A COMPARISON OF VOCABULARY BANKS AND SCRIPTS ON NATIVE ENGLISH-

SPEAKING STUDENTS' ACQUISITION OF ITALIAN

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The study applied behavior analytic principles to foreign language instruction in a college classroom. Two study methods, vocabulary banks and scripts, were compared by assessing the effects on Italian language acquisition, retention, and generalization. Results indicate that students without prior exposure to Italian engaged in more exchanges and emitted more words in script tests compared to vocabulary bank tests. Participants with at least two classes in Italian prior to the study engaged in more exchanges and emitted more words during vocabulary bank tests. Data suggest that different teaching strategies may work for different learners. More research is needed to determine efficient teaching methods and how to ascertain which approaches work best for learners with different histories.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Currently there is a movement toward globalization and intercultural relations across industries. As technology advances, the number of opportunities to collaborate with other countries increases, creating a need for members of each society to become fluent in additional languages. For example, the European Union urged its citizens to speak at least two languages in addition to their native tongues (European Union, 2006). The United States secretary of education and the United States president called on Americans to provide each child with a "world-class education [which] today more than ever requires students to be able to speak and read languages in addition to English" (Duncan, 2010, p. 1). The director of the United States Central Intelligence Agency (CIA) recently stressed the importance of learning a foreign language because "...language skills are vital to success in an interconnected world" (CIA, 2010, p. 1). Therefore, there is a push to identify more efficient procedures for teaching a foreign language to fluency with adult populations (Duncan, 2010; European Union, 2006).

Sundberg (1991) noted that behavior analysts had not applied Skinner's (1957) analysis of verbal behavior to second language acquisition. He suggested ten topics to spur research on second language acquisition. Sundberg's suggestions included acquisition of the verbal operants and complex social verbal behavior, the effects of prompts and prompt levels on acquisition, the effects of verbal communities, and current methods vs. verbal behavior (VB) methods of instruction. Research in any of these areas would be beneficial for both those learning a new language and those working to advance

our understanding of verbal behavior. Behavior analysts, however, have neglected this crucial area. In fact, despite the applicability of behavior analysis to education, there is a paucity of behavior analytic research on foreign language acquisition.

One possible reason for a lack of research on foreign language acquisition is that there has been little research conducted on native language acquisition with typically developing individuals (Partington & Bailey, 1993). Most of the empirical work in verbal behavior has been conducted with populations exhibiting impaired verbal repertoires (Dixon, Small, & Rosales, 2007; Marcon-Dawson, Vicars, & Miguel, 2009; Miguel, 2011). Many studies have focused on teaching procedures for particular verbal operant deficiencies with individuals with language delays, a trend that has dominated much of the applied behavior analytic literature base (Miguel, 2011). This may be accounted for through the increase in behavior analysts working with clients diagnosed with developmental delays and the metacontingencies affecting the discipline as a whole (Marcon-Dawson et al., 2009; Miguel, 2011). Although, it could also be that a functional analysis of verbal behavior is more easily studied with populations with limited verbal repertoires because there are fewer extraneous variables that need to be controlled (e.g., covert verbal behavior, unexplained emergent relations, etc.). Whatever the reason, while we have seen an increase in verbal behavior research (Dymond, O'Hora, Whelan, & O'Donovan, 2006; Eshleman, 1991; Marcon-Dawson et al., 2009; Petursdottir & Peterson, 2009; Sautter & LeBlanc, 2006), behavior analysis still lacks a comprehensive approach to language acquisition and development (Critchfield, 2010; Miguel, 2011).

These trends within behavior analysis present a need to publish research that pushes the scope of verbal behavior research past analyses of the basic verbal operants into complex verbal behavior, to explore more advanced methodologies, to create new conceptual analyses of verbal behavior, and to conduct reviews that establish new lines of research (Critchfield, 2010; Miguel, 2011). Concurrently, global trends are demanding that citizens speak multiple languages and work in more globally-interconnected environments, presenting a need for more advanced technologies for learning a foreign language. The study of foreign language acquisition is a context for combining the goals of verbal behavior researchers and the broader community affected by globalization. It requires interdisciplinarity to do so effectively (Matos & Patos, 2006).

Verbal behavior researchers can learn from other disciplines that conduct research on foreign language acquisition and vice versa; in fact, Skinner's (1957) analysis coincides with many points used in traditional language analysis by linguists (Matos & Patos, 2006). Working with researchers in linguistics and other disciplines can help to develop a more advanced technology for foreign language acquisition and expand our understanding of verbal behavior. The behavior analytic community studying verbal behavior can work with linguists, communication theorists, and others to accomplish two specific goals. First, there is a need to understand how language develops within typically developing populations (Cihon, Thompson, Kowalchuk, Phoung, & Stephens, in preparation). Second, there is a need for applying a functional analysis of verbal behavior to more complex verbal behavior (Critchfield, 2010; Dixon et al., 2007; Miguel, 2011), such as acquiring a new language.

