curricula in order to integrate a DDL approach into L2 language study that institutes telecollaborative encounters with NSs in the compilation of an integrated contrastive L2

---

directly comparable. It is, however, important to note that Lee (2004) analyzed her qualitative data in a manner similar to what is presented in §3.5.

learner corpus. The resultant corpus can be utilized in such a way that individual L2 learners can track and reflect upon their L2 development over the course of an academic year<sup>22</sup>, and/or L2 instructors can use the corpus-enabled results as a point of departure for classroom discussions. She explains that one of the advantages to using a DDL approach is that by compiling text-based chats in an automatically saved archive such as *Gmail* chat (*G-chat* hereafter), “learners can examine authentic examples of differences in NS and NNS use” (p. 213). If this rationale is then applied to a NS-NNS text-based chat session<sup>23</sup> that examines the mood selection in the complement clause with the seven negated matrix verbs of belief, this would enable L2 learners to notice frequency and distribution of use as well as preferential socio-pragmatic interpretation for each negated matrix verb of belief and accompanying complement, creating a probabilistic L2 grammar based on natural language interactions with NSs over a series of encounters. This idea will be revisited in the fourth and final chapter of this dissertation as an implication for future research. The methodology is now presented for Experiment 2 followed by the quantitative and qualitative analyses and discussion in §4 and 5, respectively.

### 3.2 Participants

Twenty Spanish-English secondary students between the ages of 13-17 from Valladolid, Spain, reported in Experiment 1, and 23 intermediate-level L2 Spanish secondary students<sup>24</sup> from the Northeastern U.S. participated in Experiment 2 for course credit. The L2 Spanish group

---

<sup>22</sup> Belz (2006) suggests keeping the chat partnerships between NS and NNS consistent over all text-based chat sessions. In doing so, the L2 learners are able to examine the very data they produced with the same NS chat-partner across the sessions, resulting in a high degree of comparability.

<sup>23</sup> The chat session would need to be devised in a way similar to Experiment 2 that would elicit instances of NS use for this grammatical construction.

<sup>24</sup> Because the L2 Spanish group consisted of three more students than the English-Spanish Valladolid group, three U.S. students worked in pairs during the chat.

ranged in age from 14 to 18, and all had attained the intermediate-mid level of proficiency based on the results of the Howard County Public Schools (HCPSS) World Languages holistic speaking rubric for student growth<sup>25</sup> (see Appendix D). All L2 Spanish students were enrolled in the second semester of Spanish 3 honors at the time of this study; they only had opportunities to use the target language inside of class and had received approximately three-hours of classroom instruction<sup>26</sup> on the Spanish subjunctive prior to this study. None of the L2 learners had studied in a Spanish-speaking country, nor had they had extensive conversational interactions with NSs prior to this study. All participants behaved as digital natives; thus, no technological training on text-based chat was necessary prior to the study.

### 3.3 Tasks and procedure

Due to the six hour time difference between Spain and the U.S East Coast, the researcher was fortunate to coordinate a synchronous text-based chat session that occurred during the first morning Spanish class session for the U.S. English-Spanish secondary students and the final afternoon English class session for the Spanish-English secondary students in Valladolid. Prior to the first chat session<sup>27</sup>, forty password protected *Gmail* accounts were created for the purpose of

---

<sup>25</sup> The World Languages Cohort of HCPSS has adapted this rubric from the American Council on the Teaching of Foreign Languages (ACTFL) Performance Guidelines for K-12 learners.

<sup>26</sup> The classroom instruction consisted of lectures and activities based on the curricula followed by the HCPSS. The instruction was based on the prescriptive notions found in many L2 textbooks.

<sup>27</sup> Due to an overwhelmingly positive response from students, parents and community members in both the U.S. and Spain, a series of five additional text-based chat sessions occurred in which 25 minutes of each session took place in Spanish and the other 25 minutes in English. In each chat session a new topic was applied to a series of tasks that were completed in both Spanish and English. Follow-up student-centered activities based on each text-based chat occurred during the subsequent class period. Individual learning outcomes and observations were discussed. These data will not be reported in Experiment 2.



providing a secure text-based chat experience for all learners. The researcher created twenty new accounts and then sent invitations to another twenty newly created accounts. The researcher individually accessed each new account to either invite another account to chat or to accept another account's request to chat. Thus, prior to entering the lab on the day of the experiment, each of the twenty L2 Spanish accounts were linked to the twenty L1 Spanish accounts. As an additional measure of security, each student learned his or her username, password and chat-partner's name as he or she entered the lab on the day of the chat. Each L2 Spanish student was randomly paired with a Spanish-English Valladolid partner; however, due to the larger U.S. class size, three L2 Spanish students were required to work in pairs. All of these precautionary measures were taken to ensure that all accounts would be devoid of personal information, extraneous content and distractions during the chat session. Additionally, within minutes of the closing of the text-based chat session, to avoid students re-entering the accounts outside of class, the researcher changed all account passwords. Both student groups (and instructors) were enthusiastic about the unique opportunity that they had before them: to participate in a text-based chat with same-age peers from another part of the world who were NSs of the second language they have studied for years. The language of this initial chat session was kept completely in Spanish; however, both student groups anticipated a subsequent text-based chat session in English so long as the instructors were pleased with students' motivation, effort and collegiality demonstrated in the first session.

Participants were given very few instructions in terms of rules and procedures. Two days prior to the first text-based chat session, the U.S. L2 Spanish learners drafted a series of seven questions as a class (see Appendix E) that would be asked to their L1 Spanish peers during the fifty-minute chat session. Each of the questions was comprised of one of the seven negated matrix verbs of belief examined in this dissertation and was constructed with the intention of prompting a negative response. For consistency, the same seven questions were asked to every L1 Spanish

chat partner. The Spanish-English secondary students in Valladolid were provided with the questions in advance and were told that their chat partner would be asking them each of the seven questions at some point throughout the open-ended chat session. The Spanish-English Valladolid speakers were asked to follow three established criteria in terms of responding to each of the seven questions, 1.) to answer each question negatively, 2) to use the same matrix verb in the response as stated in the question, 3) to avoid using an infinitive in the response.

Again, students were reminded that all information exchanged during the text-based chat must be in Spanish. The researcher reminded the L2 Spanish learners that they could not use online dictionaries, textbooks or notes to decipher any target language they did not understand. They were asked to seek clarification about the target language *in* the target language. L2 Spanish participants were encouraged to introduce themselves to their NS partner and to attempt to make a personal connection with their chat partner before eliciting responses to the class-constructed questions. The Spanish-English Valladolid group was aware that the L2 Spanish students were learning about the Spanish present subjunctive; however, neither participant group had any idea that the researcher was investigating mood selection in the complement clause with these seven verbs. Participants were encouraged to elaborate on the questions asked and to allow both parties to contribute as much as possible. A teaching intern was present to address and resolve any potential technical difficulties. The text-based chats lasted fifty minutes and were automatically saved in *Gmail's* chat archives. The data were retrieved immediately after collection (while passwords were changed) and later subjected to analysis.

During the subsequent class period, each L2 Spanish student was provided with a printed copy of his or her text-based chat and received the homework assignment of completing an analysis task<sup>28</sup> (see Appendix F) based on individual language and affective experiences

---

<sup>28</sup> The three L2 Spanish students who worked in pairs during the chat completed their own individual analysis task based on the joint-partner chat.

encountered during the chat session. The analysis task consisted of four main parts: greetings/farewells, vocabulary, negated verbs of belief, and overall observations. Within the four subdivisions, twenty questions were asked based on the L2 learners' chat experiences. The quantitative results from the text-based chat are presented in §4; the L2 Spanish learners' analysis task responses to selected items will be elaborated in detail in the qualitative analysis described in §5.

### **3.4 Quantitative Analysis & Discussion: Text-Chat and L1 Spanish GJT Comparison**

In response to the seven questions asked by the L2 Spanish students, the Spanish-English Valladolid students' chat productions were used to provide evidence to support findings, to make comparisons between the chat data and the GJT data, and to make additional observations. Both quantitative and qualitative data are presented in an effort to reveal the most precise representation possible of the ways in which native Spanish speakers use mood in complement clauses with negated matrix verbs of belief and to showcase NNSs' reactions to the overall text-based chat experience. The quantitative data illustrate the statistical similarities of mood selection across three groups of L1 Spanish speakers in the GJT compared to the Spanish-English Valladolid secondary students' chat productions. The qualitative data presented herein make a compelling argument regarding L2 Spanish learners' perceptions of mood use and the extent to which the incongruence between L2 materials and natural language affected individual learners. Additionally, the L2 Spanish learners' reactions reveal that confidence, motivation and enthusiasm abound when secondary students are provided with learning opportunities to use CMC via synchronous text-based chat with NSs.

Experiment 2 addresses the third and fourth research questions of the dissertation. Question three is examined in light of the quantitative analyses contained within the chapter,

while question four is addressed via the qualitative treatment of the data. The third research question is re-stated in what follows: do L1 Spanish speakers demonstrate similar patterns of mood selection across both the elicitation GJT and the production text-based chat? Are these patterns robust enough to propose a particular [negated matrix verb of belief] + que + [indicative or subjunctive complement] pattern to facilitate L2 learning? As discussed in Chapter 1, intermediate-level L2 learners are not yet cognitively nor linguistically capable of making native-like socio-pragmatic evaluations of mood in the complement clause (e.g., Pérez-Leroux, 1998). Additionally, misleading prescriptive rules from L2 textbooks are overwhelming L2 learners' input and language experiences. To a lesser extent, and similar to L1 child acquisition, L2 learners may be relying on lexical cues (e.g., Blake, 1983) to determine mood selection. As evinced in the work by Silva-Corvalán (1994b), even in the case of heritage speakers, the full gamut of semantic possibilities of language use were unavailable, including the ability to discuss hypothetical situations. Thus, if the quantitative findings from Experiment 2 corroborate those from Experiment 1, pedagogues must devise a way to facilitate acquisition so that L2 learners can approximate the speech of NSs, without necessarily intuiting the subtle implications that the selection between the indicative and subjunctive mood entails.

### 3.4.1 Analysis 5: Comparison of Complement Types from Chat

A one-way repeated measures ANOVA that examined subjunctive and indicative complement type as the within subjects factor revealed a main effect of type by subjects [ $F_1(1,19) = 13.360$ ,  $MSE = 441.461$ ,  $p = .002$ ], but not by items [ $F_2(1,6) = 1.495$ ,  $MSE = 1380.952$ ,  $p = .267$ ]. Subjunctive complements ( $M = 62.14\%$ ,  $SD = 3.32$ ) were produced more frequently in the chat with negated matrix verbs of belief than indicative complements ( $M = 37.86\%$ ,  $SD =$

3.32). Figure 15 depicts Spanish-English Valladolid's mean percent production of indicative and subjunctive complements.

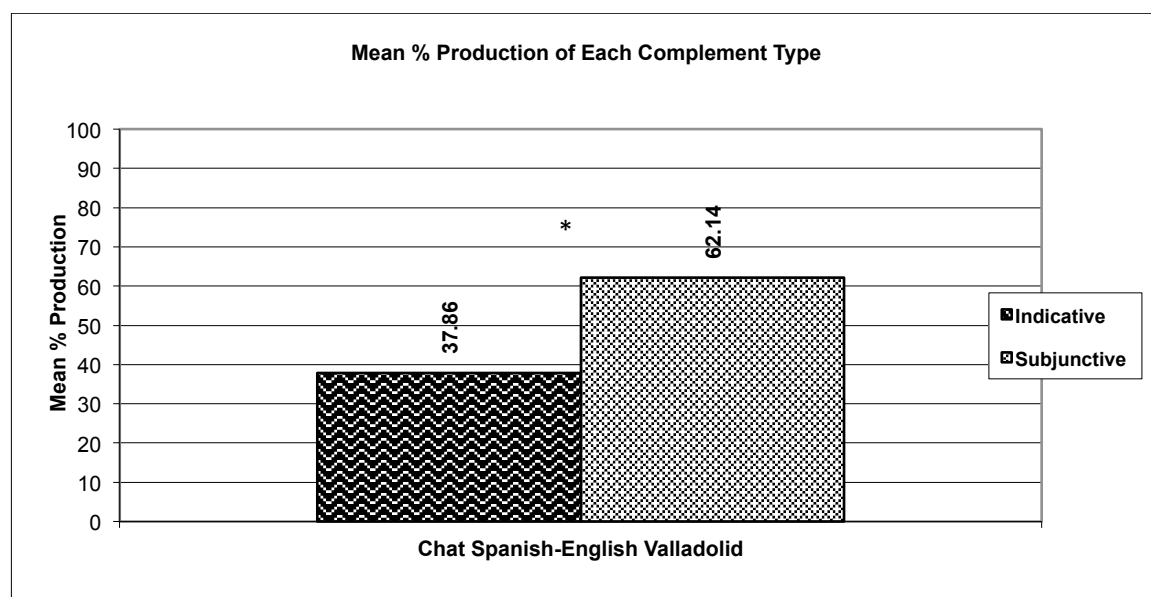


Figure 15: Spanish-English Valladolid Mean % Production of each Complement Type

The data from the text-based chat production demonstrate that when Spanish-English Valladolid secondary students were given the choice to answer open-ended questions in the negative with negated matrix verbs of belief, they did so by electing to use the subjunctive mood in the complement clause; however, this finding does not suggest that the prescriptive rules appearing in L2 textbooks are justified in their emphasis of subjunctive-only mood use in the complement clause of these seven matrix verbs when negated. Rather, 38% of the time, L1 Spanish speakers elected to use the Spanish modal system contrary to the way in which it appears in traditional L2 textbooks and is presented in mainstream Spanish secondary classrooms in the U.S. The next series of analyses will examine the L1 Spanish GJT results from Experiment 1 in a new way in order to draw comparisons between Experiment 1 and Experiment 2.

### 3.4.2 Analysis 6: Comparison of Compliment Types: Chat & GJT L1 Spanish Response "A"

Due to differences in task type between the three degrees of grammaticality elicited through the GJT in Experiment 1 and the text-based chat productions in Experiment 2, there is not a one-to-one correspondence between the data sets; however, thoughtful consideration was given as to how the comparison between the two tasks would be best reported. In Analyses 6-14, the grammatical rating (response "A") from the GJT will be compared to the chat productions. This is performed under the pretense that the Spanish-English Valladolid speakers produced language that was grammatical while answering the L2 Spanish learners' open-ended questions during the text-based chat. Due to the formality of the educational setting in which the text-based chat occurred, together with the understanding that one of the principal goals of the session was to improve L2 Spanish learners' language abilities, it is unlikely that the Spanish-English Valladolid speakers produced speech that was marginally acceptable or ungrammatical.

In Analysis 6, the chat productions of the Spanish-English Valladolid speakers are compared to the grammatical (response "A") ratings of the three L1 Spanish groups included in Experiment 1 (monolingual Spanish Granada, monolingual Spanish Bogotá and themselves-Spanish-English Valladolid). A one-way repeated measures ANOVA that examined type (subjunctive vs. indicative) as the within subjects factor and group (now referred to as: Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed that there was a main effect of type by subjects [ $F_1(1,116)= 57.890$ ,  $MSE= 361.937$ ,  $p < .001$ ] and by items [ $F_2(1,24)= 9.926$ ,  $MSE= 702.745$ ,  $p= .004$ ]. Subjunctive complements ( $M= 61.25\%$ ,  $SD= 2.06$ ) were considered to be more grammatical and more frequently produced than indicative complements ( $M= 40.36\%$ ,  $SD = 1.99$ ). There was not a significant interaction between type and group in this analysis. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with negated matrix verbs of belief were

conducted for each group and revealed a difference between the two complement types by subjects  $t(19) = -3.655, p = .002$ , but not by items  $t(6) = -1.223, p = .267$  for Chat Valladolid; by subjects  $t(59) = -6.847, p < .001$ , but only approached significance by items  $t(6) = -2.158, p = .074$  for GJT Granada; by subjects  $t(19) = -3.728, p = .001$ , but not by items  $t(6) = -1.603, p = .160$  for GJT Bogotá and by subjects  $t(19) = -2.979, p = .008$  but not by items  $t(6) = -1.810, p = .120$  for GJT Valladolid. Figure 16 reveals Chat Valladolid's mean percent production of both complement types as compared to the grammatical (response "A") judgments provided in the GJT.

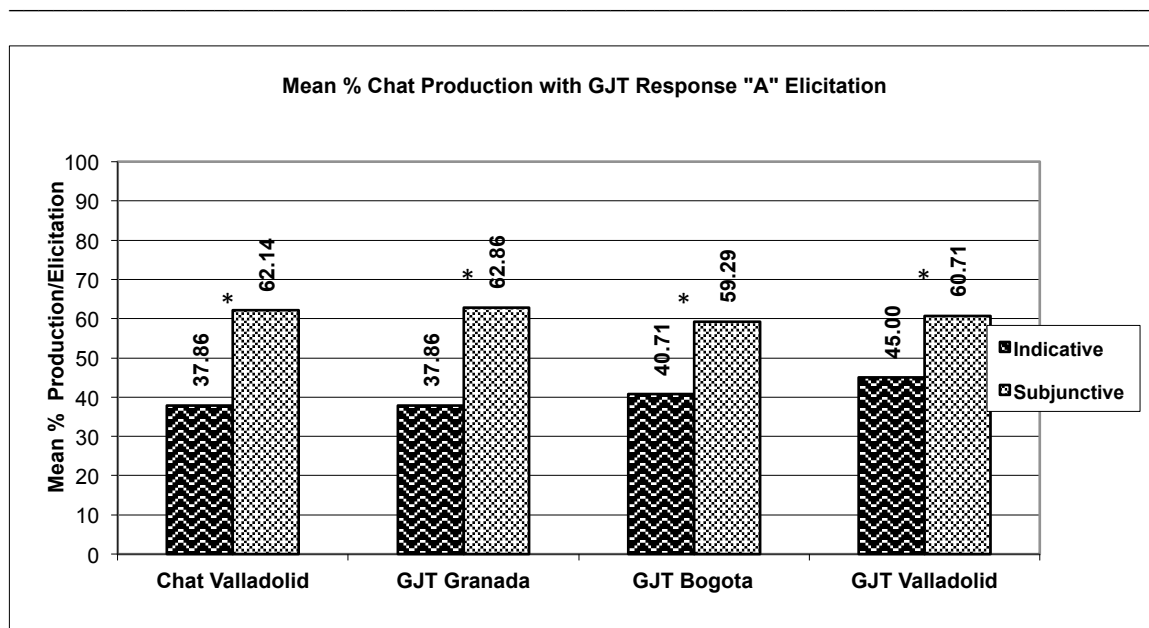


Figure 16: L1 Spanish Mean % Chat Production with GJT Response "A" Elicitation

The seeming similarities between how the four groups either judged or produced indicative and subjunctive complements with negated matrix verbs of belief is striking. These data demonstrate that, at least in terms of frequency of acceptance for grammatical (response "A") ratings and chat productions, the selection of mood in the complement clause shows no geographical boundaries nor has a preference for task type. L1 Spanish speakers, from Colombia and from two distinct regions of Spain across both production and judgment tasks, are behaving

in what appears to be a similar fashion. Analysis 7 will disentangle the subjunctive and indicative categories by investigating how each of the seven specific matrix verbs behaves across tasks and groups.

### **3.4.3 Analysis 7: Individual Verb Comparisons: Chat & GJT L1 Spanish Response "A"**

The seventh analysis will measure whether a preference to appear with indicative or subjunctive complements emerges for each individual verb. A two-way ANOVA with the within subjects factors of verb (7 levels) and complement type (2 levels) and group as the between subjects factor produced a main effect of verb [ $F_{1(6,111)}= 13.782$ ,  $MSE= 1883.415$ ,  $p < .001$ ] and type [ $F_{1(1,116)}= 75.385$ ,  $MSE= 2220.751$ ,  $p < .001$ ]. A two-way significant interaction emerged between verb and type [ $F_{1(6,111)}= 22.517$ ,  $MSE= 2196.086$ ,  $p < .001$ ]. Subsequent analyses were then run to individually examine the response "A" elicitation or chat production for each group. The complement pairs for the seven verbs will be displayed for each individual L1 Spanish group. Although the individual verb analyses for the three L1 Spanish groups (GJT Granada, GJT Bogotá and GJT Valladolid) were already reported in Experiment 1, the analyses in the first experiment were conducted based on a calculated GJ that, in addition to the grammatical (response "A"), also factored in the acceptable (response "B") and ungrammatical (response "C") ratings. The analyses presently examined will only include the grammatical (response "A") ratings, unless otherwise indicated. If the individual verb findings from Experiment 1 are replicated for the three L1 Spanish groups based on the new classification of the data in Experiment 2, this is evidence that a solid comparison is being made across experiments.

Examining the text-based chat data produced by Spanish-English Valladolid, a main effect of type [ $F_{1(1,19)}= 13.360$ ,  $MSE= 3090.226$ ,  $p= .002$ ] and a significant interaction between



verb and type [ $F_1(6,114)= 7.250$ ,  $MSE= 3809.524$ ,  $p< .001$ ] was revealed. Follow-up t-tests comparing the indicative and subjunctive complements for each negated matrix verb of belief revealed a difference between the two complement types for four of the seven verbs. Significant differences were established for the verb ‘creer’ (*to believe*)  $t(19)= -3.269$ ,  $p= .004$ . Subjunctive complements were produced more frequently in the chat ( $M= 80.00\%$ ,  $SD= 9.18$ ) than indicative complements ( $M= 20.00\%$ ,  $SD= 9.18$ ). The verb ‘pensar’ (*to think*)  $t(19)= -5.812$ ,  $p< .001$ . Subjunctive complements accompanied this verb more frequently ( $M= 90.00\%$ ,  $SD= 6.88$ ) than their indicative counterparts ( $M= 10.00\%$ ,  $SD= 6.88$ ). Significant differences were likewise found for the verb ‘imaginarse’ (*to imagine*)  $t(19)= -2.517$ ,  $p< .05$ . Subjunctive complements were produced more frequently ( $M= 75.00\%$ ,  $SD= 9.93$ ) than indicative complements ( $M= 25.00\%$ ,  $SD= 9.93$ ). The fourth verb that revealed a significant difference between complement types is ‘estar convencido’ (*to be convinced*)  $t(19)= -4.273$ ,  $p< .001$ . Subjunctive complements were produced more frequently ( $M= 85.00\%$ ,  $SD= 8.19$ ) than indicative complements ( $M= 15.00\%$ ,  $SD= 8.19$ ). Table 8 demonstrates the results from Chat Valladolid.

Chat Valladolid N=20	Indicative mean %	Subjunctive mean %	<i>t</i>	<i>Sig. (2- tailed)</i>
ind_cre-sub_cre	20.00	80.00	-3.269	.004
ind_par-sub_par	70.00	30.00	1.902	.072
ind_sup-sub_sup	70.00	30.00	1.902	.072
ind_pen-sub_pen	10.00	90.00	-5.812	.000
ind_ima-sub_ima	25.00	75.00	-2.517	.021
ind_seg-sub_seg	55.00	45.00	.438	.666
ind_con-sub_con	15.00	85.00	-4.273	.000

Table 8: Chat Valladolid Pairwise Comparisons for Individual Verbs

To reiterate, the GJs from the three L1 Spanish groups from Experiment 1 will be addressed here in terms of grammatical response “A” only. For GJT Granada, both a main effect of verb [ $F_1(6,54)= 18.131$ ,  $MSE= 2091.808$ ,  $p < .001$ ] and type [ $F_1(1,59)= 60.481$ ,  $MSE= 2170.097$ ,  $p < .001$ ] emerged. In addition, a significant interaction resulted between verb and type [ $F_1(6,54)= 20.004$ ,  $MSE= 1967.649$ ,  $p < .001$ ]. Follow-up t-tests indicated that the same four verbs documented for Chat Valladolid contributed to the interaction effect. Significant differences were established for the verb ‘creer’ (*to believe*)  $t(59)= -5.751$ ,  $p < .001$ . Subjunctive complements were considered to be grammatical more frequently ( $M= 91.67\%$ ,  $SD= 3.60$ ) than indicative complements ( $M= 50.00\%$ ,  $SD= 6.51$ ). The verb ‘pensar’ (*to think*)  $t(59)= -8.898$ ,  $p < .001$  also contributed to the observed interaction. Subjunctive complements received the grammatical rating to a greater extent ( $M= 70.00\%$ ,  $SD= 5.97$ ) than did indicative complements ( $M= 6.67\%$ ,  $SD= 3.25$ ). Significant differences between the two complement types were revealed for the verb ‘imaginarse’ (*to imagine*)  $t(59)= -3.930$ ,  $p < .001$ . Subjunctive complements were again deemed more grammatical ( $M= 78.33\%$ ,  $SD= 5.36$ ) than indicative complements ( $M= 46.67\%$ ,  $SD= 6.49$ ). The verb ‘estar convencido’ (*to be convinced*)  $t(59)= -7.167$ ,  $p < .001$  also revealed a significant difference between complement types. More often subjunctive complements were considered to be grammatical ( $M= 78.33\%$ ,  $SD= 5.36$ ) as compared to indicative complements ( $M= 23.33\%$ ,  $SD= 5.51$ ). Table 9 illustrates the findings from GJT Granada.

GJT Granada (Response “A”) N=60	Indicative mean %	Subjunctive mean %	<i>t</i>	<i>Sig. (2- tailed)</i>
ind_cre-sub_cre	50.00	91.67	-5.751	.000
ind_par-sub_par	33.33	35.00	-.163	.871
ind_sup-sub_sup	46.67	31.67	1.835	.072
ind_pen-sub_pen	6.67	70.00	-8.898	.000
ind_ima-sub_ima	46.67	78.33	-3.930	.000
ind_seg-sub_seg	58.33	55.00	.405	.687
ind_con-sub_con	23.33	78.33	-7.167	.000

Table 9: GJT Granada Pairwise Comparisons for Individual Verbs Response “A”

For GJ Bogotá, both a main effect of verb [ $F_{(6,14)}= 3.854$ ,  $MSE= 2573.308$ ,  $p= .002$ ] and type [ $F_{(1,19)}= 13.900$ ,  $MSE= 1736.842$ ,  $p= .001$ ] emerged. A significant interaction resulted between verb and type [ $F_{(6,14)}= 5.449$ ,  $MSE= 1723.684$ ,  $p< .001$ ]. Follow-up t-tests indicated that the same four verbs documented for the Chat Valladolid and GJT Granada groups contributed to the interaction effect. Significant differences were revealed for the verb ‘creer’ (*to believe*)  $t(19)= -2.854$ ,  $p< .05$ . Subjunctive complements were assigned the grammatical rating to a greater extent ( $M= 85.00\%$ ,  $SD= 8.19$ ) than indicative complements ( $M= 55.00\%$ ,  $SD= 11.41$ ). The next verb that contributed to the interaction effect was ‘pensar’ (*to think*)  $t(19)= -5.940$ ,  $p< .001$ . Subjunctive complements were favored in terms of grammaticality ( $M= 65.00\%$ ,  $SD= 10.94$ ) over indicative complements ( $M= 0.00\%$ ,  $SD= 0.00$ )<sup>29</sup>. Significant differences were found for the verb ‘imaginarse’ (*to imagine*)  $t(19)= -3.199$ ,  $p= .005$ . Subjunctive complements were judged as grammatical more regularly ( $M= 80.00\%$ ,  $SD= 9.18$ ) than indicative complements ( $M=$

<sup>29</sup> The reader should remember that Figure 10 illustrated that Spanish Monolingual Bogotá accepted indicative complements at around 53%; however, this acceptance comes from the acceptable (response “B”) rating, which is not included in Analysis 7.

45.00%,  $SD= 11.41$ ). The verb ‘estar convencido’ (*to be convinced*)  $t(19)= -3.199$ ,  $p= .005$  also displayed a significant difference between complement types. Subjunctive complements were regarded as grammatical at a higher rate ( $M= 70.00\%$ ,  $SD= 10.51$ ) than indicative complements ( $M= 35.00\%$ ,  $SD= 10.94$ ). Table 10 reports the results from GJT Bogotá.

GJT Bogotá (Response “A”) N=20	Indicative mean %	Subjunctive mean %	<i>t</i>	<i>Sig. (2- tailed)</i>
ind_cre-sub_cre	55.00	85.00	-2.854	.010
ind_par-sub_par	45.00	30.00	.900	.379
ind_sup-sub_sup	40.00	25.00	.900	.379
ind_pen-sub_pen	0.00	65.00	-5.940	.000
ind_ima-sub_ima	45.00	80.00	-3.199	.005
ind_seg-sub_seg	65.00	60.00	.370	.716
ind_con-sub_con	35.00	70.00	-3.199	.005

Table 10: GJT Bogotá Pairwise Comparisons for Individual Verbs Response “A”

For GJ Valladolid, a main effect of verb [ $F_1(6,14)= 2.949$ ,  $MSE= 2429.825$ ,  $p< .05$ ] and type [ $F_1(1,19)= 16.132$ ,  $MSE= 1992.481$ ,  $p= .001$ ] resulted. A significant interaction emerged between verb and type [ $F_1(6,14)= 5.560$ ,  $MSE= 1764.411$ ,  $p< .001$ ]. Follow-up t-tests revealed that the same four verbs documented for Chat Valladolid, GJT Granada and GJT Bogotá contributed to the interaction effect. Significant differences were shown for the verb ‘creer’ (*to believe*)  $t(19)= -2.990$ ,  $p= .008$ . Subjunctive complements had a stronger tendency to receive a grammatical rating ( $M= 90.00\%$ ,  $SD= 6.88$ ) than indicative complements ( $M= 50.00\%$ ,  $SD= 11.47$ ). The subsequent verb that contributed to the interaction effect was ‘pensar’ (*to think*)  $t(19)= -5.940$ ,  $p< .001$ . Subjunctive complements were considered to be grammatical more

frequently ( $M= 70.00\%$ ,  $SD= 10.51$ ) than indicative complements ( $M= 5.00\%$ ,  $SD= 5.00$ )<sup>30</sup>. Significant differences were found for the verb ‘*imaginarse*’ (*to imagine*)  $t(19)= -2.666$ ,  $p= .015$ . Subjunctive complements were more widely accepted ( $M= 75.00\%$ ,  $SD= 9.93$ ) than indicative complements ( $M= 40.00\%$ ,  $SD= 11.24$ ). The verb ‘*estar convencido*’ (*to be convinced*)  $t(19)= -2.373$ ,  $p< .05$  also displayed a significant difference between complement types. Subjunctive complements were regarded as grammatical more consistently ( $M= 75.00\%$ ,  $SD= 9.93$ ) than indicative complements ( $M= 35.00\%$ ,  $SD= 10.94$ ). Table 11 displays the findings from GJT Valladolid.

GJT Valladolid (Response “A”) N=20	Indicative mean %	Subjunctive mean %	<i>t</i>	<i>Sig. (2- tailed)</i>
ind_cre-sub_cre	50.00	90.00	-2.990	.008
ind_par-sub_par	40.00	35.00	.438	.666
ind_sup-sub_sup	45.00	25.00	1.453	.163
ind_pen-sub_pen	5.00	70.00	-5.940	.000
ind_ima-sub_ima	40.00	75.00	-2.666	.015
ind_seg-sub_seg	60.00	55.00	.370	.716
ind_con-sub_con	35.00	75.00	-2.373	.028

Table 11: GJT Valladolid Pairwise Comparisons for Individual Verbs Response “A”

In summary, the two-way ANOVA revealed that all L1 Spanish groups across both the GJT and text-based chat exhibited a significant difference between the grammatical judgment or production of indicative and subjunctive complements, in favor of subjunctive complements for four of the seven negated matrix verbs of belief. For four of the seven negated matrix verbs

<sup>30</sup> Just as mentioned with the Spanish Monolingual Bogotá, Figure 11 demonstrates that Spanish-English Valladolid accepted indicative complements at 55%; however, this acceptance comes from the acceptable rating (response B), which is not included in Analysis 7

'*creer*', '*pensar*', '*imaginarse*', and '*estar convencido*', it does not seem that the way in which these verbs appear in L2 textbooks and are taught in formal classroom settings is contrary to the way in which they appear in natural language and are used by native Spanish speakers; however, the data clearly show that, on occasion, indicative complements are permissible with these negated matrices. Conversely, the three remaining negated matrix verbs of belief '*suponer*', '*parecerse*', and '*estar seguro*' behave differently. These three verbs did not demonstrate statistical differences between the subjunctive and indicative complement types; however, they are unique in that, although not statistically significant, the *indicative* complements for these three verbs were more widely accepted and produced, thus maintaining higher mean percentages across all groups. Analysis 8 will take an in-depth look at each of the seven verbs simultaneously across all groups. In doing so, this will enable a closer examination of the individual verb characteristics that have lead L1 Spanish speakers to accept or produce a particular mood.

#### **3.4.4 Analysis 8: Side-by-Side L1 Spanish GJT & Chat Comparison for CREER**

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb '*creer*' (*to believe*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed a main effect of type [ $F_1(1,116) = 48.393$ ,  $MSE = 1826.868$ ,  $p < .001$ ]. Subjunctive complements ( $M = 86.67\%$ ,  $SD = 3.30$ ) were considered to be more grammatical and were produced more often than indicative complements ( $M = 43.75\%$ ,  $SD = 5.03$ ) for the verb '*creer*'. There was not a significant interaction between type and group in this analysis. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb '*creer*' were conducted for each group and revealed a difference between the two complement types for Chat Valladolid  $t(19) = -3.269$ ,  $p = .004$ ; GJT Granada  $t(59) = -5.751$ ,  $p <$

.001; GJT Bogotá  $t(19) = -2.854$ ,  $p < .05$  and GJT Valladolid  $t(19) = -2.990$ ,  $p = .008$ . Subjunctive complements were favored over indicative complements across all L1 groups in the GJT and in the text-based chat. Figure 17 demonstrates the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘creer’.

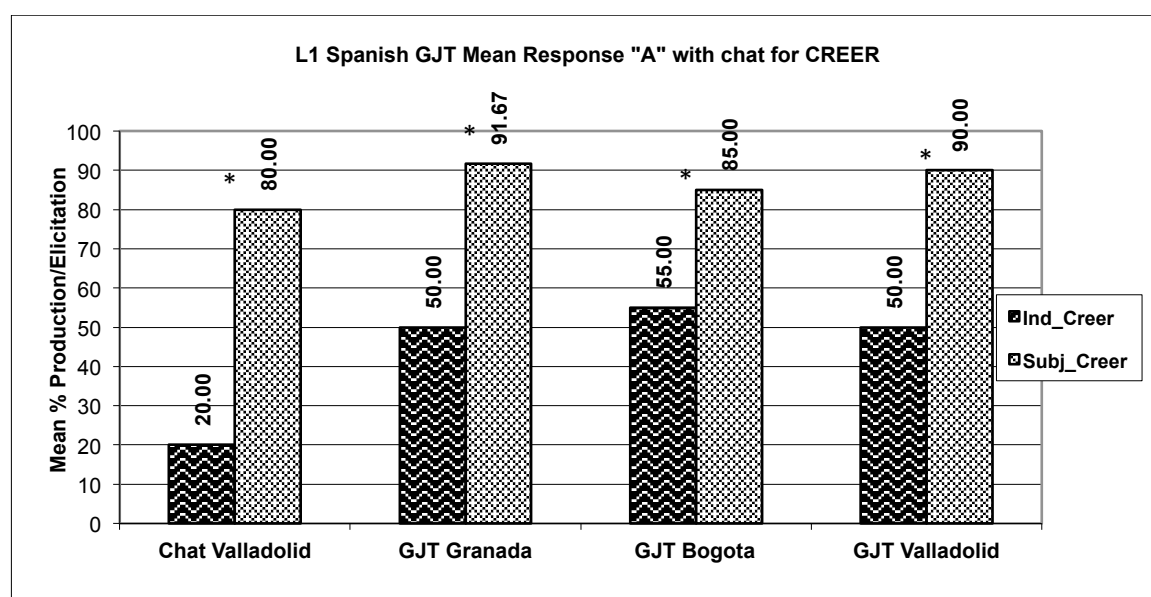


Figure 17: L1 Spanish GJT Mean % Response "A" with Chat for CREER

### 3.4.5 Analysis 9: Side-by-Side L1 Spanish GJT & Chat Comparison for PARECERSE

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb ‘parecerse’ (*to seem*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed that a main effect of type only approached significance [ $F_1(1,116) = 3.418$ ,  $MSE = 2986.351$ ,  $p = .067$ ]. There was not a significant interaction between type and group in this analysis. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative

complements appearing with the verb ‘parecerse’ were conducted for each group and did not reveal statistical differences between the two complement types for Chat Valladolid  $t(19)= 1.902$ ,  $p= .072$ ; GJT Granada  $t(59)= -.163$ ,  $p= .871$ ; GJT Bogotá  $t(19)= .900$ ,  $p= .379$  nor GJT Valladolid  $t(19)= -.438$ ,  $p= .666$ . Although not statistically significant, indicative complements ( $M= 47.08\%$ ,  $SD= 4.95$ ) received a higher mean percentage of acceptances and were more frequent in production than subjunctive complements ( $M= 32.50\%$ ,  $SD= 4.89$ ) for three of the four groups (i.e., with the exception of GJT Granada<sup>31</sup>). Figure 18 demonstrates the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘parecerse’.

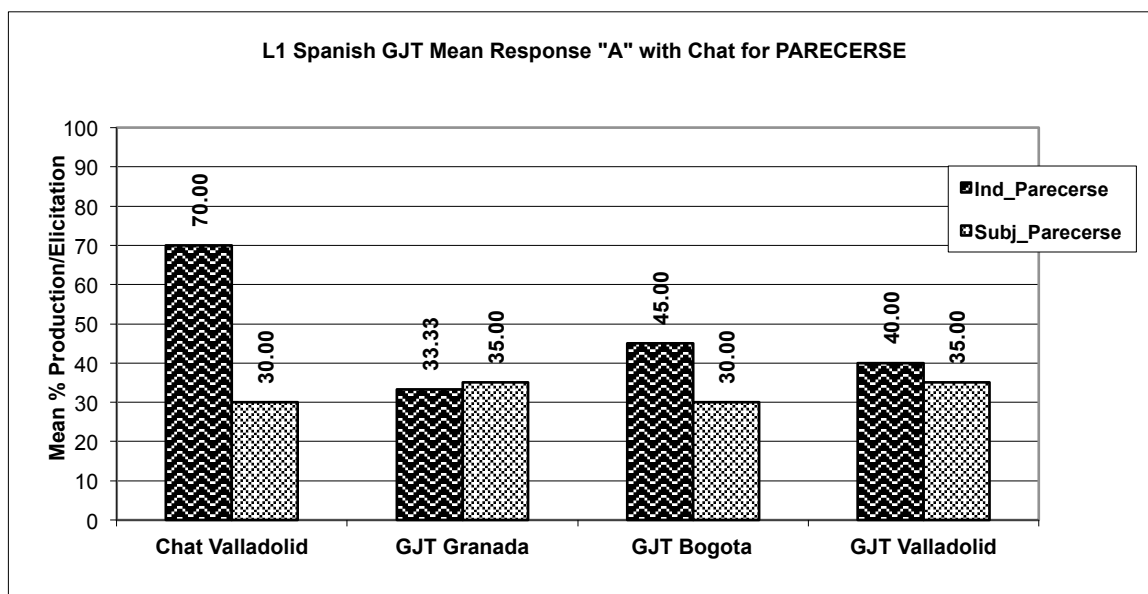


Figure 18: L1 Spanish GJT Mean % Response "A" with Chat for PARECERSE

Upon reviewing the raw GJT data for the three L1 Spanish groups, the verb ‘parecerse’ received a larger proportion of acceptable ratings (response “B”) ratings on the GJT than

<sup>31</sup> This finding is likely the result of a large number of GJT Granada participants assigning an acceptable (response “B”) judgment to the verb ‘parecerse.’



grammatical (response “A”) ratings for subjunctive and indicative complements. Although it is still maintained that the closest approximation to a text-based chat production would be the grammatical (response “A”) ratings, it is possible that for this verb and two others<sup>32</sup> in this dissertation, L1 Spanish speakers are hesitant to classify them as fully grammatical even though they are frequent in natural language. In her (1994a, 1994b) work that examined the use of the subjunctive and indicative forms in the Spanish of Los Angeles, Silva-Corvalán claims that indicative forms are becoming increasingly more acceptable. Thus, when the statistical analyses are run, including the grammatical (response “A”) ratings together with the acceptable (response “B”) ratings for both subjunctive and indicative complements, a main effect of type emerges [ $F_1(1,116)= 16.775$ ,  $MSE= 1768.598$ ,  $p< .001$ ] for ‘parecerse.’ Significant for GJT Granada and GJT Valladolid, and approaching significance for GJT Bogotá and Chat Valladolid, indicative complements ( $M= 73.47\%$ ,  $SD= 3.19$ ) were considered to be more grammatical and were produced more often than subjunctive complements ( $M= 48.61\%$ ,  $SD = 4.42$ ) for the verb ‘parecerse’. There was not a significant interaction between type and group in this analysis. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb ‘parecerse’ were conducted for each group and now revealed a significant difference between the two complement types for GJT Granada  $t(59)= 2.405$ ,  $p= .019$  as well as GJT Valladolid  $t(19)= 2.557$ ,  $p= .019$ . With the inclusion of the acceptable (response “B”) ratings, GJT Bogotá approached significance  $t(19)= 1.782$ ,  $p= .091$ . Without an “acceptable” notation for the production task, Chat Valladolid remained constant at  $t(19)= 1.902$ ,  $p= .072$ . Thus, *indicative* complements were favored over subjunctive complements across all L1 groups in the GJT and in the text-based chat. The inclusion of acceptable (response “B”) ratings pushed two groups to significance and allowed another to approximate a statistically

---

<sup>32</sup> Due to a higher percentage of response “B” than response “A” for indicative complements in the GJT raw data for all three L1 Spanish groups, the same rationale will be applied to the verb ‘suponer’ (*to suppose*) and ‘estar seguro’ (*to be sure*).

significant difference between indicative and subjunctive complements. With additional participants, statistical power would likely increase, pushing all four groups to significance. Figure 19 demonstrates the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” and “B” elicitation and text-based chat production for ‘parecerse.’

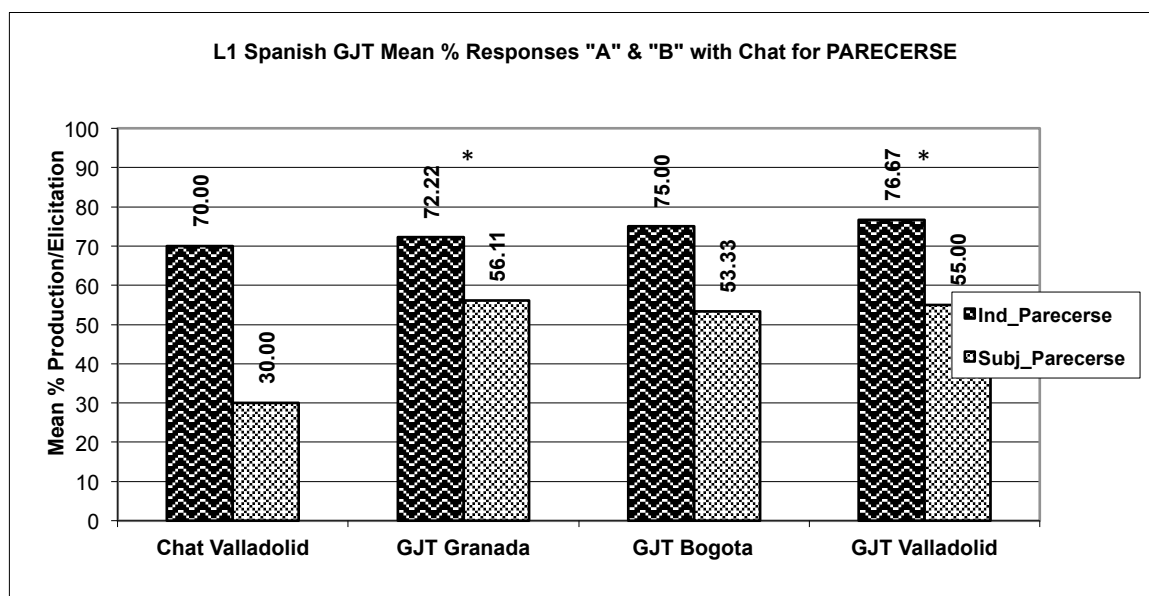


Figure 19: L1 Spanish GJT Mean % Combined Response "A" & "B" with Chat for PARECERSE

### 3.4.6 Analysis 10: Side-by-Side L1 Spanish GJT & Chat Comparison for SUPONER

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb ‘suponer’ (*to suppose*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed a main effect of type [ $F_{1}(1,116) = 9.687$ ,  $MSE = 2508.621$ ,  $p = .002$ ]. A significant interaction between type and group did not emerge. Indicative complements ( $M = 50.42\%$ ,  $SD = 5.09$ ) received a higher mean percentage of acceptances and were more frequent in production than subjunctive complements ( $M = 27.92\%$ ,  $SD = 4.71$ ). Follow-up t-tests comparing the

acceptance and production of subjunctive and indicative complements appearing with the verb ‘suponer’ were conducted for each group and did not reveal statistical differences between the two complement types for any of the groups: Chat Valladolid  $t(19)= 1.902, p= .072$ ; GJT Granada  $t(59)= 1.835, p= .072$ ; GJT Bogotá  $t(19)= .900, p= .379$  and GJT Valladolid  $t(19)= 1.453, p= .163$ . Thus, GJT Granada and Chat Valladolid only approached significance ( $p= .072$ ). Figure 20 illustrates the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘suponer.’

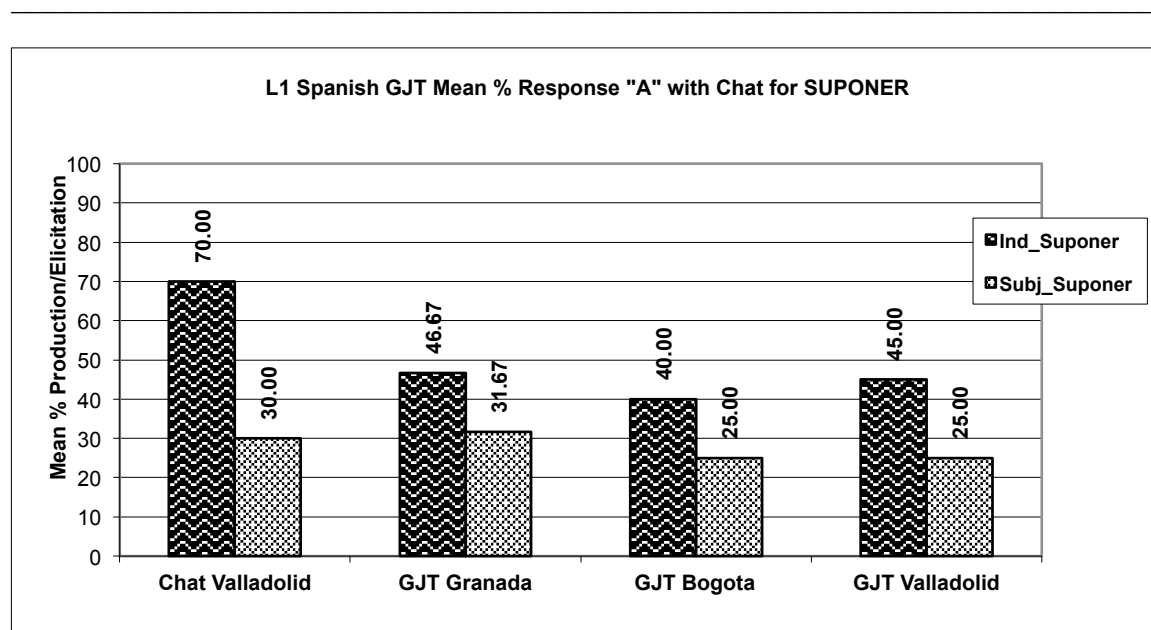


Figure 20: L1 Spanish GJT Mean % Response "A" with Chat for SUPONER

Similar to the verb ‘parecerse,’ the verb ‘suponer’ received considerably more acceptable (response “B”) ratings on the GJT than grammatical (response “A”) ratings for indicative and subjunctive complements. When acceptable (response “B”) ratings are factored into the analysis for both complement types, the findings become more robust. [ $F_1(1,116)= 17.635, MSE= 1150.056, p< .001$ ] represents the main effect of type. There is no significant interaction to report. Indicative complements ( $M= 78.47\%, SD= 2.50$ ) were considered to be more grammatical and

were produced more often than subjunctive complements ( $M= 57.92\%$ ,  $SD = 3.30$ ) for the verb ‘suponer’. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb ‘suponer’ were conducted for each group and now revealed a significant difference between the two complement types for GJT Granada  $t(59)= 2.749$ ,  $p= .008$ . Again, without an “acceptable” notation for the production task, Chat Valladolid remains constant by approaching significance at  $t(19)= 1.902$ ,  $p= .072$ . With the inclusion of the acceptable (response “B”) ratings, GJT Valladolid  $t(19)= 2.032$ ,  $p= .056$  and GJT Bogotá  $t(19)= 2.015$ ,  $p= .058$  become much closer to achieving, yet still do not reach statistical significance.

The same conclusion is drawn here for ‘suponer’, as was reached in Analysis 9 with ‘parecerse’: *indicative* complements were favored over subjunctive complements across all L1 groups in the GJT and in the text-based chat. Similarly, additional participants would add to the statistical power of the data presented here. It is argued that similar to the verb ‘parecerse’, the verb ‘suponer’ is advancing in terms of grammaticality by native Spanish speakers. Figure 21 shows the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” and “B” elicitation and text-based chat production for ‘suponer.’

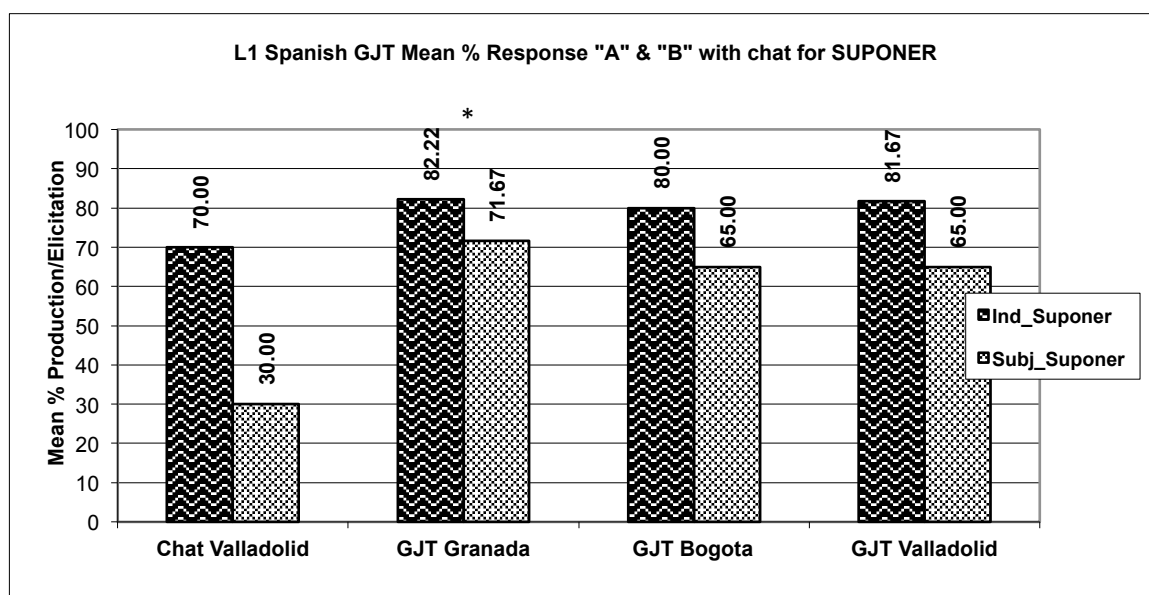


Figure 21: L1 Spanish GJT Mean % Combined Response "A" & "B" with Chat for SUPONER

### 3.4.7 Analysis 11: Side-by-Side L1 Spanish GJT & Chat Comparison for PENSAR

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb 'pensar' (*to think*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed a main effect of type [ $F_{1}(1,116)= 151.896$ ,  $MSE= 1475.575$ ,  $p < .001$ ]. For the verb 'pensar,' subjunctive complements ( $M= 73.75\%$ ,  $SD= 4.56$ ) were considered to be more grammatical and were produced more often than indicative complements ( $M= 5.42\%$ ,  $SD = 2.41$ ). A significant interaction did not arise. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb 'pensar' were conducted for each group and revealed a difference between the two complement types for Chat Valladolid  $t(19)= -5.812$ ,  $p < .001$ ; GJT Granada  $t(59)= -8.898$ ,  $p < .001$ ; GJT Bogotá  $t(19)= -5.940$ ,  $p < .001$  and GJT Valladolid  $t(19)= -5.940$ ,  $p < .001$ . Subjunctive complements were favored over

indicative complements across all L1 groups in the GJT and in the text-based chat. Figure 22 displays the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘pensar.’

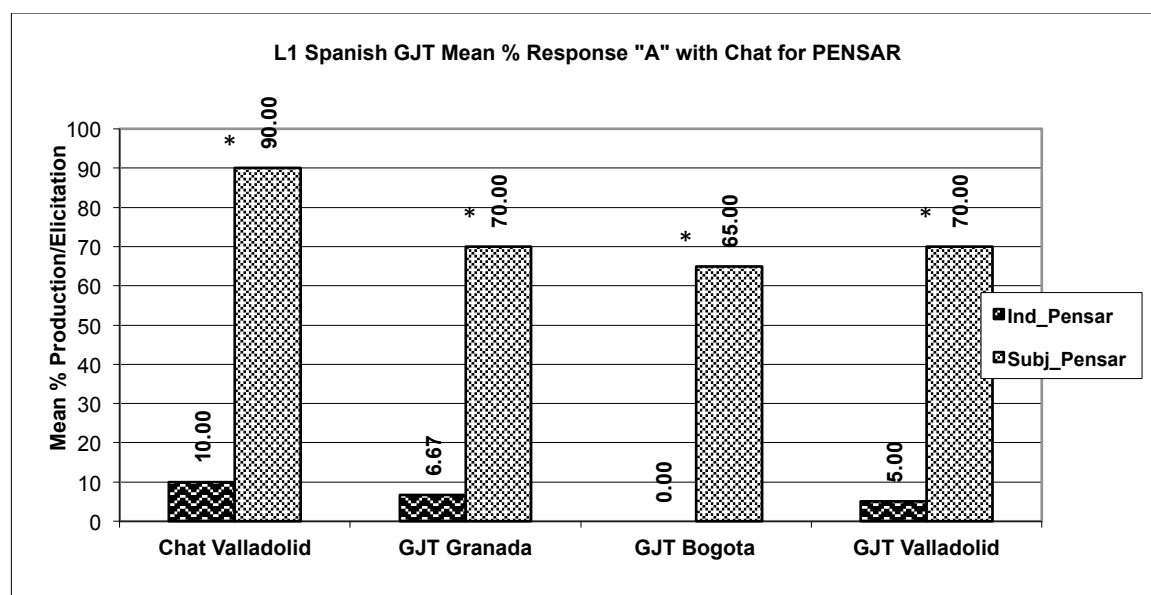


Figure 22: L1 Spanish GJT Mean % Response "A" with Chat for PENSAR

Many L1 Spanish participants selected acceptable (response “B”) ratings for the verb ‘pensar.’ Separate statistical analyses, including acceptable ratings, were run for the verb ‘pensar’ across all groups, akin to the above analyses with ‘parecerse’ and ‘suponer’. Because these analyses do not add a substantial contribution to this dissertation, they are not reported at present. It is notable that the indicative means ranged between 40% and 42% for the indicative complements, and the mean percent of acceptance fell between 88% and 90% for the subjunctive complements. Statistical significance is maintained across all groups. What is striking is that the verb ‘pensar’ is the second most frequent of the seven verbs included in this dissertation, according to the *Davies* corpus. It is probable that the acceptable (response “B”) ratings pushed the means for the indicative complements as high as they did as a result of ‘pensar’ occurring

frequently in natural language with indicative complements; however, as Travis (2003) explains, when the indicative mood is used particularly with this negated matrice, “the speaker states that he/she does not think that the proposition pertains, but, at the same time, treats it as though it were a fact” (p. 61). For this very reason, the verb ‘pensar’ is even less likely to occur in the first person singular (e.g., DeMello, 1992; Fernández Ramírez, 1986; Isabelli & Nishida, 2005; Klein, 1977; Solano-Araya, 1982). Due to the direct question/answer nature of the text-based chat session, the Spanish-English Valladolid students were required to respond in the first person singular. Unfortunately, care was not taken to avoid the first person singular in the GJT. Frequency in natural language may be playing a role in classifying the verb ‘pensar’ at just under 50% acceptability for indicative complements; however, the semantic and pragmatic implications created by indicative mood use in this context is likely contributing to the predominant subjunctive use.

#### **3.4.8 Analysis 12: Side-by-Side L1 Spanish GJT & Chat Comparison for IMAGINARSE**

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb ‘imaginar’ (*to imagine*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed a main effect of type [ $F_1(1,116) = 32.618$ ,  $MSE = 2115.661$ ,  $p < .001$ ]. For the verb ‘imaginar,’ subjunctive complements ( $M = 77.08\%$ ,  $SD = 4.33$ ) were considered to be more grammatical and were produced more often than indicative complements ( $M = 39.17\%$ ,  $SD = 5.05$ ). The interaction between group and type was not significant. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb ‘imaginar’ were conducted for each group and revealed a difference between the two complement types for Chat Valladolid  $t(19) = -2.517$ ,  $p = .021$ ; GJT Granada  $t(59) = -3.930$ ,  $p <$

.001; GJT Bogotá  $t(19) = -3.199, p = .005$  and GJT Valladolid  $t(19) = -2.666, p = .015$ . Subjunctive complements were again preferred over indicative complements across all L1 groups in the GJT and the text-based chat. Figure 23 exhibits the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘*imaginar*.’

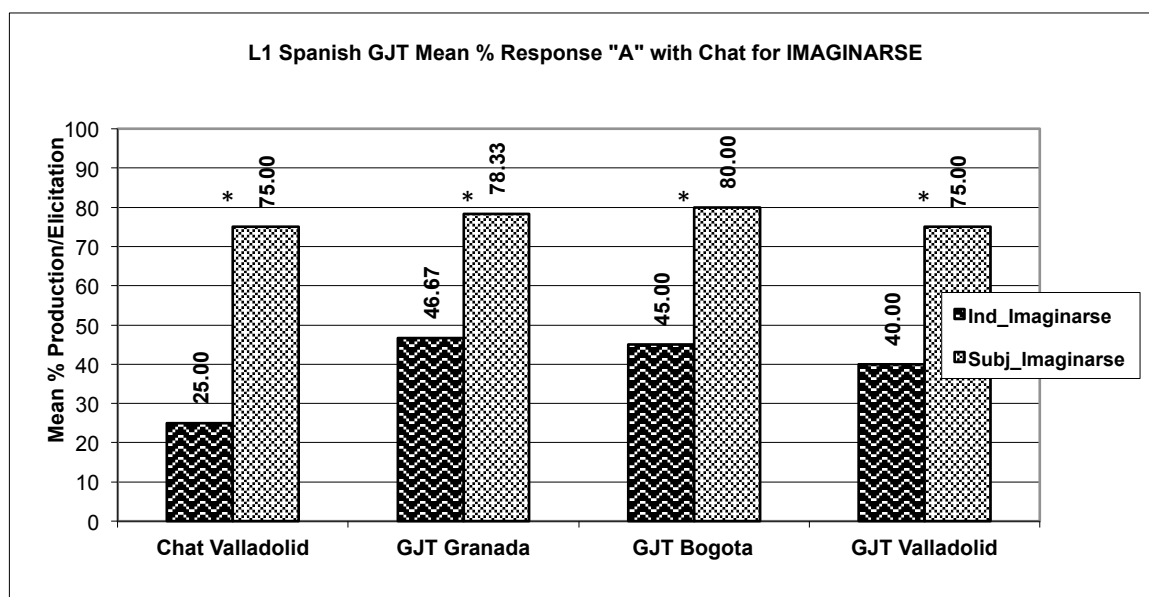


Figure 23: L1 Spanish GJT Mean % Response "A" with Chat for IMAGINARSE

### 3.4.9 Analysis 13: Side-by-Side L1 Spanish GJT & Chat Comparison for ESTAR SEGURO

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb ‘*estar seguro*’ (*to be sure*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor did *not reveal* a main effect of type [ $F(1,116) = .657, MSE = 2484.195, p = .419$ ]. There was not a significant interaction between type and group. Indicative complements ( $M = 59.58\%, SD = 5.09$ ) were considered to be grammatical and were produced at a slightly higher, yet equivalent, rate



with subjunctive complements ( $M= 53.75\%$ ,  $SD= 5.15$ ). Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb ‘estar seguro’ were conducted for each group and did not reveal statistical differences between the two complement types for any of the groups: Chat Valladolid  $t(19)= .438$ ,  $p= .666$ ; GJT Granada  $t(59)= .405$ ,  $p= .687$ ; GJT Bogotá  $t(19)= .370$ ,  $p= .716$  and GJT Valladolid  $t(19)= .370$ ,  $p= .716$ . By examining grammatical (response “A”), there was no significant difference between the grammaticality of indicative and subjunctive complements across all L1 groups for the GJT, as well the text-based chat. That said, the means are slightly in favor of indicative complements. Figure 24 illustrates the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘estar seguro.’

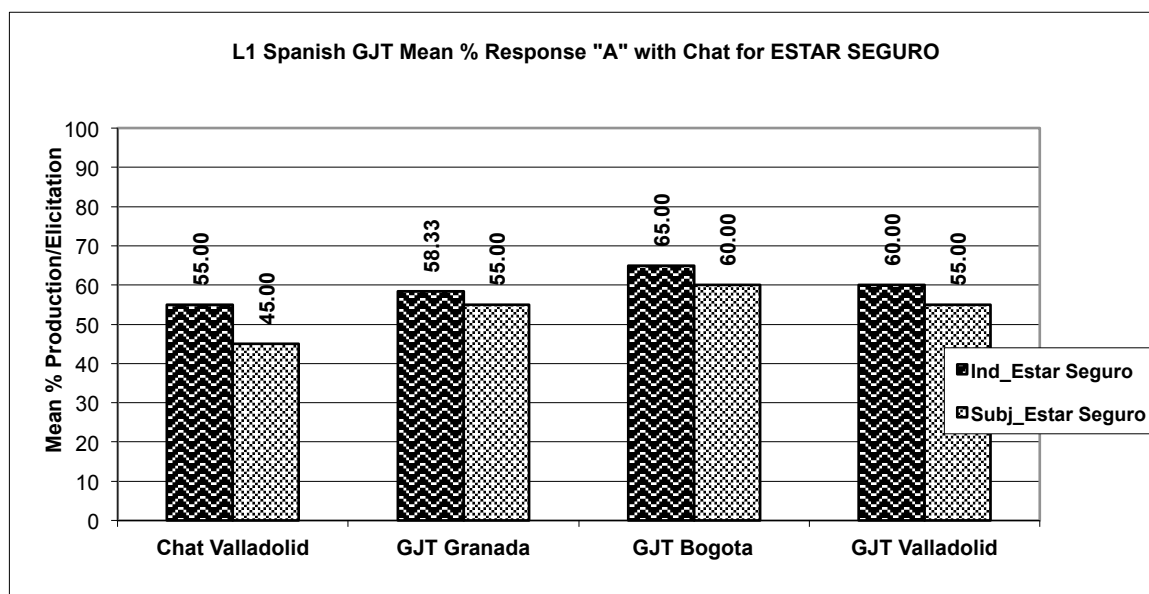


Figure 24: L1 Spanish GJT Mean % Response "A" with Chat for ESTAR SEGURO

In a similar approach to the verbs ‘parecerse’ and ‘suponer,’ a second analysis was run with the verb ‘estar seguro’ adding in the acceptable (response “B”) ratings to both complement types. This second analysis was run to determine whether the inclusion of acceptable (response

“B”) ratings for indicative and subjunctive complements would be enough to strengthen the means for either complement type to reach significance. The results indicate that, when acceptable (response “B”) ratings are factored into indicative and subjunctive complements in the GJT, the equality in mood preference between the two complement types with the negated matrix verb of belief ‘estar seguro’ is intensified. Neither a main effect of type [ $F_1(1,116) = .098, MSE = 1357.750, p = .755$ ], nor an interaction between group and type transpire. This result has a few possible explanations. In an indication similar to the verbs ‘parecerse’ and ‘suponer,’ the verb ‘estar seguro’ is becoming more widely accepted with indicative complements. At a difference to ‘parecerse’ and ‘suponer,’ the verb ‘estar seguro’ is either a) farther down on the evolutionary scale towards a preference for indicative mood in the complement clause or b) is and will continue to be equally accepted and used with both complement types. These possibilities will be addressed in the fourth and final chapter of the dissertation. Figure 25 exhibits the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” and “B” elicitation and text-based chat production for ‘estar seguro.’

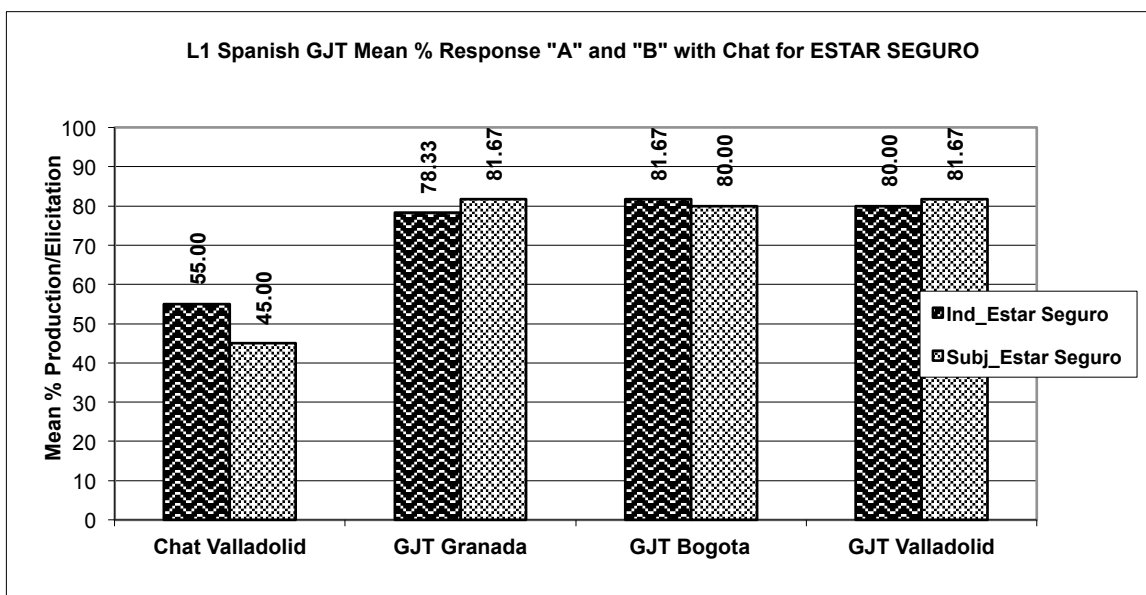


Figure 25: L1 Spanish GJT Mean % Combined Response "A" & "B" with Chat for E. SEGURO

### 3.4.10 Analysis 14: Side-by-Side L1 Spanish GJT & Chat Comparison for CONVENCIDO

A one-way repeated measures ANOVA that compared the subjunctive and indicative complement types for the verb ‘estar convencido’ (*to be convinced*) as the within subjects factor and group (Chat Valladolid, GJT Granada, GJT Bogotá and GJT Valladolid) as the between subjects factor revealed a main effect of type [ $F_1(1,116)= 60.000$ ,  $MSE= 2000.000$ ,  $p< .001$ ]. Subjunctive complements ( $M= 77.08\%$ ,  $SD= 4.31$ ) were considered to be more grammatical and were produced more often than indicative complements ( $M= 27.08\%$ ,  $SD = 4.48$ ). A significant interaction did not arise. Follow-up t-tests comparing the acceptance and production of subjunctive and indicative complements appearing with the verb ‘estar convencido’ were conducted for each group and revealed a difference between the two complement types for Chat Valladolid  $t(19)= -4.273$ ,  $p< .001$ ; GJT Granada  $t(59)= -7.167$ ,  $p< .001$ ; GJT Bogotá  $t(19)= -3.199$ ,  $p= .005$  and GJT Valladolid  $t(19)= -2.373$ ,  $p= .028$ . Subjunctive complements were favored over indicative complements across all L1 groups in the GJT and in the text-based chat. Figure 26 depicts the side-by-side mean percent comparison of L1 Spanish GJT grammatical response “A” elicitation and text-based chat production for ‘estar convencido.’

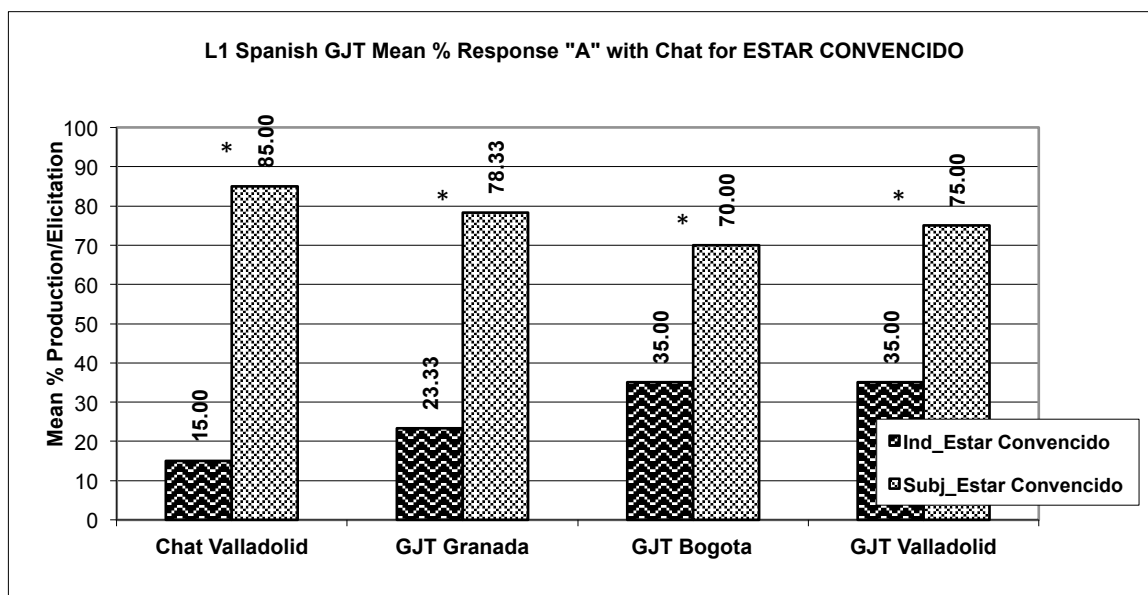


Figure 26: L1 Spanish GJT Mean % Response "A" with Chat for ESTAR CONVENCIDO

### 3.4.11 Discussion of Quantitative Results

Based on the demonstrated mood-preferences in the complement clause by L1 Spanish speakers in Experiments 1 and 2, together with verb-frequency information, pedagogues can now apply linguistically-informed empirical research findings to the creation of new L2 Spanish instructional materials to be used in secondary schools and universities. The third research question can now be effectively addressed. Research Question Three asks: do L1 Spanish speakers demonstrate similar patterns of mood selection across both the elicitation GJT and the production text-based chat? Are these patterns robust enough to propose a particular [negated matrix verb of belief] + que + [indicative or subjunctive complement] pattern to facilitate L2 learning? The answer to both questions is *yes*. It is evident that the current prescriptive notions that exist in commercially available L2 textbooks are less than accurate; therefore, I propose the

following, new treatment of mood in the complement clause for these seven negated matrix verbs of belief.

When negated, four of the seven matrix verbs included in Experiments 1 and 2: ‘creer’ (*to believe*), ‘pensar’ (*to think*), ‘imaginarse’ (*to imagine*) and ‘estar convencido’ (*to be convinced*), demonstrated a preference to be followed by the subjunctive mood in the complement clause across all participant groups and in both the GJT and text-based chat. The indicative mood did surface in the complement clauses of these four negated matrices on occasion; nevertheless, the data support a strong preference for subjunctive-mood use in this context. Drawing on the statistical probabilities or frequency of occurrence in natural language data from the *Davies* corpus, the four negated matrices can be further divided into two categories: high frequency and low frequency. Each verb grouping will now be discussed based on the frequency category to which it pertains.

At the top of the continuum, the verbs ‘creer’ (*to believe*) and ‘pensar’ (*to think*) are the first and third most frequent of the seven verbs according to the *Davies* corpus. It may be that due to the saliency in the input, L1 Spanish speakers recurrently experience contexts in which these two verbs surface in everyday language with subjunctive complements. Due to the number of tokens of this construction present in natural language input, L1 Spanish speakers may have strong lexical representations of [no creer] + que + [subjunctive complement] and [no pensar] + que + [subjunctive complement] as exemplars in memory. This usage-based empirical explanation would best address how the teachers and now-teachers in Experiment 1 recovered from the prescriptive notions they encountered on a daily basis in L2 textbooks. The teachers and now-teachers did prefer subjunctive complements with the negated matrices ‘no creer’ and ‘no pensar’. Whether this preference for subjunctive complements with ‘no creer’ and ‘no pensar’ is the result of having acquired the mood-preference from natural language data, or whether this preference is the result of re-exposure to L2 textbooks through teaching, will continue to remain a

mystery. What is suggested by these data, however, is that the teachers and now-teachers were still able to marginally accept indicative complements with ‘no creer’ and ‘no pensar’, irrespective of prescriptive rules. It is argued that this is the result of frequent exposure to natural language that contains either indicative mood or subjunctive mood in the complement clause with these two negated matrix verbs of belief. The subjunctive mood-preference in the complement clause for ‘no creer’ would also lend support to Isabelli & Nishida’s (2005) finding that study abroad learners accepted indicative complements with ‘no creer’ at month 4, but had learned by month 9 that ‘no creer’ exhibits a subjunctive-mood preference in the complement clause. Another possibility is that the socio-pragmatic nuances created by these two verbs when negated, led speakers to select the subjunctive mood for semantic reasons. Both accounts for ‘no creer’ and ‘no pensar’ are viable explanations; however, it is less likely that the latter option is available to Isabelli & Nishida’s third-year L2 learners based on the results of the highly proficient English-Spanish bilinguals from Experiment 1 of this dissertation.

At the very bottom of the continuum, the *Davies* 100-million word corpus of Spanish offers a very different, frequency-based explanation of the data for the verbs ‘imaginarse’ (*to imagine*) and ‘estar convencido’ (*to be convinced*). These two negated matrix verbs of belief had the two lowest saliency rates in natural language data. L1 Spanish speakers may be exhibiting a preference for [no imaginarse] + que + [subjunctive complement] and [no estar convencido] + que + [subjunctive complement] due to very weak lexical representations in memory of these constructions based on very few exemplars, all of which are encoded with subjunctive complements. In contrast, the cognitive semantics of the verbs ‘imaginarse’ and ‘estar convencido’ may be such that L1 Spanish speakers are most comfortable expressing their view of the world through the use of subjunctive complements when these verbs are negated in the matrix clause. Although important to distinguish the two possibilities (and others) by addressing them in future research, the aim of this dissertation is to address these verbs as they appear in the L2

Spanish curriculum to best support L2 Spanish secondary students' learning; in order to represent these four negated matrix verbs of belief in revised and updated L2 textbooks, I propose dividing the four verbs into the following two categories illustrated in (8)-(9):

(8) Category 1: High-frequency-Subjunctive mood-preference

*(no creer, no pensar)*

[No creer/pensar] + que + [subjunctive complement]

(9) Category 2: Low-frequency-Subjunctive mood-preference

*(no imaginarse, no estar convencido)*

[No imaginarse/estar convencido] + (de) que + [subjunctive complement]

The three remaining verbs 'parecerse' (*to seem*), 'suponer' (*to suppose*) and 'estar seguro' (*to be sure*) revealed a more complex scenario. Returning to Analyses 9, 10 and 13, the verbs 'parecerse', 'suponer' and 'estar seguro' did not demonstrate significant differences between subjunctive and indicative complements during the preliminary analyses of the grammatical (response "A") ratings on the GJT; however, in the secondary Analysis 9 with 'parecerse' and Analysis 10 with 'suponer', when the acceptable (response "B") ratings were included, differences either emerged or approached significance in favor of the indicative mood. The reader might remember that the Chat Valladolid results for both 'parecerse' and 'suponer' approached significance in the direction of favoring the indicative mood at ( $p = .072$ ) as well. Increased statistical power would have likely rendered all four groups for both verbs statistically significant, thereby favoring indicative complements over subjunctive complements. On the contrary, the verb 'estar seguro' from Analysis 13 did not reach statistical significance by any group in the neither the preliminary nor the secondary analyses. The second analysis was informative in that it strengthened the finding that, for the verb 'estar seguro', L1 Spanish speakers show a slight tendency in favor of indicative mood use in the complement clause; however, they uniformly employ subjunctive and indicative complements across tasks.

In terms of frequency, the *Davies* corpus places ‘parecerse’, ‘estar seguro’ and ‘suponer’ in the three, subsequent positions of verb frequency. The verb ‘parecerse’ is nearly as frequent as ‘pensar’; the verb ‘suponer’ is practically as infrequent as ‘imaginarse’; and the verb ‘estar seguro’ falls into an intermediary position of saliency in natural language. Thus, usage-based accounts of language learning can inform these results. L1 Spanish speakers around the world are coming into contact with increased indicative usage in the complement clause with negated matrix verbs of belief. In the case of ‘parecerse’, ‘suponer’ and ‘estar seguro’ one explanation is that L1 Spanish speakers are gradually experiencing tokens of increased indicative-mood use with these three verbs, which, is enabling exemplars of this construction to build strength on the lexical representations in memory. The socio-pragmatic and cognitive semantic implications, that are thus created, seem to be giving L1 Spanish speakers clearance to push the indicative-mood meaning in language use, especially in the case of ‘parecerse’ and ‘suponer.’ It may be the case that with the verb ‘estar seguro’, it is different in that, although indicative complements are permissible at the same rate as subjunctive complements, the preservation and maintenance of the subjunctive-mood interpretation is equally important. For these inherent differences in use, I propose dividing these three verbs into the following two categories illustrated in (10)-(11):

(10) Category 3: High/Low Approximation-Indicative mood-preference

(*no parecerse, no suponer*)

[No parecerse/suponer] + que + [indicative complement]

(11) Category 4: Intermediary-frequency Equi I/S mood-preference

(*no estar seguro*)

[No estar seguro] + (de) que + [indicative or subjunctive complement]

Within the four categories, the seven negated matrix verbs of belief have now been dispersed in terms of the L1 Spanish speakers’ resultant mood-preference from the GJT and text-based chat. Of the seven negated matrix verbs, Category 1 is comprised of the two high-



frequency<sup>33</sup> verbs (i.e., *no creer*, *no pensar*) that were preferentially accompanied by subjunctive complements; Category 2 consists of the two low-frequency verbs (i.e., *no imaginarse*, *no estar convencido*) with which L1 Spanish speakers also exhibited a preference to use subjunctive complements; Category 3 contains two verbs that will be referred to as high/low approximation<sup>34</sup> (i.e., *no parecerse*, *no suponer*) with which L1 Spanish speakers are close to establishing an indicative complement mood-preference; Category 4 includes the one verb of intermediary-frequency (i.e., *no estar seguro*) that displayed a relatively equal distribution of indicative/subjunctive-mood preference (Equi I/S, hereafter) across all L1 Spanish groups.

Before the new proposal for a L2 Spanish textbook description for these seven negated matrix verbs of belief and resultant mood-preferences in the complement clause is revealed, the treatment of this construct is illustrated in five recently-published, L2 Spanish textbooks by three distinct publishers used for levels 3, 4 and 5 in a large, Northeastern U.S secondary school. In the popular textbook, *Imagina: Español sin barreras*, the treatment of negated matrix verbs of belief consists of the following statement, “When the main clause implies doubt, uncertainty or denial, the verb in the subordinate clause must be in the subjunctive if its subject is different from that of the main clause” (2011, p. 96). The only example provided appears in (12).

(12) ‘No creo que ella nos quiera engañar.’

(*I don't think that she wants to deceive us.*)

---

<sup>33</sup> High frequency, in comparison to the other negated matrix verbs of belief, as based on the number of relevant tokens in the *Davies* 100-million word Spanish-language corpus.

<sup>34</sup> High/Low Approximation is a term I devised to describe the two verbs that reside at the bottom parameter of the high-frequency Category 1 and the top parameter of the low-frequency Category 2. Based on token frequency alone, the verb ‘parecerse’ could easily pertain to the high-frequency category in just the same way as the verb ‘suponer’ could pertain to the low-frequency category. However, due what appears to be L1 Spanish speakers’ steady progression towards the acceptance of, and quite possibly preference for, indicative complements with ‘parecerse’ and ‘suponer’, this ground-gaining use of indicative has placed them in a high/low approximation category of their own.

The recently released L2 Spanish textbook, *Descubre 3: Lengua y cultura del mundo hispánico* (2014, p. 136), contains the identical description and example as presented in (12). A third L2 textbook, *Temas: \*AP Spanish Language and Culture* (2014, p. 441-442), this time intended for Spanish 5AP students, offers the following description of mood selection described in (13).

(13) ‘En español, a diferencia del inglés, el modo subjuntivo es frecuente. Mientras que el indicativo describe cosas que el hablante considera ciertas, el subjuntivo expresa la actitud que toma hacia los eventos. También se emplea para hablar sobre sucesos que se consideran incompletos, hipotéticos o inciertos. Al igual que el indicativo, el modo subjuntivo tiene diferentes tiempos para hacer referencia a eventos pasados, presentes y futuros. Estos son algunos verbos y expresiones comunes de duda, negación, probabilidad o improbabilidad.’ (*In Spanish, in contrast to English, the subjunctive mood is frequent. While the indicative describes things that the speaker considers to be certain, the subjunctive expresses the attitude that one takes toward events. It is also used to talk about events that are considered to be incomplete, hypothetical or uncertain. Like the indicative, the subjunctive mood is comprised of different tenses to reference past events, present and future ones.*)

Of the seven negated matrix verbs, only the following two are mentioned as pertaining to this category: ‘no creer’ (*to not believe*) and ‘no estar seguro’ (*to not be sure*). Uncharacteristic of all of the other L2 textbooks presented thus far, the potential use of the indicative appears along the side of the textbook page. This side note is presented in (14).

(14) ‘¡ATENCIÓN! Cuando se usa en una oración el opuesto de estas expresiones para enunciar certidumbre o un hecho cierto, se emplea el indicativo.’ (*Attention! When one uses the opposite of these expressions in a sentence to state certainty or a certain fact, the indicative is used.*)

The next L2 Spanish textbook, published by Pearson, *Abriendo Paso: Gramática* (2012) states, “The subjunctive is also used after verbs and expressions of doubt, denial, uncertainty, and negation” (p. 183). Only two of the seven negated matrices are mentioned ‘no creer’ (*to not believe*) and ‘no pensar’ (*to not think*). No examples are provided for either verb. The fifth and final L2 textbook, *Tejidos: Comunicación auténtica en un contexto cultural* (2013), was just adopted by the school system for the new Spanish 4 curriculum. Although it claims to contain “authentic communication,” as the title suggests, neither a grammatical explanation for any of the seven negated matrix verbs of belief, nor a single instance of a negated matrix verb of belief

followed by an indicative complement appeared in any of the 394 pages of text. The present proposal then, suggests the incorporation of a more-accurate portrayal of complement clause mood selection in L2 textbooks based on the empirical findings reported in Experiments 1 and 2 of this dissertation. A sample L2 textbook page that includes verb frequency information and NSs' mood-preferences is illustrated in Figure 27. An account of mood selection in the complement clause for each of the seven negated matrix verbs of belief, similar to the one proposed here, would be an appropriate addition to a commercially available corpora-driven L2 Spanish textbook.

---

### 7 Negated Matrix Verbs of Belief: 4 categories, 3 preferences

*Based on the frequency in which 7 particular matrix verbs appear in natural language and the ways in which they are used by native Spanish speakers, when negated, the verbs creer (to believe), pensar (to think), imaginarse (to imagine), estar convencido (to be convinced), parecerse (to seem), suponer (to suppose) and estar seguro (to be sure) can be divided into the following categories based on frequency information and real-life use.*

<i>Category</i>	<i>Frequency</i>	<i>Mood-Preference</i>	<i>Negated Matrix Verb</i>
1	High	Subjunctive	no creer, no pensar
2	Low	Subjunctive	no imaginarse, no estar convencido
3	High/Low Approximation	Indicative	no parecerse, no suponer
4	Intermediary	Equi I/S	no estar seguro, -a

<i>Grammatical Construction</i>
[No creer/pensar] + que+ [subjunctive complement]
[No imaginarse/estar convencido] + (de) que+ [subjunctive complement]
[No parecerse/suponer] + que+ [indicative complement]
[No estar seguro, -a] + (de) que+ [indicative or subjunctive complement]

*\*These ‘rules of thumb’ should be understood as such, and they are not intended to replace native Spanish speaker intuitions surrounding their use. They should serve the L2 Spanish learner as a point of reference until he/she is capable of assigning indicative or subjunctive mood based on meaning and context.*

Figure 27: Sample L2 Textbook Page Reflecting Revised Treatment of Mood Contrast

---

In summary, this treatment of mood is not ideal; however, it is one such way that pedagogues could facilitate L2 learners' approximation of NS speech without necessitating the cognitive ability to intuit the subtle implications entailed by the selection between the indicative and subjunctive mood. On occasion, such a treatment of mood is useful in the absence of natural language opportunities either through DDL using of L2 learner-corpora or interactions with NSs themselves. The next section examines the qualitative nature of Spanish-English Valladolids' interactions with U.S. L2 Spanish secondary students via the perceptions of this latter group. Specifically, L2 Spanish learners' responses to three questions asked on the analysis task are addressed in detail below. L2 Spanish learners' reactions to these three questions were chosen in particular due to the insight they provide regarding learners' a) perception of literacy and cultural benefits to the chat session, b) reaction to NS use of indicative complements with negated verbs of belief, thus contrary to L2 textbooks and c) preferential context of learning (i.e., classroom only with L2 textbook, CMC using synchronous text-based chat, or a combination of the two). In what follows, L2 Spanish secondary students reflect upon their text-based chat experience with NSs and provide a convincing argument that, at least in the case of these L2 Spanish learners, the virtual classroom provides a wealth of rich natural language opportunities that take learning far beyond the four walls of a traditional foreign language classroom. L2 Spanish students' reactions and reflections are now shared regarding their first text-based chat encounter with NSs.

### **3.5 Qualitative Analysis & Discussion: L2 Learners' Feedback from NS-NNS Chat**

The L2 Spanish secondary students provided compelling reactions in response to twenty questions they answered on an analysis task completed during the class period immediately following the text-based chat. The responses were overwhelmingly positive and in favor of integrating CMC using synchronous text-based chat with NSs into the L2 Spanish secondary

curriculum on a more permanent basis. While some students suggested that electronic media such as *G-chat* should be integrated into the language classroom on a weekly basis, others proposed that all instruction should be hands-on with native Spanish-speaking peers using *G-chat*, *Facebook* and *Skype*. From the first text-based chat, L2 Spanish secondary students gathered a rich body of quantitative and qualitative data. In keeping with the linguistic, data-driven scope of this dissertation, only the three most relevant questions and accompanying responses will be qualitatively described. L2 Spanish responses to the other seventeen questions will filter into the discussion, when pertinent. The three central questions that will be the driving force behind L2 Spanish learners' stance in favor of integrating authentic interactions into the classroom are stated in (12)-(14).

*(12) Do you feel that the G-chat experience benefitted you as a whole? How so? Do you feel that there was a literacy or cultural benefit to the activity? Did the G-chat impact you positively? Please explain.*

*(13) Since the textbook teaches that with negated matrix verbs of belief, subjunctive complements are needed, do you find it surprising that some NSs use indicative complements? Why or why not?*

*(14) Do you feel that language should be taught and practiced in an authentic context such as with same-age peers via electronic media such as G-chat, or would you prefer to stick with the textbook? Why or why not?*

Testimonials noted throughout students' responses that support the thesis of this dissertation appear in boldface type to draw reader attention. Each of the three questions will be re-stated and student responses to each question will follow. Responses are grouped by one of several recurrent themes. The themes were not premeditated; they were revealed through the observation of consistent similarities in responses. Discussion will follow each thematic grouping of L2 Spanish student responses.

### 3.5.1 L2 Spanish Learners' Impressions of Overall Literacy/Cultural Benefits to Chat

The L2 Spanish students' responses provided a wealth of information to the researcher dealing with issues and concerns regarding L2 curriculum and pedagogy that extend far beyond the realm of this dissertation. Most relevant to the present work are the responses to three questions. The first question, re-stated in (15), produced 22 responses<sup>35</sup> divided into six distinct, thematic categories based on relatedness of response.

*(15) Do you feel that the G-chat experience benefitted you as a whole? How so? Do you feel that there was a literacy or cultural benefit to the activity? Did the G-chat impact you positively? Please explain.*

In response to the first question reviewed here, two NNSs expressed a sentiment that nearly every L2 Spanish participant experienced: the necessity for an increase in speed of communication. Although only two participants indicated a similar reaction in response to this question on the analysis task itself, the first few minutes of the text-based chat were riddled with anxiety and anxiousness. Much like cell phone texting, when the L2 learners did not enter chat-text fast enough, their L1 Spanish partner had already entered the subsequent line or two into the conversation. In particular, the fast-paced nature of the CMC using synchronous text-based chat encouraged L2 Spanish learners to think quickly on their feet. Initially, many students reacted out of panic; never before had they felt such pressure to a) read, process and understand Spanish so quickly and b) come up with an adequate response, translate it into Spanish and enter the text on the screen. All of this had to be accomplished before the L1 Spanish peer entered the next line of text, and subsequently before the process started anew. Luckily, after the first few minutes, the L2 Spanish learners turned the quick-paced task into a type of competitive, educational game. The last thing L2 Spanish learners wanted to do was make mistakes and thus lose credibility among their peers. The L2 Spanish students now had a reason to perform at their peak.

---

<sup>35</sup> One student failed to answer this question on the analysis task.

NNS1: I think I benefitted learning culturally and academically. **I learned to think fast to respond.** I also learned about another person's culture, which was fun.

NNS8: Yes, the chat was a lot of fun and helped me with comprehension. I had to practice using context clues. It was not a major cultural benefit because we were just getting to know each other, however I think with more time it will help with culture. It was definitely a positive impact because **I feel more comfortable responding quickly to questions now.**

The unpredictable twists and turns of a dynamic conversation are among the most beneficial components of real-time communication. To categorize the second group of responses, two NNSs explained that the text-based chat experience served as an opportunity to apply and review previously learned vocabulary and grammatical structures. Due to having a dense curriculum and limited instructional time in the secondary setting, it is not uncommon for units to be covered and pushed aside until the review for midterm and final exams. This is not intentional; because many chapter units follow no particular sequence with little cohesion between them, it is easy to move from topic to topic with little time for review of previous material. On a larger scale, the text-based chat not only provides L2 learners with the opportunity to revisit material learned in previous chapters or units, but also to review information from previous years of study. This is an important advantage for learners. Regardless of whether the NS-NNS text-based chat session is task-dependent or open-ended, the vocabulary and grammar used throughout the session will undoubtedly encompass a larger repertoire of language than would surface in the traditional classroom.

NNS2A: Yes it benefitted me because it gave me a better understanding of the Spanish language and culture. **It allowed me to actually apply vocab that I learned in the past.**

NNS16: Yes. I feel that it did. It was fun speaking with someone who was a natural speaker. It was very different from a classroom experience where we use the textbook. It was a lot more free-range because we could talk about whatever and **could review vocab words and grammar we haven't used in a long time.**

The third group of responses emphasized perceived cultural similarities and differences between students in the U.S. and Spain. NNS13B was most interested in having the opportunity



to communicate in Spanish with a same-age peer. In nearly every question that NNS13B answered he emphasized a) the age of his chat-partner and b) the fact that his partner was a NS. For him, he neither felt comfortable in a traditional classroom speaking Spanish with the adult teacher, nor with his non-native Spanish peers. By making a connection with his chat partner, that had been missing from his prior Spanish-language experiences, he was able to feel relaxed enough to experiment with his language skills and abilities. Due to his increased comfort, he was able to make comparisons between his own life and that of his partner. Like NNS13B, NNS2B also wanted to compare herself to her Spanish peer.

NNS2B: Yes I think I benefitted from it because **it gave me a chance to see how their culture is different and how they speak Spanish compared to us.**

NNS13B: I think it did benefit me because before it felt strange to speak in Spanish but learning how to chat and talking with him was interesting since they are our age. I think it helped me see that **we are culturally more similar than we are different.**

Characterizing the fourth and largest set of similar responses to this question, seven L2 Spanish learners reported observations of perceived grammar inconsistencies, mismatches between NS mood use and that presented in L2 textbooks and other unanticipated differences between NS use and the language they had learned in the L2 classroom. For example, NNS6 and NNS15 drew opposing conclusions regarding what it meant when NSs' language varied from the prescriptive grammar rules presented in L2 textbooks. NNS6 believed that the native Spanish speaker exhibited gaps in L1 knowledge and thus did not employ Spanish mood correctly. NNS6 likely had the prescriptive 'rules of thumb', found in L2 textbooks, so deeply ingrained in her lexical representation after five years of traditional classroom language study that she doubted any variation in language that was contrary to what she had memorized. Conversely, NNS15 clearly understood the fluidity of language and could accept that, regardless of published grammar rules, real language is the natural language used by NSs of that language.

NNS4: Yes, I think it was beneficial. I learned some new vocab and phrases and learned some about the culture. **I also saw some interesting usage of grammar.**

NNS5A: Yes, the *G-chat* benefitted me a lot. **It showed the difference between the textbooks and how NSs speak.** It was a literacy and cultural benefit because we learned new words and new things about our culture.

NNS5B: Yes, it made me understand how Spanish is actually spoken. **There was a literacy benefit because it showed me that they don't speak like a textbook, nor how the textbook portrays them.** The *G-chat* did impact me positively because it helped me realize that they are just like us.

NNS6: The *G-chat* benefitted me as a whole by allowing me to see how their lives were not completely different from ours. It was a literacy benefit because I could see how the vocab/verbs I learned in class were used in the real world. **I did think it was strange that my NS didn't always use the right verb tense (subjunctive) when answering my questions.** The *G-chat* impacted me positively because I got to talk to a friendly NS who did not make fun of my bad Spanish.

NNS7: Yes, **I think it helped me see how NSs structure their sentences.**

NNS9: DEFINITELY! **Some phrases that are used aren't in the textbook.** In addition, I learned some common phrases that are new; **the textbook can't keep up with an ever-changing language.** I also learned a lot about the culture there, such as people's love for the music group 'One Direction'.

NNS15: Extremely beneficial. **It was very useful to see differences in phrasing and grammatical structure from someone who was definitely correct.**

Heightened self-confidence and a newfound enthusiasm for Spanish language study characterized the fifth group of related responses. These four NNSs were quite surprised and pleased with their abilities to participate, with minimal difficulty, in text-based chat conversation with native Spanish-speaking peers. NNS12 remarked that his interest was sparked and wanted to continue learning Spanish as the result of this single chat encounter.

NNS10: Yes, I feel it benefitted me because I was able to learn how Spanish is used in real life. Yes, there was a cultural benefit to the activity and **it impacted me positively by showing me I can somewhat speak with a NS.**

NNS11: Yes, I feel that the *G-chat* experience benefitted me by **raising my self-confidence in my Spanish-communication abilities. I was able to successfully communicate with a certain level of ease.**

NNS17: **It made me feel more comfortable speaking Spanish. I feel that if I can successfully speak to a native Spanish speaker I am better than I thought at Spanish.**

NNS12: I think that it benefitted me in both, but more culturally. **It made me more interested in learning Spanish. I think I want to continue to take Spanish next year now.**

Similarly, in the sixth and final group of responses to Question 1, five students chose to emphasize the overall positive experience that a single chat session had on them. These L2 Spanish learners saw the value of language immersion with native Spanish speakers in a virtual, yet still authentic, natural language environment. The responses illustrate that these L2 Spanish learners enjoyed using technology to practice Spanish with native peers in a textbook-free environment.

NNS13A: I feel that it was an effective way to **immerse myself in a true Spanish environment** while also making use of the technological advancements of the era.

NNS14: I think it was definitely a great experience. **I've never talked to a NS** (besides teachers) and this was a really **fun and interesting way to showcase vocabulary and the grammar being used in real life.**

NNS18: Yes, **it was nice to talk to native Spanish speakers** instead of practicing Spanish with my non-native speaking peers.

NNS19: Yes, **I now feel more educated about how Spanish people speak their language.**

NNS20: Yes, **real-world use of Spanish is very different from just learning from a textbook. It helped me to learn to use Spanish in real-time and was also a million times more interesting than learning out of a textbook**

### 3.5.2 L2 Spanish Learners' Reactions to Conflict between NS Mood Use and L2 Textbooks

For the second question reported here, students were asked to respond to a situation that had been previously unknown to many, if not all of them. Some of the L2 Spanish learners were astute enough to immediately derive this information during the text-based chat. Others, as shown below, made the connection when reading the question re-stated in (16). This question produced 23 responses divided into seven distinct, thematic categories based on relatedness of response.

(16) *Since the textbook teaches that with negated matrix verbs of belief, subjunctive complements are needed, do you find it surprising that some native speakers use indicative complements? Why or why not?*

The first category of responses reflects the largest group of related reactions of the six. It is also the set of responses that demonstrates the erroneous misconceptions presented in L2 textbooks that L2 learners memorize as if it were a by-law of the Spanish language. This group of seven NNSs reported that they believe NSs use of the indicative mood in the complement clause with negated matrix verbs of belief to be a relic of one of three possibilities a) incorrect grammatical usage, b) colloquial speech or slang, or c) simplified language resulting from everyday use.

NNS1: No, we simplify our language as we use it everyday, and **we don't always use the correct grammar**. It's just like a **simplification**<sup>36</sup> because they use it everyday.

NNS4: No, often textbooks teach a more formal way of speaking and **the way people actually talk is generally much more colloquial and informal**. It would be cool (and useful to us) if these two things matched-up.

NNS10: My NS used mostly subjunctive but **I would find it surprising if she used indicative tons because I would think that she would know that if indicative is used it's a grammar error and wouldn't make sense**.

NNS11: I am not because many times **a NS does not follow proper grammar rules due to convenience and common speech**.

NNS12: No, language does not just go by the textbook all the time. **The indicative must have just been slang and people don't speak using proper grammar all the time**.

NNS13B: No, NSs don't look at textbooks. **We don't speak in perfect grammar in English either**.

NNS18: No, **I do not use perfect textbook grammar in English. So is indicative use considered to be slang in this context or just plain wrong?**

The next six NNSs, comprising the second group of responses, are not affected by the incongruence between the prescriptive rules that appear in L2 textbooks and the NS use that is

---

<sup>36</sup> By using the term "simplification," L2 Spanish learners were not referring to the morphological process of simplification as discussed by Silva-Corvalán (1994a, 1994b); to them, simplification = taking a language short cut.

contrary to these rules. The six L2 Spanish learners expressed that L2 textbooks are simply that: textbooks; real-life is something completely different. The responses here do not imply that the NS is incorrect in his/her use, as do the responses pertaining to the group above.

NNS2A: No, it isn't surprising because **the way NSs communicate doesn't have to follow the textbook's rules.**

NNS2B: No, it's not surprising because **the way NSs talk can be different.**

NNS3: No, **the English written language can be very different from what we actually say** so it does not surprise me.

NNS5A: No, I'm not surprised that some NSs use indicative complements because **the textbook teaches us the basic things while NSs are a lot more advanced.**

NNS16: My person did use indicative complements for a few of my questions. **I am not surprised because the textbook and real life are two very different things.** It would be nice for learners if the two matched-up a bit more.

NNS19: No, **they are NSs and are allowed to be "textbook-different."**

One of the more analytical L2 Spanish learners of the group reported that she questioned the textbook from the beginning. Her response immediately follows.

NNS8: I do not find it surprising because **I did not understand the textbook's reasoning for this in the first place.**

A compelling set of responses comes from the fourth NNS group. Here, the six NNSs believe that textbooks should be accurate and up-to-date matching NS use. Notice the surprise from NNS6 and NNS17. Similar to NNS7 and NNS9's response to the first question, NNS14 acknowledges that variation is present in language and that language changes over time.

NNS5B: Yes, **one would assume that the textbook is accurate about the way natives speak.**

NNS6: A little. Now after reading this question I might need to change my answer to #10. **Why doesn't the textbook teach us this? I thought he was just wrong.**

NNS9: Yes! It shows me that when Spanish is actually applied, it is okay to not use subjunctive with negated matrix verbs of belief. **It also surprises me that the textbooks are out of date. Using indicative was so common amongst other people's chats as well, so what is the point for textbooks to exclude it for negated matrix verbs of belief?**

NNS13A: **I've never understood why in this day in age we are still presented with fake rules that don't work in real life.**

NNS17: Yes. **Really? Shouldn't textbooks reflect the language of NSs?**

NNS14: It's interesting, but I don't think that it is surprising. **Language is so variable and constantly changes, so textbooks can never keep up.** It would help us if they could though.

The fifth set of responses takes the discrepancies between NS responses and L2 textbooks in stride. Neither NNS15 nor NNS20 are students who rely heavily on their Spanish textbook, as do many of the students pertaining to the fourth response group immediately above. Both NNS15 and NNS20 readily probe for additional information regarding instances of exceptional grammar usage in the classroom; an idiosyncrasy in use fascinates them. For L2 learners such as NNS15 and NNS20, inconsistencies between L2 materials and natural language are interesting, rather than distressing.

NNS15: My chat buddy used indicative three times. **I definitely was not expecting it, but it's informative.**

NNS20: Yes, they used four indicative complements in their answers to my questions. **I was surprised but not taken back by it.**

The sixth group of related responses comes from three NNSs whose responses were already illustrated above. Their responses are re-stated here as the result of their final comment in which they maintain that it would be ideal if L2 textbooks matched the language NSs use.

NNS4: No, often textbooks teach a more formal way of speaking and the way people actually talk is generally much more colloquial and informal. **It would be cool (and useful to us) if these two things matched-up.**

NNS14: It's interesting, but I don't think that it is surprising. **Language is so variable and constantly changes, so textbooks can never keep up. It would help us if they could though.**

NNS16: My person did use indicative complements for a few of my questions. I am not surprised because the textbook and real life are two very different things. **It would be nice for learners if the two matched-up a bit more.**

Comprising the seventh response group for Question 2, and coming from the highest performing learner of the group, NNS7's response stood out among the rest. She was the only L2 learner who alluded to the possibility of a difference in meaning between the use of subjunctive and indicative moods in the complement clause with negated matrix verbs of belief.

NNS7: Yes and No. Yes, because it is not what I learned. If I remember, our textbook said that we should expect to see the subjunctive after the “que” with these verbs in the negative. **No, because language is always changing and using different verbs change the meanings so she probably meant something different.**

### 3.5.3 L2 Spanish Learners' Perceptions of L2 Textbook Learning versus Authentic Contexts

The third question probes whether the L2 Spanish learners would prefer to continue to have the traditional classroom environment predominate their language learning experience, or whether they enjoyed their text-based chat interaction to a large enough extent to more frequently implement this type of practice via electronic media. Based on 23 NNS responses, almost half of the L2 learners were pushing for an everyday *G-chat* approach to language learning. The third question re-stated in (17) is divided into two thematic categories based on whether learners were vying for a) a CMC-based approach to language learning, or b) combination of L2 textbook together with an authentic component. There was no support for a L2 textbook-only approach.

(17) *Do you feel that language should be taught and practiced in an authentic context such as with same-age peers via electronic media such as G-chat, or would you prefer to stick with the textbook? Why or why not?*

Unheard of in U.S. secondary schools, the first and largest category of responses came from thirteen of the L2 NNSs; these L2 Spanish learners have proposed nearly exclusive, daily, virtual instruction using *G-chat*, *Facebook* or *Skype* with native Spanish speakers. Several of the responses from NNSs in this response group indicate that they see little value in the role and practicality of the L2 textbook, at least how it currently represents grammar.

NNS2A: I prefer **the chat** because it **gives you an experience that the textbook won't**. It also tests all your previous Spanish knowledge from past years.

NNS2B: I think **language should be practiced in an authentic context because it will give you a real-world experience that a textbook won't** give you.

NNS5B: I think that it should be taught **through *G-chat* because it makes the language seem much more normal and it's a fun way to learn. Learning from a textbook is boring and dull. We just saw that textbooks do not reflect the language of NSs anyways.**

NNS7: It should be taught **with authentic context because the textbook doesn't show how NSs actually structure things in different ways.**

NNS10: Language should be taught **with electronic media with same-age peers because it gives real-world experience. Everyday.**

NNS11: I believe that language should be taught and practiced **in an 'authentic context.'** **Often in a classroom (with a textbook) Spanish class seems remote and inapplicable. Actually using Spanish in a real context changes that.**

NNS12: I think that language should be taught **through chat and *Skype* because I learn better hands on.**

NNS13B: I believe that **we should learn Spanish with *G-chat*. It really gives perspective on how people actually speak Spanish and it was cool to speak to people who are our age.**

NNS14: **Everyone should get to do this! It's so much more fun and we still get the same benefits learning-wise. Let's never go back!**

NNS15: **Definitely chat. One could read an entire textbook but still would not have the communication skills developed in a live setting.**

NNS16: Yes, because it would make the student more involved in learning the language. **Chatting is much more lively and less boring than learning from a textbook.**

NNS18: I think ***G-chat* is by far the most helpful since it teaches us to use Spanish in a real-world scenario.**

NNS20: Yes, because **practicing real-time with people your age** who have similar interests is not only fun, but also **teaches the important practical aspect of language.** Who needs a textbook anyway?

The second group of responses embodies the comments from the remaining ten NNSs who feel that a combination of classroom instruction using a L2 textbook to introduce language is



both necessary and ideal when followed by an opportunity to practice and apply the newly learned language with NSs in an authentic natural language context.

NNS1: I think **we should use both**, like you learn the vocab/grammar one day and the next apply it. I thought it was very cool and fun to do and also **helped me see the things we learned apply to the real world**, which is often hard to do with what we learn in other subjects.

NNS3: I feel that it should be a good **mixture of both**.

NNS4: I think **a combination of methods** would be good. **The chat is great for learning how things are actually used in real life**, which is very important. It is also good practice to improve my Spanish skills. Of course, the textbook is good for passing the test.

NNS5A: I think it should be taught by **both** because **you get the basic words and tenses and phrases from the textbook** while **you learn some other things from NSs that the textbook can't or won't teach you**.

NNS6: I believe we should **use textbooks to get the basic idea of grammar and vocab**. Then we should **talk with peers in Spain to practice what we learned and to learn how it is really used by Spanish-speaking people**.

NNS8: I think **a mix** would be good. **Spanish 1 should probably stick to the textbook** because they would have a hard time communicating most things, but **for upper levels of Spanish I think real interactions like this should be done on a weekly basis**.

NNS9: **Both are good and necessary**; they should be used in conjunction with each other. **Electronic conversation with peers allows us to apply the Spanish we learned from the textbook**. Textbooks, however, **provide an organized lesson to learn vocabulary and grammar**.

NNS13A: **Ideally, a balance between the two**. We should **use the textbook to gain basic vocabulary** and **rely on the NSs for the grammar via electronic media to immerse ourselves in the whole language**.

NNS17: **Both are important**, but I am now realizing that textbooks are not as reliable as I once thought. The **conversations definitely help facilitate what we have learned and they are more interesting**.

NNS19: **I would prefer both**. **I believe it is important to understand how NSs talk as well as learning straight from a textbook**.

Two of the NNSs pertaining to this second response group make statements that are unsettling to the eyes of a foreign language teacher. NNS4 comments that, **“Of course, the textbook is good for passing the test.”** While, in a similar vein, NNS17 states that, **“I am now**

**realizing that textbooks are not as reliable as I once thought.”** If both of these statements are true, which many would contend they are, the L2 textbooks and ancillary materials language teachers use and the resultant language assessments that are given are in need of immediate attention and revision. This point will be addressed in the final chapter.

### 3.5.4 Discussion of Qualitative Results

The reactions and reflections of the L2 Spanish learners clearly highlight the many positive experiences that resulted from the text-based NS-NNS chat interaction. In addition to the three questions and responses that were elaborated in detail above, replies to a few other items will be discussed here. When L2 Spanish learners were asked whether they would like to participate in another text-based chat in the future, all 23 learners expressed that they would. A few of these responses are stated in (18).

(18) NNS6: I would like to participate in another *G-chat* because **it was interesting to learn the things the textbook doesn't teach. I also want to learn about their lives in Spain and how their interests compare to ours.**

NNS9: Yes-**I think it is a good learning experience that is a test in itself; if a NS can understand what I'm saying, I'm doing something correctly.**

NNS14: Yes! It was really fun and it was too cool to describe in words. **The thought that we were talking to real, live, breathing students in Spain was mind-boggling.**

Similarly, L2 Spanish learners were asked whether they had ever before used electronic media such as *Facebook*, *G-chat* and *Skype* for educational purposes. All but three students expressed that had not yet had such an opportunity. A few reactions to this item are illustrated in (19).

(19) NNS1: No, **only outside of school if I or someone else asks what's the homework or if a friend and I want to talk through/help explain something to one another.**

NNS6: Thanks for the opportunity! **I have never used a social media site for educational purposes before now.**

NNS9: **None of my teachers** (other than you) **have used them for class**; however, **I use all of them personally to collaborate with partners for projects, ask peers for missed homework assignments, or study for tests.**

NNS15: **No. It's a shame too** ☹

The one aspect that L2 Spanish students and Spanish-English Valladolid students felt was missing from the text-based chat was the ability to see their partners face-to-face. Both groups suggested that one necessary improvement for subsequent sessions would be to use *Skype* instead of *G-chat*. Due to the legality of transmitting minors' images via the Web, social media sites such as *Facebook* and *Skype* are not permitted by the school system. Regardless, all students in both Spain and the U.S expressed that CMC using synchronous text-based chat is a substantial improvement over classroom practice with non-native peers.

A central concern that arises when NSs and NNSs participate together in this type of activity is the level of insecurity the NNSs feel about their language abilities. When asked about whether or not the L2 Spanish learners felt insecure at any point throughout the chat, three responded that they did, nine replied that they felt insecure on occasion, and ten retorted that they did not feel insecure at any time during the chat. Sample L2 Spanish students' reactions from each of the three response types are presented in (20).

(20) NNS16: **Yes, at some points I was insecure about the position of my words, accidentally misinterpreting what they wrote, or forgetting what a word meant.**

NNS5B: **Just a little when my partner said something I didn't completely understand. She was patient about restating it for me in Spanish so I could understand.**

NNS14: **Actually, I was corrected twice, and although I was a little embarrassed, she tried to emphasize that it didn't matter.**

NNS8: **Not insecure, but sometimes a little uncertain that I was using the right word or tense.**

The final component of the analysis task probed whether L2 Spanish learners had any additional comments that they felt were pertinent but not directly addressed in the questions. Selected responses to this question are stated in (21).

(21) NNS1: I thought it was interesting how she was pretty formal and didn't use any slang. **When I asked her my questions some of her negative responses didn't include the subjunctive, which surprised me since that is not what we learned.**

NNS5B: I had a lot of fun and think **it is such a fun/creative/different way than learning in a classroom setting.**

NNS9: **This should be a pilot for programs like this not only throughout RHHS but the entire Howard County School System** (especially for Spanish 4 Honors and Spanish 5AP).

NNS12: It was amazing! **It was so much better than practicing Spanish with non-native classmates and learning from a textbook.**

NNS13B: I really enjoyed this activity; **it gave me a whole new perspective on Spanish.**

NNS19: I learned/had a great time and think **this is an excellent way of educating Spanish students in the future.**

The fourth research question is now re-stated and addressed: how do L2 Spanish learners react to their first natural language encounter with native Spanish speakers via CMC using synchronous text-based chat? Do L2 Spanish learners notice the discrepancies between the prescriptive mood selection rules appearing in L2 textbooks and the way in which NSs select mood in the complement clause with negated matrix verbs of belief? From the data described above, L2 Spanish learners had a positive experience that was evident from several NNSs' comments. A few L2 learners observed the discrepancy between L2 textbooks and NS use of the grammatical construction under consideration during the chat, more L2 learners discovered the difference while completing the analysis task, and all L2 learners became aware of the discrepancy during the debriefing and class discussion of the text-based chat and analysis task on the second day following the NS-NNS interaction. As Nesselhauf (2004) suggests, when investigating tense, aspect or mood, it is best to use NS data to ensure that the context of use is

appropriate. There was no instance during the text-based chat when the researcher noticed an inappropriate context. For the intermediate-level L2 Spanish learners described here, contextual information was not nearly as relevant for this group of L2 learners as was the exposure to natural language that contained tokens of use that deviated from what appeared in their L2 textbook.

To conclude, whether a text-based chat task is planned or whether an open-ended text-based chat session is the goal, L2 Spanish learners will undoubtedly profit from exposure to natural language with NSs and make gains in their L2 language abilities as a result. When NS-NNS interactions are followed with an analysis task and subsequent class discussion, even greater linguistic gains can be observed (e.g., van Compernelle & Pierozak, 2009). Similar to the findings in Lee (2004), many of the L2 learners continued their new friendship with their chat partner via *Facebook* or Twitter less than twenty-four hours after the text-based chat session. Quite possibly, many L2 learners will continue to improve their language abilities through informal social interactions with their native Spanish-speaking peers.

Collectively, the quantitative and qualitative results presented in Chapter 3 lend support for needed revisions to L2 Spanish curricula throughout secondary school systems in the U.S. Adopting a data-driven approach to language learning would not only fit well with the newly adopted Common Core State Standards, but it would also provide L2 learners with exposure to natural language tokens that are essential for building accurate native-like lexical representations, which are currently lacking from L2 classroom instruction and the deterministic grammar characteristic of L2 textbooks. The quantitative results indicate a critical need for language researchers to push for the updating of L2 textbooks that mirror the native Spanish speakers' mood-preferences in the complement clause with negated matrix verbs of belief. The qualitative findings urge pedagogues to create input-rich natural language opportunities for L2 learners such as CMC using synchronous text-based chat with NSs. By participating in an interactional input and output-producing activity with NSs, L2 learners will be faced with multiple exemplars of

how NSs are using the particular structure (e.g., Swain, 1995, 1998). Thus, the fourth and final chapter will discuss the findings from Experiments 1 and 2 in terms of their linguistic importance and pedagogical implications in the advancement of L2 Spanish programs in U.S. secondary schools. Specifically, Chapter 4 addresses the ways in which pedagogues can best provide L2 Spanish learners with natural, language-rich classroom opportunities and the revisions that can be instated to update L2 instructional materials to reflect the ways that NSs select mood in the complement clause with negated matrix verbs of belief in Spanish.

## Chapter 4

### Conclusions and Implications

A central goal of this dissertation has been to examine, across GJ elicitation and text-based chat production tasks, whether L1 Spanish speakers' mood-preferences in the complement clause for seven negated matrix verbs of belief resemble the prescriptive grammatical rules appearing in L2 Spanish textbooks, or whether NSs' mood-preferences are the result of a more complex set of factors, including but not limited to *verb frequency* information in natural language input and *socio-pragmatic intention*. The first experiment also addressed the extent to which highly proficient English-Spanish bilinguals were adversely affected by the reintroduction to prescriptive rules through teaching. It was predicted that the higher the degree of saliency of a particular negated matrix verb in natural language, the more successful English-Spanish bilingual teachers would be in suppressing the prescriptive rules of complement-clause mood selection. The second experiment examined the same seven negated matrix verbs and resultant mood selection in the complement clause via CMC using synchronous text-based chat. The L1 Spanish Valladolid group was the only group that participated in both Experiments 1 and 2. In the second experiment, they participated in the *G-chat* session with age-matched, U.S., L2 Spanish secondary student peers. The L2 Spanish students' perceptions about the telecollaborative text-based chat experience were elicited; these learners viewed the intercultural exchange as a valuable instructional tool, which provided indispensable opportunities for NS-NNS natural language exposure and interaction.

This dissertation is among the few theses that utilize an interdisciplinary approach to inform L2 Spanish pedagogy using empirical findings from theoretical linguistics. The experiments reported in this dissertation revealed patterns of results that inform usage-based

exemplar models of language learning and led to the proposal of a revised description of mood-preferences for L2 textbooks. In this final chapter, I summarize the main findings of this dissertation and discuss the relevance of the results in terms of the linguistic representation of grammatical knowledge and the pedagogical applications for L2 Spanish program development and accompanying instructional materials. L2 Spanish secondary students' reflections from Experiment 2 serve as pilot data for a longitudinal data-driven project discussed in §4 of this chapter.

#### **4.1 Summary of Findings**

Experiment 1 employed a GJT that compared the GJs of six groups of participants: three L1 Spanish groups and three English-Spanish bilingual groups comprising teachers, non-teachers and now-teachers, on fourteen experimental items each containing one of the seven negated matrix verbs of belief with either an indicative or subjunctive complement. Experiment 1 addressed the first two research questions of this dissertation.

*(RQ1) How do English-Spanish speakers behave when inconsistencies exist between natural language input and the prescriptive rules regarding mood selection that appear in L2 textbooks?*

*(RQ2) Is the acceptance of indicative complements modulated by the frequency with which negated matrix verbs of belief surface with the indicative mood in subordinate clauses in natural language input?*

Results from the first experiment suggest that native Spanish speakers demonstrate clear mood-preferences that are consistent across all three L1 groups. All three English-Spanish bilingual groups considered subjunctive complements to be more grammatical than indicative complements. Although the non-teachers were the most liberal of the three NNS groups in their judgments of indicative complements, subjunctive complements were still more grammatical for non-teachers in this context. The teachers and now-teachers' GJs appeared to mimic the



prescriptive rules of mood selection found in L2 textbooks. For the three most frequently occurring verbs according to the *Davies* corpus: ‘no creer’ (*to not believe*), ‘no pensar’ (*to not think*) and ‘no parecerse’ (*to not seem*), the teachers and now-teachers were able to suppress the re-activation of the prescriptive rules and thereby accept indicative complements with these three negated matrices at a *slightly* higher rate. As a result, verb frequency information was shown, on occasion, to assist teachers and now-teachers in suppressing the activation of the exemplar in memory for a subjunctive complement in favor of an indicative complement. Verb frequency did not appear to have an effect on mood-preferences in the case of the English-Spanish bilinguals included in the first experiment.

These findings advance the conclusion that, regardless of L1 Spanish speakers’ socio-pragmatic intention for an individual circumstance, six of the seven negated matrix verbs of belief demonstrate complement clause tendencies toward one mood or another. The verb ‘no estar seguro’ (*to not be sure*) did not indicate a preference for one mood over the other. Although frequency information came into play to assist teachers and now-teachers in suppressing the activation of prescriptive rules for verbs that are highly frequent in natural language input, none of the three English-Spanish bilingual groups were able to employ procedural knowledge of mood-preferences in the same ways as do NSs. Thus, the findings from Experiment 1 point to the conclusion the highly proficient English-Spanish bilinguals included in this dissertation have not acquired mood-preferences in the complement clause for the seven negated matrix verbs of belief.

Experiment 2 explored the nature of the mood-preferences revealed in Experiment 1 with the intention of replicating the empirical GJT findings for the three groups of L1 Spanish speakers using a text-based chat production task. Additionally, Experiment 2 served as a pilot study to gather U.S., L2 Spanish secondary students’ perceptions regarding the use of CMC using synchronous text-based chat with same-age peers in Valladolid as a data-driven instructional tool

that would serve as a venue for natural language exposure within the L2 classroom. Experiment 2 addressed the third and fourth research questions of this dissertation.

(RQ3) *Do L1 Spanish speakers demonstrate similar patterns of mood selection across both the elicitation GJT and the production text-based chat? Are these patterns robust enough to propose a particular [negated matrix verb of belief] + que + [indicative or subjunctive complement] pattern to facilitate L2 learning?*

(RQ4) *How do L2 Spanish learners react to their first natural language encounter with native Spanish speakers via CMC using synchronous text-based chat? Do L2 Spanish learners notice the discrepancies between the prescriptive mood selection rules appearing in L2 textbooks and the way in which NSs select mood in the complement clause with negated matrix verbs of belief?*

From a quantitative perspective, Experiment 2 confirmed the L1 Spanish mood preferences exhibited in Experiment 1 and laid the groundwork for the proposal of a revised treatment of mood-selection in the complement clause for negated matrix verbs of belief appropriate for inclusion in L2 textbooks. The joint contribution of L1 Spanish speakers' GJ elicitations and text-based chat productions motivated the proposal of dividing the seven negated matrix verbs of belief into four distinct categories based on verb frequency information (High, Low, High/Low Approximation and Intermediary) comprised of three possible mood-preferences (Subjunctive, Indicative and Equi I/S) based on real-life NS use. The negated matrix verbs 'no creer' (*to not believe*) and 'no pensar' (*to not think*) are classified as high frequency verbs with a subjunctive-mood preference in the complement clause. The verbs 'no imaginarse' (*to not imagine*) and 'no estar convencido' (*to not be convinced*) are categorized as low frequency verbs with a subjunctive-mood preference in the complement clause. The verbs 'no suponer' (*to not suppose*) and 'no parecerse' (*to not seem*) are classified as high/low approximation verbs with an indicative-mood preference in the complement clause. The final verb 'no estar seguro' (*to not be sure*) is characterized as a verb of intermediary frequency with an Equi I/S notation, thus lacking a preference for one complement type over the other. The proposal to include categorizations based on verb frequency information and NS use into L2 textbooks is advocated in the spirit of

providing L2 Spanish learners with a more accurate set of ‘rules of thumb’ in the absence of opportunities for natural language interaction with NSs.

Based on the four negated matrix verbs for which L1 Spanish speakers exhibited a subjunctive mood-preference in the complement clause, it would be unreasonable to suggest that the procedural memory system with respect to complement clause mood-preferences was available to the English-Spanish bilinguals included in Experiment 1 just for these four verbs; however, past research has suggested that because grammar and the lexicon are linked to language performance, L2 speakers can enlist their procedural memory system depending on level of proficiency, amount of naturalistic exposure to relevant input, frequency and repetition, as well as the amount of practice that NNSs have with a particular structure (e.g., Bybee, 1998; Clahsen & Felser, 2006). Similarly, in the reading acquisition literature, Bitan & Karni (2004) lend support to this claim with their finding that both letter decoding and word recognition can become proceduralized given sufficient practice. As these studies suggest, a key factor that determines whether knowledge is represented by the declarative or the procedural memory system depends on the frequency with which a particular item is practiced or rehearsed. Thus, only after L2 textbooks are revised and updated for L2 Spanish learners so that they may begin to gather tokens of experience via naturalistic input and classroom-based input to strengthen their lexical representations in memory, and thus exhibit an indicative mood-preference in the complement clause for the negated matrix verbs ‘no suponer’ (*to not suppose*) and ‘no parecerse’ (*to not seem*), as well as an Equi I/S lack of mood-preference for the verb ‘no estar seguro’ (*to not be sure*), will scholars be able to make the determination of whether the procedural memory system is available to L2 learners. Additionally, before such a determination could be made, production data would need to be collected and analyzed. GJT data alone would not be sufficient to reach any conclusion regarding the availability of knowledge systems in memory.

From a qualitative perspective, with respect to using text-based chat with NSs as a means of improving L2 language skills, Experiment 2 exposed L2 Spanish secondary students' perceptions. As the result of a single CMC interaction with NSs, L2 Spanish secondary students expressed heightened self-confidence in language abilities and increased motivation to study the Spanish language. Nearly one-third of the L2 Spanish students voiced their surprise when they realized that the authentic language produced by NSs did not match what they had learned via traditional classroom instruction and in their L2 textbooks. A handful of students noted that it would be useful to them if the textbook corresponded to NS use in natural language. Several L2 Spanish students indicated that, for them, the ideal Spanish-language learning context would include the combination of classroom instruction using a L2 textbook, which presented L2 grammatical concepts in a way that reflected NS use, in conjunction with opportunities to practice and apply the newly learned language with NSs in an authentic natural language context, similar to what *G-chat* could afford.

#### **4.2 Linguistic Implications**

The results of the two experiments included in this dissertation are in line with a usage-based approach to language learning. While there is much debate in the literature as to the extent to which information regarding verb frequency plays a role in both L1 and L2 language learning, the data in Chapters 2 and 3 suggest that NSs cue into patterns across natural language input in order to make generalizations about the statistical probabilities of a particular complement type appearing in conjunction with one of the seven negated matrix verbs of belief. This is not to discount that socio-pragmatic factors come into play when NSs wish to express a particular

meaning (but see Dunlap, 2006)<sup>37</sup>; however, the lack of variability in the data across three groups of L1 Spanish speakers suggests that a linguistic constraint much larger than simple intended meaning, which one would assume frequently changes, is urging NSs to both elicit a GJ (Experiment 1) and produce a complement clause (Experiment 2) that contains a clear mood-preference for six of the seven negated matrix verbs examined in this dissertation.

The notion that verbs exhibit preferences or biases to subcategorize for a particular complement structure (e.g., see Dussias & Cramer Scaltz, 2008) is not a new observation in the psycholinguistic literature on verb bias; however, what is new is the idea of assigning a mood-preference in the complement clause to negated matrix verbs of belief, in which the complement clause is generally governed by the speaker's belief concerning the truth of a proposition (e.g., Bell, 1980; Bolinger, 1974; DeMello, 1992; Farley, 2000; Fernández Ramírez, 1986; Klein, 1977; Lipski, 1978; Lozano, 1972; Rivero, 1971; Solano-Araya, 1982). Again, due to striking consistencies across the three groups of L1 Spanish speakers and the two distinct tasks, it is not unreasonable to propose that NSs have unknowingly assigned subcategorization preferences in the form of mood-preferences to negated matrix verbs of belief based on the socio-pragmatic interpretation most frequently conveyed for a particular verb.

Contrary to Gudmestad's (2012) findings, the highly proficient English-Spanish bilinguals included in Experiment 1 have not reached native fluency in terms of mood-preferences or "use of verbal moods in the mood-choice contexts under investigation" (p. 397) in the complement clause with negated matrix verbs of belief. Although all three groups of English-Spanish bilinguals demonstrated a clear subjunctive mood-preference for the same four high and low frequency verbs similar to NSs, the English-Spanish bilinguals also demonstrated subjunctive-mood preferences in the complement clause for the other three high/low

---

<sup>37</sup> Dunlap (2006) argues that, "there are cases where no pragmatic distinction holds between the indicative and the subjunctive, which leads to the conclusion that free variation is at issue" (p. 52).

approximation and intermediary frequency verbs unlike NSs. If it is the case that highly proficient bilinguals are able to access procedural knowledge in memory, the L2 Spanish speakers included in Experiment 1 only did so for the four verbs in which the declarative knowledge that was learned via prescriptive rules appearing in L2 textbooks matched the NSs' mood-preferences for subjunctive complements. In order to address whether the procedural memory system is available to proficient L2 bilinguals, future research must use a production task to examine the three negated matrices that exhibit NS mood-preferences in the complement clause that stand in contrast with the prescriptive rules appearing in L2 textbooks (i.e., Indicative or Equi I/S). In conducting such a follow-up study, the verb 'no parece' (*to not seem*) would be an informative point of departure due to the high frequency with which it appears in natural language as well as its demonstrated indicative mood-preference in the complement clause.

Based on the results from Experiments 1 and 2, it was established that verb frequency alone could account for neither NSs nor NNSs' mood-preferences in the complement clause for negated matrix verbs of belief. In Experiment 1, verb frequency was found to play a role for the teachers and now-teachers in suppressing the prescriptive rules regarding mood selection for the three most frequent verbs in natural language input addressed in this dissertation. Although subjunctive complements still dominated the GJs of the teachers and now-teachers, the high degree of saliency of indicative complements appearing in natural language with 'no creer' (*to not believe*), 'no parece' (*to not seem*) and 'no pensar' (*to not think*) created sufficient tokens of language experience for this construction to slightly weaken the "subjunctive-only" lexical representations of these speakers, and to allow for the occasional acceptance of indicative complements.

In the case of the NSs, because verb frequency alone did not influence NSs' lexical representations, the resultant mapping of tokens to exemplars in memory creating the four distinct categories proposed in Chapter 3 is likely a result of the *most prominent socio-pragmatic*

*intention* of the speaker when using each of the matrix verbs of belief negatively. For example, it may be the case that when using the verbs ‘no suponer’ (*to not suppose*) and ‘no parecerse’ (*to not seem*), the contradiction of using an indicative complement in this construction is not nearly as paradoxical as say, for the verb ‘no estar convencido’ (*to not be convinced*). To restate, the four categories proposed in Chapter 3 were based on verb frequency information in natural language and NS mood-preferences. I argue that NS mood-preferences are the result of the most prominent socio-pragmatic intention for each negated matrix verb of belief. In turn, this impacts the ways in which exemplars are mapped to NSs’ lexical representations in memory. In the case of the verb ‘no estar seguro’ (*to not be sure*), returning to the discussion that began in Chapter 3 § 4.9, I proposed a scenario in which ‘no estar seguro’ is either a) farther down on the evolutionary scale towards a preference for indicative mood in the complement clause or b) is and will continue to be equally accepted and used with both complement types. Based on the reasoning outlined here, I would offer that the second option is the most viable as the result of NSs’ lexical representations having relatively equivalent exemplars in memory for both complement types, only weighted slightly towards indicative complements.

The next section discusses the pedagogical implications for the data presented in Experiments 1 and 2. It will be the challenge of pedagogues to create L2 learning contexts that provide tokens of language experience that foster the development of L2 Spanish lexical representations similar to those of NSs. In the absence of opportunities for NS-NNS interactions, L2 textbooks and classroom-based instruction that reflects NSs’ mood preferences can supplement telecollaborative interactions. By instilling declarative knowledge in L2 learners that accurately portrays NSs’ mood-preferences, it is hoped that the tokens of experience will strengthen overtime to eventually become part of L2 learners’ procedural knowledge.

### 4.3 Pedagogical Implications

The initial purpose of this dissertation was not to determine NSs' mood-preferences in the complement clause for negated matrix verbs of belief; rather, it was to identify whether highly proficient English-Spanish bilinguals, who are teachers, would accept indicative complements in this context based on the frequency with which particular negated matrix verbs of belief appear with indicative complements in natural language. Do teachers and non-teachers' GJs differ? For the group that was tested three years apart, how did the non-teachers' GJs change after becoming now-teachers? The hypothesis was that, because teachers and now-teachers are re-confronted with the prescriptive rules appearing in L2 textbooks through teaching, the GJs of the two teaching groups would approximate textbook use; the non-teachers' GJs would approximate the NSs' GJs. The results reported in Experiment 1 indicated that the non-teachers' GJs were *slightly* more similar to the NSs' GJs than were the GJs of the teachers and now-teachers. The teachers and now-teachers were undoubtedly affected the most by the L2 prescriptive rules. Nevertheless, even after spending years in natural language environments and refining language abilities to compensate for their rudimentary prescriptive-based L2 beginning, this was not enough for the highly proficient English-Spanish bilingual non-teachers. If the overarching goal is for L2 Spanish learners to one-day approximate NS language in terms of grammatical competence, pedagogues must introduce L2 Spanish learners, from the very beginning, to NS language through CMC supplemented with L2 materials that reflect NS use.

Across both geographic boundaries and age groups, native Spanish speakers demonstrated comparable patterns for [negated matrix verb of belief] + que + [indicative or subjunctive complement] constructions. Originally unanticipated, this finding was the result of the identification of striking similarities in the data between the three L1 Spanish groups. As an educator, two strong implications arise from this finding: first, although the ability to make socio-



pragmatic inferences and elaborate on hypothetical situations is largely unavailable to U.S., L2 Spanish secondary students, a revised ‘rule of thumb’ pattern of use could be provided to L2 Spanish learners that would serve as an aid in the interim, as L2 learners begin to experience the very tokens of language that will strengthen lexical representations to approximate those of NSs. This proposal is only plausible through the identification of robust patterns of mood-preference in the complement clause of the seven negated matrix verbs of belief, via the findings from Experiments 1 and 2. Thus, L2 textbooks must be revised to reflect NS patterns. A commercially available corpus-based L2 textbook including this grammatical structure and other similar constructions is likely to have the most widespread pedagogical impact on U.S. secondary Spanish education.

The second implication is to design L2 classroom activities that actively engage L2 learners in the analysis of language. Collentine (2010) urges, “the challenge to Spanish pedagogues is to design activities that will promote the use of the subjunctive in naturalistic sorts of real-world interactions” (p. 47). One such way of providing L2 learners with input-rich opportunities is to have them interact with NSs via CMC using synchronous text-based chat, as illustrated in Experiment 2. When the L2 secondary students engaged in the NS-NNS text-based chat session, they became researchers and investigators of the target language they produced together with their chat partners. With very few instructions and a grammatical topic of focus, L2 Spanish learners were able to successfully identify differences between the language that NSs produced and the description of said language found in their L2 textbooks. Had the L2 Spanish students included in Chapter 3 been further along in their study of the Spanish subjunctive, they would have likely been deterred from a continuation of language study upon the discovery that the L2 prescriptive rule-based language, that they had been striving to emulate, misaligns with real-life NS use. When L2 Spanish students such as NNS4 remark that, “...the chat is great for

learning how things are actually used in real life...*the textbook is good for passing the test.*” It is time for pedagogues to adopt a new methodology and revise their current practices.

An approach to L2 teaching and learning must be adopted that eludes misleading L2 learners and avoids exerting a negative influence on highly proficient English-Spanish bilingual teachers’ near-native Spanish intuitions. Such a ‘data-driven learning’ approach was conceived of nearly three decades ago (e.g., Johns, 1994). Whether learner-to-learner or NS-NNS, open-ended or task-dependent, the use of a DDL instructional approach eliminates the necessity to be alert for inconsistencies between L2 instructional materials and NS use. When incorporated into L2 classroom practice, DDL offers tremendous gains in terms of creating autonomy, building confidence, developing pragmatic awareness and increasing language abilities, to name a few. By updating L2 textbooks and instructional practices, L2 Spanish learners would be able to input tokens of accurate declarative knowledge into their developing lexical representations from the start. This would eliminate the prospect, for future L2 Spanish learners, of ever facing the same language discrepancy that, a) all three English-Spanish bilingual groups encountered in Experiment 1 and b) the L2 Spanish learners in Experiment 2 nearly confronted. When incorporated early into the secondary Spanish curriculum, language that is illustrative of NS use may also be the key to making the procedural memory system available to L2 learners. Furthermore, the application of DDL with NSs into the L2 classroom will promote intercultural collaboration and a heightened cultural sensitivity to languages, cultures and perspectives previously unknown to U.S and Spanish secondary students.

It is the challenge of U.S. secondary school systems, language program coordinators, school-based administrative teams, World Language department chairs, L2 Spanish teachers and L2 textbook publishers alike to promote a flexible, interactive World Language curriculum to L2 learners. It is encouraging to hear a government-appointed committee reach the consensus that even though the CCSSs have increased the emphasis placed on STEM initiatives, our educational

system must likewise place more prominence on language learning. The Commission on the Humanities and Social Sciences published a report June 2013, which urges secondary school districts across the U.S. to inaugurate L2 learning programs that incorporate immersion as a key component. The report, entitled “The Heart of the Matter,” contains three goals and thirteen recommendations as to the importance of keeping the humanities and social sciences at the forefront of our educational system. Particularly, the third goal has strong implications for language study. The first recommendation, pertaining to Goal 3, is stated in (22).

(22) ***Promote Language Learning.*** State and local school districts should establish programs to increase language learning, including immersion programs for second languages. Programs might include blended learning technologies to facilitate language learning in schools that lack funding or infrastructure for additional classes. Colleges should build on and expand these competencies (p. 12).

The adoption of a blended learning (BL) perspective, as it applies to the Web-based L2 classroom, is a relatively new phenomenon with which language teachers and researchers have experimented over the past decade. The idea is to revamp L2 learning experiences by combining two media of delivery: classroom and virtual-based. By incorporating both a classroom delivery and virtual component to L2 instruction and practice, L2 learners are afforded unique opportunities for negotiation of meaning, knowledge building, engagement in 21<sup>st</sup> century technological learning and exposure to an authentic target-language context that creates, what some researchers have referred to as, “the best of both worlds” (e.g., Pellerin & Montes, 2012, p. 2). In a qualitative case study that examined the effectiveness of a blended teaching (BT) approach combining a traditional classroom delivery method with the Spanish online resource *Aula Virtual de Español* (AVE), Pellerin & Montes (2012) followed two high school Spanish teachers in Canada, as they used a BT approach in their classrooms. Interviews and classroom observations were conducted, as well as the teachers’ feedback was considered. The results indicate that the combination of classroom face-to-face instruction together with a virtual component “maximizes the learning experience and demonstrates great potential in impacting the

language learning process” (2012, p. 18). As the result of using AVE, positive outcomes related to student attitudes, motivation and participation were reported. The incorporation of Spanish online resources such as AVE provides a variety of digital content for L2 learners and, like *G-mail* chat, produces rich NS-NNS corpora that can make a significant contribution to language teaching and learning.

In sum, Experiment 2 of this dissertation, in conjunction with Pellerin & Montes’ (2012) work, is yet another example of how learning a second language through computer-mediated social interaction not only promotes literacy and cultural benefits but establishes lasting interpersonal relationships that contribute to an “interconnected world,” which is the premise for the third goal of Congress’ above-mentioned report. There is a wealth of research at the university-level that promotes the use of CMC and other Web 2.0 technologies with L2 university-level learners to promote cross-cultural collaboration; however, few scholars have experimented with these technological tools at the secondary level. In part, this may be due to the fact that several of the popular social media venues (i.e., *Facebook*, *Skype* and *Videoconferencing*) are prohibited by U.S secondary school systems. When used respectfully and appropriately, there are many advantageous pedagogical applications for social media use in the L2 secondary classroom.

Had the researcher not coordinated the first text-based chat between her U.S., L2 Spanish secondary students and their L1 Spanish-L2 English peers in Spain, an invaluable opportunity with far-reaching grammatical, cultural and educational benefits would have been missed. It is important that scholars, at both the secondary and university levels, articulate the implications of pedagogical research to encompass a wider-audience outside of institutions of higher learning. With such an intention in mind, the final section of this dissertation briefly describes a longitudinal telecollaborative exchange planned with a new group of U.S., L2 Spanish secondary learners and L1 Spanish-L2 English peers in Valladolid. It is hoped that the proposed study, when

carried to fruition, demonstrates that valuable opportunities exist for research at the secondary level. Future research examining the NS-NNS interaction using text-based chat in the L2 classroom will inevitably produce the data-driven results policy-makers are expecting with the CCSS and upcoming PARCC assessments, and more importantly, renew L2 Spanish learners' interest in the Hispanic language and culture.

#### **4.4 Future Directions**

To the fields of corpus linguistics, SLA and education, this dissertation offers a research strategy whose interdisciplinary approach has proven useful to inform pedagogues how to best create natural language-rich L2 classroom opportunities and revised L2 instructional materials to reflect the ways in which NSs select mood in the complement clause with seven negated matrix verbs of belief in Spanish. With this dissertation, it is my hope that I have effectively shown that taking a natural language data-driven approach to L2 learning is one of the most effective ways to promote the L2 development of Spanish mood. The extent to which the procedural memory system is available to L2 learners, with respect to complement clause mood-preferences for negated matrix verbs of belief, remains a question for future research. Scholars have proposed that L2 speakers can enlist their procedural memory system depending on level of proficiency, amount of naturalistic exposure to relevant input, frequency and repetition, as well as the amount of practice that NNSs have with a particular structure (e.g., Bybee, 1998; Clahsen & Felser, 2006). Thus, a key factor that determines whether knowledge is represented by the declarative or the procedural memory system depends on the frequency with which a particular item is practiced or rehearsed based on real-life use. It is essential to provide L2 learners with opportunities to interact with expert Spanish-speaking peers in a natural environment and practice mood-selection

in the complement clause with negated matrix verbs of belief using the mood-preferences established in this dissertation as a point of reference.

Further research is warranted as a result of the enthusiasm and overall positive experience U.S., L2 Spanish secondary students reported from their pilot text-based chat session with NSs described in Experiment 2, the overwhelming support from parents and community stakeholders, and the researcher's curiosity concerning the extent to which L1 Spanish mood-preferences can be transferred to L2 learners. In particular, three of the seven negated matrix verbs of belief will be the most informative due to having a complement clause mood-preference that is contrary to the prescriptive rules appearing in "traditional" L2 textbooks. The negated matrix verbs of belief 'no suponer' (*to not suppose*) and 'no parecerse' (*to not seem*) have an indicative complement mood-preference; 'no estar seguro' (*to not be sure*) has an Equi I/S mood-preference.

Based on the work by Julie Belz and colleagues, via a series of telecollaborative *G-chat* exchanges, a twelve-week continued partnership<sup>38</sup> between Spanish-English Valladolid and U.S., L2 Spanish secondary students is planned for the Spring 2014 semester. The partnership will consist of the creation of a developmental, data-driven, integrated and contrastive NS-NNS corpus, in which the L2 Spanish and Spanish-English Valladolid learners document their own grammatical development using text-based chat logs over a series of twelve interactions. The resultant learner corpus that is created will be stored in the *G-chat* archives and enable L2 Spanish learners to examine their own patterns of error and to trace their language development (e.g., Belz, 2006), as well as examine their NS chat partners' mood-preferences for each of the seven negated matrix verbs of belief.

For the U.S., L2 Spanish students, the corpus-based pedagogical intervention will be for the teaching of negated matrix verbs of belief with accompanying subjunctive or indicative

---

<sup>38</sup> L2 Spanish and L2 English secondary students will be paired for the text-based chat sessions. The chat partners will remain the same throughout the course of the twelve-week text-based chat to ensure comparability of the results.

complements. Based on a BL approach, the L2 Spanish learners will first receive classroom-based instruction on the revised mood-preferences in the complement clause for negated matrix verbs of belief, which will then be followed by a series of twelve NS-NNS telecollaborative interactions that will enable L2 Spanish students to practice mood-preferences with NSs via a series of task-dependent activities. L2 Spanish learners will examine their own emerging complement use with negated matrix verbs of belief, as well as that of their NS peers in the context of synchronous text-based chat productions. Two control groups will be included: a group of L2 Spanish students who receive classroom-based instruction only on the revised mood preferences and a group of L2 Spanish students who receive classroom-based instruction only on the traditional L2 prescriptive rules regarding mood selection appearing in their L2 textbook. For the Spanish-English Valladolid students, the text-based chat session will be in their L2 English. My colleague and collaborator in Valladolid will determine the topic.

For both L2 Spanish and L2 English experimental groups, meta-linguistic reflections on their progress via portfolio entries will be collected weekly and discussed individually with their instructors, both in the U.S. and in Spain, at four-week intervals for a total of three pedagogical intervention sessions over the course of the twelve-week collaboration. To date, only a handful of studies have examined this type of corpus-based developmental pedagogical intervention using chat (e.g., Belz, 2006; Belz & Vyatkina, 2005, 2008). The two L2 Spanish control groups will submit portfolio entries considering only classroom-based activities. They will not be subjected to the pedagogical interventions in the form of individual sessions in the same way as the experimental groups.

At the end of the Spring 2014 semester all participants will submit a final portfolio. For the BL experimental L2 Spanish group, changes in learners' use of negated matrix verbs of belief and corresponding complement clause mood selection will be examined for a fourth time at the end of the twelve week testing period to determine whether these L2 Spanish students' mood

selection approximates that of their NS peer. In particular, instances of variation in mood selection will be examined where the L1 Spanish peers' mood-preferences deviate from those established in Experiment 2. In these cases, will L2 Spanish students' productions approximate those of their NS chat partner or will this group instead utilize the revised 'rules of thumb' provided in classroom-based instruction? Conversely, will L2 Spanish students resort to the traditional prescriptive rules that are present in their L2 textbook<sup>39</sup> when NS use and the revised 'rules of thumb' are incongruent? It will be most informative to see whether, in cases of congruency between NS production and revised 'rules of thumb', L2 Spanish students also exhibit an indicative mood-preference in the complement clause for the negated matrix verbs 'no suponer' (*to not suppose*) and 'no parecerse' (*to not seem*), as well as an Equi I/S lack of mood-preference for the verb 'no estar seguro' (*to not be sure*). In the event that they do, it can be concluded that declarative knowledge of these verbs and mood-preferences are present in the memory of these L2 Spanish students.

When L2 Spanish learners begin to gather tokens of language experience via naturalistic input and authentic classroom-based interaction that reflects NS mood-preferences, they are strengthening their exemplars in memory based on accurate declarative knowledge. In many cases, L2 Spanish U.S., secondary students are still cognitively incapable of understanding the subtleties surrounding socio-pragmatic intention in the L2; therefore, accurate rule-based knowledge will have to suffice for the moment. Thus, when pedagogues can be certain that L2 Spanish students' language production reflects real-use given sufficient practice, this may be the initial point of access through which the L2 procedural memory system becomes available to these learners. Further research examining the interaction of verbal mood-preferences in complement clause with other matrix verb classifications will continue to inform language

---

<sup>39</sup> Although the L2 Spanish students who comprise the experimental group will never be specifically directed to the explanation appearing in their textbook, they will still have the textbook in their possession.



scientists, linguists and educators as to the reliability and consistency of using verb frequency information in conjunction with NSs' seemingly preferred socio-pragmatic intention of mood selection in the teaching of the subjunctive/indicative mood contrast in Spanish.

## References

- Abrams, Z. (2003). The effect of synchronous and asynchronous CMC on oral performance in German. *Modern Language Journal*, 87, 157-167.
- Alderson, J. C., Clapham, C., Wall, D., & Stoyhoff, S. (1996). Language test construction and evaluation. *TESOL Quarterly*, 30(4), 781.
- Altenberg, E. P., & Vago, R. M. (2004). The role of grammaticality judgments in investigating first language attrition: A cross-disciplinary perspective. In M.S. Schmid, B. Köpcke, M. Keijzer & L. Weilemar (Eds.), *First language attrition: Interdisciplinary perspectives on methodological issues* (pp. 105-129). Amsterdam: John Benjamins.
- American Council on the Teaching of Foreign Languages (ACTFL) Performance Guidelines for K-12 learners. (2013). *Holistic speaking rubric for student growth, level III*. Adapted for World Languages: Howard County Public Schools, Ellicott City, MD.
- Bell, A. (1980). Mood in Spanish: A discussion of some recent proposals. *Hispania*, 63, 377-390.
- Belz, J. A. (2002). Social dimensions of telecollaborative foreign language study. *Language Learning & Technology*, 6, 60-81.
- Belz, J.A., (2006). At the intersection of telecollaboration, learner corpus analysis, and L2 pragmatics: Considerations for language program direction. In J. Belz & S. Thorne (Eds.), *Internet-mediated intercultural foreign language education* (pp. 207-246). Boston, MA: Thomson & Heinle.
- Belz, J.A., & Kinginger, C. (2003). Discourse options and the development of pragmatic competence in classroom learners of German: The case of address forms. *Language Learning*, 53, 591-647.

- Belz, J. A., & Vyatkina, N. (2005). Learner corpus analysis and the development of L2 pragmatic competence in networked intercultural language study: The case of German modal particles. *Canadian Modern Language Review*, 62(1), 17-48.
- Belz, J. A., & Vyatkina, N. (2008). The pedagogical mediation of a developmental learner corpus for classroom-based language instruction. *Language Learning & Technology*, 12(3), 33-52.
- Bernardini, S. (2004). Corpora in the classroom: An overview and some reflections on future developments. In J. Sinclair (Ed.), *How to use corpora in language teaching* (pp. 15-36). Amsterdam: John Benjamins.
- Biber, D., Conrad, S., & Cortes, V. (1994). If you look at...: Lexical bundles in university teaching and textbooks. *Applied Linguistics*, 25(3), 371-405.
- Biber, D., & Reppen, R. (2002). What does frequency have to do with grammar teaching? *Studies in Second Language Acquisition*, 24, 199-208.
- Birdsong, D. (1989). *Metalinguistic performance and interlinguistic competence*. Berlin: Springer.
- Bitan, T., & Karni, A. (2004). Procedural and declarative knowledge of word recognition and letter decoding in reading an artificial script. *Cognitive Brain Research*, 19, 229-243.
- Blake, R. (1983). Mood selection among Spanish speaking children. *Bilingual Review*, 10, 21-32.
- Blake, R. (2000). Computer mediated communication: A window on L2 Spanish interlanguage. *Language Learning & Technology*, 4, 120-136.
- Blanco, J.A. (2014). *Descubre 3: Lengua y cultura del mundo hispánico*. (2<sup>nd</sup> ed.) Boston, MA: Vista Higher Learning.
- Blanco, J.A. & Tocaimaza-Hatch, C.C. (2011). *Imagina: Español sin barreras*. (2<sup>nd</sup> ed.) Boston, MA: Vista Higher Learning.

- Bod, R. & Cochran, D. (2007). Introduction to exemplar-based models of language acquisition and use. In R. Bod & D. Cochran (Eds.), *Proceedings of the ESSLLI workshop on exemplar-based models of language acquisition and use* (pp. 4-6). Dublin, Ireland.
- Bolinger, D. (1974). One subjunctive or two? *Hispania*, 57, 462-471.
- Bybee, J. (1998). The emergent lexicon. *CLS 34: The Panels*, 421-435.
- Bybee, J. (2001). *Phonology and language use*. Cambridge: Cambridge University Press.
- Bybee, J. (2003). Mechanisms of change in grammaticalization: The role of frequency. In B. D. Joseph & R. D. Janda (Eds.), *The Handbook of Historical Linguistics* (pp. 602-623). Oxford: Blackwell.
- Bybee, J. (2006). From usage to grammar: The mind's response to repetition. *Language*, 82, 711-733.
- Bybee, J. & Eddington, D. (2006). A usage-based approach to Spanish verbs of 'becoming'. *Language*, 82(2), 323-355.
- Bybee, J., & Torres Cacoullos, R. (2008). Phonological and grammatical variation in exemplar models. *Studies in Hispanic and Lusophone Linguistics*, 1(2), 399-413.
- Cabeza, C. (1996). Presuposiciones y completivas de sujeto (con predicados de afección psíquica.) *E.L.U.A.*, 11, 123-138.
- Chaudron, C. (1983). Research on metalinguistic judgments: A review of theory, methods, and results. *Language Learning*, 33, 343-377.
- Cheng, A. & Mojica-Díaz, C. (2006). The effects of formal instruction and study abroad on improving proficiency: The case of the Spanish subjunctive. *Applied Language Learning* 16, 17-37.
- Chomsky, N. (1986). *Knowledge of language: Its nature, origin and use*. New York, NY: Praeger.

- Chun, D. (1994). Using computer networking to facilitate the acquisition of interactive competence. *System*, 22, 17-31.
- Clahsen, H., & Felser, C. (2006). Grammatical proceeding in language learners. *Applied Psycholinguistics*, 27, 3-42.
- Clark, E. (1985). The acquisition of Romance, with special reference to French. In D. I. Slobin (Ed.), *The cross-linguistic study of language acquisition* (pp. 687-782). Hillsdale, NJ: Lawrence Erlbaum.
- Collentine, J. (1995). The development of complex syntax and mood selection abilities by intermediate-level learners of Spanish. *Hispania*, 78(1), 122-135.
- Collentine, J. (1997). Irregular verbs and noticing the Spanish subjunctive. *Spanish Applied Linguistics*, 1, 3-23.
- Collentine, J. (1998). Processing instruction and the subjunctive. *Hispania*, 81, 576-587.
- Collentine, J. (2003). The development of the subjunctive and complex-syntactic abilities among FL Spanish learners. In B. Lafford & R. Salaberry (Eds.), *Studies in Spanish Second Language Acquisition: the State of the Science* (pp. 74-97). Washington, DC: Georgetown University Press.
- Collentine, J. (2004). The effects of learning contexts on morpho-syntactic and lexical development. *Studies in Second Language Acquisition*, 26, 227-248.
- Collentine, J. (2010). The acquisition and teaching of the Spanish subjunctive: An update on current findings. *Hispania*, 93(1), 39-51.
- Collentine, J., Collentine, K., Clark, V., & Friginal, E. (2002). Subjunctive instruction enhanced with syntactic instruction. In J. Lee, K. Geeslin & J. C. Clements (Eds.), *Proceedings of the 4th Hispanic linguistics symposium* (pp. 32-45). Sommerville, MA: Cascadilla Press.
- Commission on the Humanities and Social Sciences, American Academy of Arts and Sciences. (2013). *The Heart of the Matter*. Retrieved from <http://www.amacad.org>

- Conrad, S. (2000). Will corpus linguistics revolutionize grammar teaching in the 21<sup>st</sup> century? *TESOL Quarterly*, 34, 548-560.
- Conrad, S. (2004). Corpus linguistics, language variation, and language teaching. In J.M. Sinclair (Ed.), *How to use corpora in language teaching* (pp. 67-85). Amsterdam: John Benjamins.
- Conrad, S., & Levelle, K. (2008). Corpus linguistics and language instruction. In B. Spolsky & F. Hunt (Eds.), *Blackwell handbook of educational linguistics* (pp. 539-556). Oxford: Blackwell.
- Cory, M., Parker, J., & Schwenkler, C. (2013). *Tejidos: Comunicación auténtica en un contexto cultural*. Yarmouth, ME: Wayside Publishing.
- Cowan, R., & Hatasa, Y. A. (1994). Investigating the validity and reliability of native speaker and second-language learner judgments about sentences. In E. Tarone, S. M. Gass, & A. D. Cohen (Eds.), *Research methodologies in second-language acquisition* (pp. 287-302). Hillsdale, NJ: Lawrence Erlbaum.
- Darhower, M. (2008). The role of linguistic affordances in telecollaborative chat. *CALICO Journal*, 26, 48-69.
- Davies, M. (2002-). *Corpus del Español: 100 million words, 1200s-1900s*.  
<http://www.corpusdelespanol.org>
- Davies, W. D., & Kaplan, T. I. (1998). Native speaker versus L2 learner grammaticality judgments. *Applied Linguistics*, 19(2), 183-203.
- DeMello, G. (1992). Selección modal con tres verbos de creencia: “creer”, “pensar” y “parecerse”, en el español hablado culto. *Torre de Papel*, 2, 64-107.
- Díaz, J. M., & Nadel, M. F. (2012). *Abriendo paso: Gramática*. Boston, MA: Pearson.
- Dörnyei, Z. (2001). *Motivational strategies in the language classroom*. Cambridge: Cambridge University Press.
- Draggett, P., Conlin, C., Ehram, M., & Millán, E. (2014). *Temas: \*AP Spanish language and culture*. Boston, MA: Vista Higher Learning.

- Dunlap, C. (2006). Dialectal variation in mood choice in Spanish journalistic prose. *Language Variation and Change*, 18, 35-53.
- Dussias, P.E. (2006). Morphological development in Spanish-American telecollaboration. In J. Belz & S. Thorne (Eds.), *Internet-mediated intercultural foreign language education* (pp. 121-146). Boston, MA: Thomson & Heinle.
- Dussias, P. E., & Cramer Scaltz, T. R. (2008). Spanish-English L2 speakers' use of subcategorization bias information in the resolution of temporary ambiguity during second language reading. *Acta Psychologica*, 128, 501-513.
- Ellis, R. (1991). Grammaticality judgments and second language acquisition. *Studies in Second Language Acquisition*, 13(2), 161-186.
- Ellis, N. C. (2002). Frequency effects in language processing: A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition*, 24, 143-188.
- Ellis, N. C., & Laporte, N. (1997). Contexts of acquisition: Effects of formal instruction and naturalistic exposure on second language acquisition. In A. M. B. de Groot & J. F. Kroll (Eds.), *Tutorials in bilingualism: Psycholinguistic perspectives* (pp. 53-83). Hillsdale, NJ: Lawrence Erlbaum.
- Fan, M., Greaves, C., & Warren, M. (1999). Identifying characteristic patterns in students' writing using a corpus of learner data. In R. Berry, B. Asker, K. Hyland & M. Lam (Eds.), *Language analysis, description and pedagogy* (pp. 176-188). Hong Kong: HKUST Press.
- Farley, A. (2000). *The relative effects of processing instruction and meaning-based output instruction on L2 acquisition of the Spanish subjunctive*. Unpublished dissertation, University of Illinois Urbana-Champaign.
- Fernández Ramírez, S. (1986). *Gramática Española*, tomo IV, ordenado y completo por Ignacio Bosque, Arco/Libros, S.A.

- Freiermuth, M. R., & Huang, H. (2012). Bringing Japan and Taiwan closer electronically. A look at an intercultural online synchronic chat task and its effect on motivation. *Language Teaching Research, 16*(1), 61-88.
- Furstenberg, G., Levet, S., English, K., & Maillet, K. (2001). Giving a voice to the silent language of culture: The *cultura* project. *Language Learning & Technology, 5*, 55-102.
- Gass, S.M. (1983). The development of L2 intuitions. *TESOL Quarterly, 17*(2), 273-291.
- Gass, S.M. (1994). The reliability of second language grammaticality judgments. In E. Tarone, S. M. Gass, & A. D. Cohen (Eds.), *Research methodologies in second-language acquisition* (pp. 304-321). Hillsdale, NJ: Lawrence Erlbaum.
- Gili Gaya, S. (1972). *Estudios de lenguaje infantil*. Barcelona: Vox.
- Givón, T. (1979). *On understanding grammar*. San Diego, CA: Academic Press.
- Goldberg, A. (2006). *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.
- Gregory, A.E., & Lunn, P. (2012). A concept-based approach to the subjunctive. *Hispania, 95*(2), 333-343.
- Gudmestad, A. (2006). L2 variation and the Spanish subjunctive: Linguistic features predicting mood selection. In C. A. Klee & T. L. Face (Eds.), *Selected proceedings of the 7<sup>th</sup> conference on the acquisition of Spanish and Portuguese as first and second languages*, (pp. 170-184). Somerville, MA: Cascadilla Proceedings Project.
- Gudmestad, A. (2012). Acquiring a variable structure: An interlanguage analysis of second language mood use in Spanish. *Language Learning, 62*(2), 373-402.
- Hahne, A., Müller, J., & Clahsen, H. (2003). Second language learners' processing of inflected words: Behavioral and ERP evidence for storage and decomposition. *Essex Research Reports in Linguistics, 45*, 1-42.



- Hakuta, K. (1974). Prefabricated patterns and the emergence of structure in second language acquisition. *Language Learning*, 24, 287-297.
- Han, Y. (2000). Grammaticality judgment tests: How reliable and valid are they? *Applied Language Learning*, 11, 177-204.
- Han, Z. (2006). Fossilization: Can grammaticality judgment be a reliable source of evidence? In Z. Han & T. Odlin (Eds.), *Studies of fossilization in second language acquisition* (pp. 56-82). Clevedon: Multilingual Matters.
- Harrington, M., & Dennis, S. (2002). Input-driven language learning. *Studies in Second Language Acquisition*, 24, 261-268.
- Hernández-Pina, F. (1984). Teorías psicolingüísticas y su aplicación a la adquisición del español como lengua materna. Madrid: Siglo XXI.
- Hopper, P. J. (1987). Emergent grammar. *Berkeley Linguistics Society*, 13, 139-157.
- Hopper, P. J., & Thompson, S. A. (2003). Language universals, discourse, pragmatics, and semantics. *Language Sciences*, 15(4), 357-376.
- Hunston, S. & Francis, G. (1998). Verbs observed: A corpus-driven pedagogic grammar of English. *Applied Linguistics*, 19, 45-72.
- Hunston, S. & Francis, G. (2000). *Pattern grammar: A corpus-driven approach to the lexical grammar of English*. Amsterdam: John Benjamins.
- Isabelli, C.A. (2007). Development of the Spanish subjunctive by advanced learners: Study abroad followed by at-home instruction. *Foreign Language Annals*, 40, 330-341.
- Isabelli, C. A., & Nishida, C. (2005). Development of the Spanish subjunctive in a nine-month study-abroad setting. In D. Eddington (Ed.), *Selected proceedings of the 6<sup>th</sup> conference on the acquisition of Spanish and Portuguese as first and second languages*, (pp. 78-91). Somerville, MA: Cascadilla Proceedings Project.

- Jiang, J. (2009). Designing pedagogic materials to improve awareness and productive use of L2 collocations. In A. Barfield & H. Gyllstad (Eds.), *Researching collocations in another language* (pp. 99-113). New York, NY: Palgrave Macmillan.
- Johns, T. (1994). From printout to handout: Grammar and vocabulary teaching in the context of data-driven learning. In T. Odlin (Ed.), *Perspectives on Pedagogical Grammar* (pp. 293-313). Cambridge: Cambridge University Press.
- Johnson, J. S., Shenkman, K. D., Newport, E. L., & Medin, D. L. (1996). Indeterminacy in the grammar of adult language learners. *Journal of Memory and Language*, 35, 335-352.
- Karant, P., & Suchitra, M.G. (1993). Literacy acquisition and grammaticality judgments in children. In R. J. Scholes (Ed.), *Literacy and language analysis* (pp. 143-156). Hillsdale, NJ: Lawrence Erlbaum.
- Kern, R. (1995). Restructuring classroom interaction with networked computers: Effects on quantity and characteristics of language production. *Modern Language Journal*, 79, 457-476.
- Kidd, E., Lieven, E. V. M., & Tomasello, M. (2010). Lexical frequency and exemplar-based learning effects in language acquisition: evidence from sentential complements. *Language Sciences*, 32, 132-142.
- Klein, P. (1977). Semantic factors in Spanish mood. *Glossa*, 11, 3-19.
- Kolln, N., & Funk, R. (1998). *Understanding English Grammar* (5th ed.). Needham, MA: Allyn & Bacon
- Lafford, B. A., & Ryan, J. M. (1995). The acquisition of lexical meaning in a study abroad context: The Spanish prepositions *por* and *para*. *Hispania*, 78(3), 528-547.
- Lee, J. F. (1987). Comprehending the Spanish subjunctive: An information processing perspective. *Modern Language Journal*, 71, 50-57.
- Lee, J. F., & Rodríguez, R. (1997). The effects of lexemic and morpho-syntactic modifications on L2 reading comprehension and input processing. In W. Glass & A. Pérez-Leroux (Eds.),

- Contemporary perspectives on the acquisition of Spanish vol. 2* (pp. 135-157). Somerville, MA: Cascadilla Press.
- Lee, L. (2004). Learners' perspectives on networked collaborative interaction with native speakers of Spanish in the U.S. *Language Learning & Technology*, 8, 83-100.
- Lee, L. (2006). A study of native and nonnative speakers' feedback and responses in Spanish-American networked collaborative interaction. In J. Belz & S. Thorne (Eds.), *Internet-mediated intercultural foreign language education* (pp. 147-176). Boston, MA: Thomson & Heinle.
- Leow, R. (1993). To simplify or not to simplify: A look at intake. *Studies in Second Language Acquisition*, 15, 333-356.
- Leow, R. (1995). Modality and intake in second language acquisition. *Studies in Second Language Acquisition*, 17, 79-89.
- Leow, R. (1996). Grammaticality judgment tasks and second-language development. *Georgetown University Round Table on Languages and Linguistics* (pp. 126-139). Washington, DC: Georgetown University Press.
- Lipski, J. (1978). Subjunctive as fact? *Hispania*, 61, 931-934.
- Lipski, J. (1993). Creoloid phenomenon in the Spanish transitional bilinguals. In A. Roca & J. Lipski (Eds.), *Spanish in the United States* (p. 155-173). Berlin: Mouton de Gruyter.
- López-Ornat, S., Almudena Fernández, P. G., & Mariscal, S. (1994). *La adquisición de la lengua española*. Madrid: Siglo XXI.
- Lozano, A. (1972). Subjunctives, transformations, and features in Spanish. *Hispania*, 55, 76-90.
- Lubbers Quesada, M. (1998). L2 acquisition of the Spanish subjunctive mood and prototype schema development. *Spanish Applied Linguistics*, 2(1), 1-23.
- Mandell, P.B. (1999). On the reliability of grammaticality judgment tests in second language acquisition research. *Second Language Research*, 15(1), 73-79.

- Masny, D. (1983). *Cognitive and linguistic correlates of second language grammaticality judgments*. Unpublished dissertation, University of Montreal.
- Masny, D., & d'Anglejan, A. (1985). Language, cognition, and second language grammaticality judgments. *Journal of Psycholinguistic Research*, 14(2), 175-197.
- McEnery, T., & Xiao, R. (2010). What corpora can offer in language teaching and learning. In E. Hinkel (Ed.), *Handbook of research in second language teaching and learning: vol. 2* (pp. 364-380). New York, NY: Routledge.
- Montrul, S. (2007). Interpreting mood distinctions in Spanish as a heritage language. In K. Potowski & R. Cameron (Eds.), *Spanish in contact: Educational, linguistic, and social perspectives* (pp. 23-40). Amsterdam: John Benjamins.
- Nesselhauf, N. (2004). Learner corpora and their potential for language teaching. In J. Sinclair (Ed.), *How to use corpora in language teaching* (pp. 125-152). Amsterdam: John Benjamins.
- Paradis, M. (1994). Neurolinguistic aspects of implicit and explicit memory: Implications for bilingualism and SLA. In N.C. Ellis (Ed.), *Implicit and explicit learning of languages* (pp. 393-419). London: Academic Press.
- Paradis, M. (1997). The cognitive neuropsychology of bilingualism. In A. de Groot & J. Kroll (Eds.), *Tutorials in bilingualism: psycholinguistic perspectives* (pp. 331-354). Hillsdale, NJ: Lawrence Erlbaum.
- Paradis, M. (2004). *A neurolinguistic theory of bilingualism*. Amsterdam: John Benjamins.
- Partington, A. (1998). *Patterns and meanings: Using corpora for English language research and teaching*. Amsterdam: John Benjamins.
- Pearson, L. (1996). Patterns of development in Spanish L2 pragmatic acquisition: An analysis of novice learners' production of directives. *Modern Language Journal*, 90, 473-495.

- Pellerin, M., & Montes, C. S. (2012). Using the Spanish online resource *Aula Virtual de Español* (AVE) to promote a blended teaching approach in high school Spanish language classrooms. *Canadian Journal of Learning & Technology*, 38(1), 1-22.
- Pellettieri, J. (2000). Negotiation in cyberspace: The role of chatting in the development of grammatical competence. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: concepts and practice* (pp. 59-86). Cambridge: Cambridge University Press.
- Pereira, I. (1996). *Markedness and instructed SLA: An experiment in teaching the Spanish subjunctive*. Unpublished doctoral dissertation, University of Illinois, Urbana-Champaign.
- Pérez-Leroux, A. T. (1998). The acquisition of mood selection in Spanish relative clauses. *Journal of Child Language*, 23, 585-604.
- Pierrehumbert, J. (2001). Exemplar dynamics: Word frequency, lenition, and contrast. In J. Bybee & P. Hopper (Eds.), *Frequency and the emergence of linguistic structure* (pp. 137-158). Amsterdam: John Benjamins.
- Poplack, S. (1992). The inherent variability of the French subjunctive. In C. Laeufer & T. Morgan (Eds.), *Theoretical analyses in romance linguistics: Selected papers from the 19<sup>th</sup> linguistics symposium on Romance languages* (pp. 235-263). Amsterdam: John Benjamins.
- Poplack, S. (1995). The sociolinguistic dynamics of apparent convergence. In G. Guy, J. Baugh & D. Schiffrin (Eds.), *Towards a social science of language: papers in honor of William Labov* (pp. 285-309). Amsterdam: John Benjamins.
- Potowski, K., Jegerski, J., & Morgan-Short, K. (2009). The effects of instruction on linguistic development in Spanish heritage language speakers. *Language Learning*, 59(3), 537-579.
- Rivero, M.L. (1971). Mood and presupposition in Spanish. *Foundations of Language*, 7, 305-336.

- Robinson, P. (1997). Generalizability and automaticity of second language learning under implicit incidental enhanced and instructed conditions. *Studies in Second Language Acquisition, 19*, 223-247.
- Römer, U. (2004). A corpus-driven approach to modal auxiliaries and their didactics. In J. Sinclair (Ed.), *How to use corpora in language teaching* (pp. 185-199). Amsterdam: John Benjamins.
- Sánchez-Naranjo, J., & Pérez-Leroux, A. T. (2010). In the wrong mood at the right time: Children's acquisition of the Spanish subjunctive in temporal clauses. *Canadian Journal of Linguistics, 55*(2), 227-255.
- Schachter, J., Tyson, A. F., & Diffley, F. J. (1976). Learners' intuitions of grammaticality. *Language Learning, 26*, 67-76.
- Schachter, J., & Yip, V. (1990). Why does anyone object to subject extraction? *Studies in Second Language Acquisition, 12*(4), 379-392.
- Schwartz, B. (1993). On explicit and negative data effecting and affecting competence and linguistic behavior. *Studies in Second Language Acquisition, 15*, 147-163.
- Segalowitz, N., Freed, B., Collentine, J., Lafford, B., Lazar, N., & Díaz-Campos, M. (2004). A comparison of Spanish second language acquisition in two different learning contexts: Study abroad and the domestic classroom. *Frontiers, 10*, 1-18.
- Silva-Corvalán, C. (1985). Modality and semantic change. In J. Fisiak (Ed.), *Historical semantics- Historical word formation* (pp. 547-572). Berlin: Mouton.
- Silva-Corvalán, C. (1994a). The gradual loss of mood distinctions in Los Angeles Spanish. *Language Variation and Change, 6*, 255-272.
- Silva-Corvalán, C. (1994b). *Language contact and change: Spanish in Los Angeles*. Oxford: Clarendon.
- Sinclair, J. (1991). *Corpus, concordance, collocation*. Oxford: Oxford University Press.

- Solano-Araya, J. M. (1982). *Modality in Spanish: An account of mood*. Unpublished dissertation, University of Kansas.
- Smith, D. B. (2003). Computer-mediated negotiated interaction: An expanded model. *Modern Language Journal*, 87, 38-57.
- Stokes, J. (1988). Some factors in the acquisition of the present subjunctive in Spanish. *Hispania*, 71, 705-710.
- Stokes, J., & Krashen, S. (1990). Some factors in the acquisition of the present subjunctive in Spanish: A re-analysis. *Hispania*, 73, 705-710.
- Stokes, J., Krashen, S., & Kartchner, J. (1998). Factors in the acquisition of the present subjunctive in Spanish: The role of reading and study. *ITL: Review of Applied Linguistics* 121-122, 19-25.
- Suñer, M., & Padilla-Rivera, J. (1987). Sequence of tenses and the subjunctive, again. *Hispania*, 70, 634-642.
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics: Studies in honour of H. G. Widdowson* (pp. 125-144). Oxford: Oxford University Press.
- Swain, M. (1998). Focus on form through conscious reflection. In C. Doughty & J. Williams (Eds.), *Focus on form in classroom second language acquisition* (pp. 64-81). New York, NY: Cambridge University Press.
- Terrell, T., Baycroft, B., & Perrone, C. (1987). The subjunctive in Spanish interlanguage: Accuracy and comprehensibility. In B. VanPatten, T. Dvorak, & J. Lee (Eds.), *Foreign language learning: A research perspective* (pp. 19-32). Cambridge: Cambridge University Press.
- Terrell, T., & Hooper, J. (1974). A semantically-based analysis of mood in Spanish. *Hispania*, 57, 484-494.

- Tileston, D. W. (2004). *What every teacher should know about learning, memory and the brain*. Thousand Oaks, CA: Corwin Press.
- Tomasello, M. (2003). *Constructing a language: A usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.
- Tomasello, M. & Brooks, P. (1998). Young children's earliest transitive and intransitive constructions. *Cognitive Linguistics* 9, 379–395.
- Toyoda, E., & Harrison, R. (2002). Categorization of text chat communication between learners and native speakers of Japanese. *Language Learning & Technology*, 6, 82-99.
- Travis, C. (2003). The semantics of the Spanish subjunctive: Its use in the natural semantic metalanguage. *Cognitive Linguistics*, 14(1), 47-69.
- Tudini, V. (2003). Using native speakers in chat. *Language Learning & Technology*, 7, 141-159.
- Tudini, V. (2007). Negotiation and intercultural learning in Italian native speakers chat rooms. *Modern Language Journal*, 91, 577-601.
- Ullman, M.T. (2001). A neurocognitive perspective on language: the declarative procedural model, *Nature Reviews*, 2, 717-726.
- Van Compernelle, R. A., & Pierozak, I. (2009). Teaching language variation in French through authentic chat discourse. In L. Abraham & L. Williams (Eds.), *Electronic discourse in language learning and language teaching* (pp. 111-126). Amsterdam: John Benjamins.
- Velasco-Zárate, K. (2006). Mood-determined specificity in L2 Spanish: Evidence from L1 Japanese and English speakers. In M. G. O'Brien, C. Shea, & J. Archibald (Eds.), *Proceedings of the 8<sup>th</sup> generative approaches to second language acquisition conference* (pp. 140-147). Somerville, MA: Cascadilla Press.
- Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal*, 13, 7-26.
- Wray, A. (2002). *Formulaic language and the lexicon*. Cambridge: Cambridge University Press.



## Appendix A

### Language History Questionnaire

<b>Language History Questionnaire</b>		<b>For office use only</b>	
Pennsylvania State University		Participant number	
University Park, PA 16802		File	
<p>This questionnaire is designed to give us a better understanding of your experience learning a second language. We ask that you be as accurate and thorough as possible when answering the following questions. Once you have finished the questionnaire, please chose <i>file</i>, then <i>save</i> as and change the file name to "language history questionnaire_Last name_First name". Then, please email the completed questionnaire to the experimenter for scheduling (gab182@psu.edu). Thank you for your participation in this study!</p>		Date	
Last Name			
First Name			
Phone Number (with area code)			
Email Address			
Sex (M/F)			
Age (in years)			
Native Country			
Number of years spent in the U.S.			
Number of years spent in U.S. schools/university			
Do you have any known visual or hearing problems (corrected or uncorrected)?			
What is(are) your first language(s) (i.e. language first spoken)? If more than one, please briefly describe the situations in which each language was used.			
Please list any language(s) you consider to be your second language(s) excluding those in question 11.			
What languages were spoken in your home while you were a <b>child</b> and by whom?			
Please list the language(s) the following people speak to you <b>now</b> :			
(a) Mother			
(b) Father			
(c) Closest friend			
<p>List below, from most fluent to least fluent, <u>all</u> of the languages you have had experience with. Also, please specify the age in years at which you began to learn the language, the total number of years you used the language and the context(s) in which you used it. For example, "English, birth, 21, home and school". Include <u>all</u> languages to which you have been exposed, even if you never had formal training in the language or cannot read, speak or write the language. <b>Please remember to list your native language!</b></p>			
Language	Age at which you started learning	Total number of years used	Learning Situation(s)

## Appendix B

### Grammaticality Judgment Task

*Por favor, indique si las siguientes oraciones son gramaticales o no. Es decir, ¿cuáles le parece que están bien y cuáles no? Si hay oraciones que le parece que están mal, corrija el error en el espacio dado. Si lo desea, puede hacer cualquier observación o comentario adicional.*

*Ejemplos:*

**Completamente gramatical:**

Dudo que el muchacho tenga diez años.

**Aceptable, se usa:**

Si ganara la lotería, comprara una casa nueva.

**Completamente agramatical:**

\*Cuando María salió, su hija comerá.

A	B	C
Comple- tamente Gram- tical	Aceptable	Comple- tamente Agram- atical

1. Yo suponía que el equipo ganó el campeonato anoche.			
2. Pienso que el perro sea muy cansado.			
3. Yo suponía que Paco fuera a una clase de pintura el verano pasado.			
4. Ella no cree que su novio es guapo.			
5. Estaba segura de que miles de soldados cayeran en esta batalla.			
6. No me parece que los demás contribuyen tanto como tú.			
7. La vecina piensa que su perro ladra mucho por la mañana.			

8. Ximena no suponía que tomaras el autobús sin pagar.			
9. No pienso que mis alumnos han preparado la lectura.			
10. Yo estaba segura de que el tren llegaba por la tarde.			
11. El jefe no se imaginaba que su empleado pudiera completar el trabajo.			
12. Creo que la alumna esté lista, sacó una "A" en la clase.			
13. El jugador no se imaginaba que su equipo podía haber ganado el premio.			
14. La enfermera está convencida de que la niña enferma debe dar un paseo.			
15. Enrique no suponía que tomabas el café sin leche.			
16. A mi mamá está segura de que yo tenga energía por correr el maratón.			
17. Antonio no cree que su esposa sea fea.			
18. Andrés está convencido de que su amigo tenga razón para ser médico.			
19. No pienso que los vecinos hayan preparado la cena.			
20. Me parece que Ana está lista a tiempo.			
21. La profesora no estaba segura de que yo terminara el exámen.			
22. Creo que el perro es pequeño.			
23. Me imaginaba que Miguel conociera mucho de arte.			
24. No me parece que mis hermanos contribuyan tanto dinero como yo.			
25. El señor García piensa que trabajes en esa tienda para muchos años.			

26. No estoy convencida de que tienen la respuesta correcta.			
27. Creo que el niño es triste.			
28. Alfredo no estaba seguro de que yo había terminado la carrera.			
29. Supongo que el gato tiene hambre por la mañana.			
30. No estoy convencida de que tengan una idea equivocada.			
31. Me imaginaba que Marta conoció a María ayer durante la clase.			
32. Pienso que la profesora regrese a esta universidad.			

## Appendix C

### Experiment 1 Stimuli Set

- 1a) Ella no cree que su novio es guapo.
- 1b) Antonio no cree que su esposa sea fea.
- 2a) No pienso que mis alumnos han preparado la lectura.
- 2b) No pienso que los vecinos hayan preparado la cena.
- 3a) Enrique no suponía que tomabas el café sin leche.
- 3b) Ximena no suponía que tomaras el autobús sin pagar.
- 4a) No me parece que los demás contribuyen tanto como tú.
- 4b) No me parece que mis hermanos contribuyan tanto dinero como yo.
- 5a) El jugador no se imaginaba que su equipo podía haber ganado el premio.
- 5b) El jefe no se imaginaba que su empleado pudiera completar el trabajo.
- 6a) No estoy convencida de que tienen la respuesta correcta.
- 6b) No estoy convencida de que tengan una idea equivocada.
- 7a) Alfredo no estaba seguro de que yo había terminado la carrera.
- 7b) La profesora no estaba segura de que yo terminara el examen.

## Appendix D

# Holistic Speaking Rubric for Student Growth

**Howard County Public Schools**

**WORLD LANGUAGES: HOLISTIC SPEAKING RUBRIC FOR STUDENT GROWTH**

**LEVEL III**

Student Name:

Class Period:

Assignment:

Date:

	Intermediate Mid 4	Intermediate Low 3	Novice High 2	Novice Mid 1
<b>Vocabulary</b> <i>What language do I use</i>	Use words and expressions from a wide range of topics and begin to use expanded words within a topic Provide details and elaborate	Use a variety of learned words and phrases on a range of familiar topics  Begin to give more details and elaborate	Use learned words and phrases on familiar topics  Elaborate a little	Use a limited number of memorized words and phrases that are repetitive
<b>Functions &amp; Structures</b> <i>How do I use the language?</i>	Use strings of sentences to describe or explain  Implement basic target language structures with variety in time frames and increased use of advanced structures Combine sentences using connector words to create original sentences	Use strings of simple sentences to describe or explain  Implement basic target language structures with variety in time frames and occasional use of advanced structures Combine words and phrases to create original sentences	Use phrases and simple sentences to provide basic information  Implement basic target language structures with some variety in time frames  Begin to combine words and phrases to create original sentences	Use words, phrases, and simple sentences to provide information  Begin to implement basic target language structures
<b>Comprehensibility</b> <i>How well am I understood during this task?</i>	Be understood easily  Speak with clarity, but sometimes mispronounce sounds during the use of novel sentences	Be understood easily  Pronounce most sounds unique to the target language, but make some errors during the use of novel sentences	Be understood with little difficulty  Pronounce in isolation many sounds unique to the target language with little to no English influence	Be understood with some difficulty  Pronounce in isolation some sounds unique to the target language with little English influence
<b>Comprehension</b> <i>How well do I understand?</i> <b>Interpersonal Speaking</b>	Understand questions and statements from real-life situations which take place face-to-face or electronically	Understand questions and statements, but sometimes need to hear things repeated again	Understand simple questions and statements, but sometimes need to hear things repeated again	Understand some simple questions and statements, but may need to hear things repeated
<b>Quality of Interaction</b> <i>How well do I maintain the conversation?</i> <b>Interpersonal Speaking</b>	Speak with ease with few pauses and/or repetition Sustain the conversation	Speak easily with few pauses and/or repetition Manage to sustain the conversation	Speak easily with few pauses and/or repetition Somewhat sustain the conversation	Speak easily with some hesitation, pauses, and/or repetitions Sustain formulaic or memorized conversation

**WORLD LANGUAGES: ACROSS PROFICIENCY LEVELS**

	Exemplary 4	Proficient 3	Developing 2	Basic 1
<b>Language Control</b> <i>How accurate is my language?</i>	I do not make errors in grammar, word order, and word choice appropriate for this level	My errors in grammar, word order, and word choice for this level do not prevent communication	My errors in grammar, word order, and word choice for this level sometimes prevent communication	My errors in grammar, word order, and word choice for this level often prevent communication
<b>Content of Message</b> <i>How much of the message do I deliver?</i>	I complete more than was required	I complete everything that was required	I complete most of what was required	I complete little of what was required

**ADDITIONAL FEEDBACK**

## Appendix E

### Experiment 2 Stimuli Set

1.) ¿Piensas que los deportes en los EEUU son mejores que los deportes en España?

*-No pienso que* \_\_\_\_\_

2.) ¿Crees que la comida de los EEUU es más rica que la comida de España?

*-No creo que* \_\_\_\_\_

3.) ¿Te imaginabas que podías ir a un lugar sin la infraestructura de transporte?

*-No me imaginaba que* \_\_\_\_\_

4.) ¿Te parece que los EEUU y España tienen todas las mismas costumbres?

*-No me parece que* \_\_\_\_\_

5.) ¿Estás seguro, -a de que te gustaría ser de mayor?

*-No estoy seguro, -a de que* \_\_\_\_\_

6.) ¿Suponías que la escuela en España es muy diferente de la escuela en los EEUU?

*-No suponía que* \_\_\_\_\_

7.) ¿Estás convencido, -a de que es más fácil aprender el español que aprender el inglés?

*-No estoy convencido, -a de que* \_\_\_\_\_

## Appendix F

### Post-Chat Analysis Task

#### ***Part I: Analysis of Greetings/Farewells***

1. *What types of greetings/farewells were observed in the electronic context of your G-chat? Provide specific examples in Spanish from the chat.*

2. *Were the greetings/farewells more detailed than a simple hello/goodbye? If so, please explain. Provide specific examples in Spanish from the chat.*

3. *Did you notice any cultural differences between how we would use greetings/farewells? Provide specific examples in Spanish from the chat.*

4. *Were the greetings/farewells different from what you learned in your textbook and in your prior Spanish classes? If so, please explain.*

#### ***Part II. Analysis of Vocabulary***

5. *Did you learn any new vocabulary as a result of your G-chat? Provide specific examples in Spanish from the chat.*

6. *Did you ever feel that reading the posts was sometimes challenging? Did you use context clues and/or an online translation program to define words/phrases? Were you able to comprehend the posts as a result of these aides? Provide specific examples in Spanish from the chat of words/phrases that were difficult to understand.*



7. *Did you learn any new vocabulary or abbreviations related to the electronic medium itself? For example, abbreviations, slang, acronyms, shortcuts, etc Provide specific examples in Spanish from the chat.*

8. *Did you find any cultural elements related to vocabulary such as the use of “vosotros”? Provide specific examples in Spanish from the chat.*

9. *Any difference in use of emotives (i.e., caps)? How did the emotive use make you feel? Provide specific examples in Spanish from the chat.*

10. *Do you feel that the G-chat experience benefitted you as a whole? How so? Do you feel that there was a literacy or cultural benefit to the activity? Did the G-chat impact you positively? Please explain.*

### ***Part III. Negated Verbs of Belief***

11. *In the space below for letters (a-f), please write the 7 questions that you asked your G-chat partner and their complete response to each item. Be sure to indicate the verb in question before each item.*

a.) *Verb:*

a.) *Your question:*

a.) *Their answer:*

b.) *Verb:*

b.) *Your question:*

b.) *Their answer:*

c.) *Verb:*  
c.) *Your question:*

c.) *Their answer:*

d.) *Verb:*  
d.) *Your question:*

d.) *Their answer:*

e.) *Verb:*  
e.) *Your question:*

e.) *Their answer:*

f.) *Verb:*  
f.) *Your question:*

f.) *Their answer:*

g.) *Verb:*  
g.) *Your question:*

g.) *Their answer:*

12. For letters (a-g) did any of the responses, when negative (with a "no") contain indicative complements (simple present tense after the "que", not present subjunctive) If so, for which verbs?

13. *Since the textbook teaches that with negated matrix verbs of belief, subjunctive complements are needed, do you find it surprising that some native speakers use indicative complements? Why or why not?*

14. *Do you feel that language should be taught and practiced in an authentic context such as with same-age peers via electronic media such as G-chat, or would you prefer to stick with the textbook? Why or why not?*

**Part IV: Overall observations**

15. *Do you feel your confidence and/or enthusiasm for Spanish has increased due to the G-chat experience? Why or why not?*

16. *Would you like to participate in another G-chat in the future with your same-age peers? Why or why not?*

17. *Have you ever used G-chat, Facebook or Skype for educational purposes before at RHHS? If so, when and in what capacity?*

18. *What other social media activities can you think of that you would enjoy using to learn Spanish and how would you use it?*

19. *At any point throughout the chat did you feel insecure about your language abilities? When? Are you looking forward to sharing your knowledge of English with same-age peers in Spain? Why or why not? Will you continue your friendship on Twitter or Facebook outside of the classroom?*

20. *Anything else that you would like to tell me about your G-chat experience?*

## VITA ~ Tracy Cramer Scaltz

### Education

- 2013 *Ph.D. in Spanish (Hispanic Linguistics), Option in Applied Linguistics, Doctoral Minor: Linguistics, The Pennsylvania State University*
- 2004 *M.A. in Spanish Linguistics, The Pennsylvania State University*
- 2001 *B.A. in Spanish, B.S. in Education, Ohio University*

### Referred Article and Chapters

Dussias, P.E., & **Cramer Scaltz, T.R.** (2008). *Spanish-English L2 speakers' use of subcategorization bias information in the resolution of temporary ambiguity during second language reading*, *Acta Psychologica*, 128(3), 501-513.

Dussias, P.E., & **Cramer Scaltz, T.R.** (2006). *The Role of L1 verb bias on L2 sentence parsing*. In D. Bamman, T. Magnitskaia, & C. Zaller (Eds.), *Proceedings of the 30<sup>th</sup> annual Boston University conference on language development*, Vol 1, 166-177. Somerville, MA: Cascadilla Press.

### Presentations at Professional Meetings

**Cramer Scaltz, T.R.** & Dussias, P.E. (2007). *The effect of verbal information on the comprehension of ambiguous sentences by Spanish-English bilinguals*. Paper presented at the 6th International Symposium on Bilingualism (ISB6), Hamburg, Germany, May 30th- June 2nd.

Blattner, G., Dussias, P.E., & **Cramer Scaltz, T.R.** (2007). *Parsing verbal arguments in a first and second language: The role of immersion experience*. Paper presented at the 6th International Symposium on Bilingualism (ISB6), Hamburg, Germany, May 30th- June 2nd.

Dussias, P.E. (2006). *Understanding sentences in two languages. Invited lecture presented by Tracy R. Cramer at the 2nd Annual Rovereto Workshop on Bilingualism: Functional and Neural Perspectives, Rovereto, Italy, Sept. 28- Oct. 1.*

Dussias, P.E., & **Cramer, T.R.** (2005). *The role of L1 verb bias on L2 sentence parsing*. Paper presented the 30th Annual Boston University Conference on Language Development (BUCLD), Boston, MA, Nov. 4th -6th.

**Cramer, T.R.** (2005). *Do negated matrix verbs of belief permit indicative complements in Spanish?* Paper accepted at the Graduate Portuguese & Hispanic Symposium (GRAPHSY), Washington D.C., Oct. 28th -29th.

Dussias, P.E., & **Cramer, T.R.** (2005). *The role of L1 verb bias on L2 sentence comprehension*. Poster presented at Architectures & Mechanisms for Language Processing (AMLaP), Ghent, Belgium, Sept. 4th-7th.

Dussias, P.E., & **Cramer, T.R.** (2005). *Spanish-English bilinguals' access to verb bias information*. Paper presented at the NSF-sponsored Workshop on Language Processing, University Park, PA, Nov. 10th -13th.

**Cramer, T.R.** & Dussias, P.E. (2005). *The influence of L1 verbal information on L2 sentence parsing*. Paper presented at the 5th International Symposium on Bilingualism (ISB5), Barcelona, Spain, March 20th-23rd.

Dussias, P.E., Piñar, P., Misra, M., **Cramer, T.R.**, & Reed, S. (2005). *Parsing Wh-extractions in second language learners*. Paper presented at 5th International Symposium on Bilingualism (ISB5), Barcelona, Spain, March 20-23<sup>rd</sup>.

Dussias, P.E., & **Cramer, T.R.** (2003). *The influence of frequency-based verb bias information on the processing of ambiguous sentences by Spanish-English speakers*. Paper presented at the 4th International Symposium on Bilingualism (ISB4), Tempe, Arizona, April 30th- May 3rd.

### Research Support and Awards

- 2007-2008 Edwin Earle Sparks Fellowship, *The Pennsylvania State University, Semester release from teaching, including tuition and stipend*
- 2007-2008 Humanities Initiative Dissertation Fellowship, *The Pennsylvania State University, Semester release from teaching, including tuition and stipend*
- 2007 National Science Foundation (NSF) Doctoral Dissertation Research Grant (#0718454): *The Role of Verb Bias on the Processing of Syntactically Ambiguous Sentences in Spanish-English Bilinguals, 2007-2009, support for domestic conference travel, foreign data collection, part-time undergraduate research assistants, equipment, \$11,999*
- 2007 Research and Graduate Studies Office (RGSO) Doctoral Dissertation Research Grant: *The Role of Verb Bias on the Processing of Syntactically Ambiguous Sentences in Spanish-English Bilinguals, 2007-2008, support for subject payment and equipment, \$2,000*
- 2005-2006 Teaching Excellence Award, *Department of Spanish, Italian and Portuguese, The Pennsylvania State University, Award for Excellence and Outstanding Achievement in Teaching*