Understanding how language develops within typically developing populations could help us to develop more effective interventions for teaching language. For example, manding is the first category of verbal behavior established in typically developing children before the age of 12 months (Drash & Tudor, 1993). This information has driven many interventions for children with language delays by focusing on first developing a mand repertoire (cf., Carr & Durand, 1985; Sundberg, Michael, Partington, & Sundberg, 1996), and is one example of how understanding typically developing language skills can inform an intervention. Would beginning foreign language instruction with a focus on manding facilitate acquisition? In typical foreign language classroom instruction, instructors often focus on a few mands for information such as "What does it mean?" and "How do you say?" and quickly move into teaching an advanced intraverbal repertoire in the context of social interactions (Sundberg, 1991). Perhaps teaching a large proportion of mands at the beginning of a class would help facilitate foreign language acquisition (but only if the appropriate reinforcing verbal community were also in place).

Rather than beginning with mand relations, Dounavi (2011) suggested that four independent functional relations are critical to developing a fluent repertoire in a foreign language. Dounavi emphasized an initial listener repertoire in which the learner shows "understanding" by orienting toward an item in response to hearing its name (e.g., upon hearing "mela" the learner orients toward an apple). The second functional relation is synonymous with Skinner's (1957) tact. In this paradigm, the learner can produce a vocal response in the new language that is under the control of a nonverbal stimulus (e.g., upon seeing a sandwich, the learner says, "panini"). The third and fourth relations are a special

form of the intraverbal (translation; cf., Skinner, 1957), in which the learner "vocalizes the foreign word when presented with its native equivalent or vice versa" (Dounavi, 2011, p. 239; e.g., the learner sees the word "door" and says "la porta" or sees or hears the words "la porta" and says "door").

While Dounavi (2011) focused on vocalizations for the third and fourth relation, it may be appropriate to add a fifth and sixth relation to account for additional intraverbal relations. These additional intraverbal relations would be appropriate for describing the relations which occur in vocabulary testing and translation: the learner can write a word's native equivalent when given the foreign word and vice versa (e.g., the learner sees or hears the word "mushrooms" and writes "funghi" or sees or hears the word "funghi" and writes "mushrooms"). While Dounavi's work did not reference our knowledge on native language acquisition, it is the most thorough attempt at describing foreign language acquisition from a functional perspective and deserves further empirical investigation.

There have been a limited number of behavior analytic studies focusing on foreign language acquisition (Cihon & Stephens, 2011; in press; Dounavi, 2011; Duan & Cuvo, 1996; Gutierrez, 2006; Lloyd, Elbert, & Drake, 1996; Petursdottir, Olafsdottir, & Aradottir, 2008; Petursdottir & Hafliðadóttir, 2009; Ramirez & Rehfeldt, 2009; Rosales, Rehfeldt, & Lovett, 2011; Shimamune & Smith, 1995; Washio & Houmanfar, 2007). Even fewer have used Skinner's (1957) functional analysis of verbal behavior (Dounavi, 2011; Gutierrez, 2006; Petursdottir et al., 2008; Petursdottir & Hafliðadóttir, 2009; Rosales et al., 2011). Within this research base, there is little focus on understanding more complex verbal behavior or identifying effective and efficient teaching strategies

for foreign language acquisition; rather, the focus is on answering broader questions within the field of behavior analysis (Cihon et al., in preparation). From a review of behavior analytic research on foreign language acquisition, we identified four areas of foci.

The first focus applies behavior analytic teaching strategies as a whole to foreign language acquisition. For example, Duan and Cuvo (1996) compared prototype instruction or rote instruction when teaching English names for Chinese characters. Rote instruction involved tracing the Chinese character and writing the English translation. In contrast, prototype instruction involved teaching participants the meaning of specific prototypes through verbal instruction, pointing prompts, and performance feedback. Prototype instruction resulted in faster acquisition and better generalization to new characters; however, is limited to teaching only languages in which characters with prototypes are used, such as Chinese and Japanese. Duan and Cuvo's (1996) contribution to the literature is limited in application to languages that have characters; however, it is an important contribution to the study of the effects that behavior analytic teaching strategies have on second language acquisition.

Observational learning has been used with many populations to teach a variety of skills such as conditioning reinforcers for typically developing children (Greer, Singer-Dudek, & Gautreaux, 2006), guppies' mating rituals (Dugatkin & Godin, 1992), and escape responses in monkeys (Mineka & Cook, 1988; Cook, Mineka, Wolkstein & Laitsch, 1998) and blackbirds (Curio, Ernest & Vieth,1978). Ramirez and Rehfeldt (2009) approached foreign language acquisition by examining an observational learning

procedure. One child observed another child learning Spanish vocabulary words through conditional discrimination training which involved hearing the Spanish word and selecting the corresponding picture. Both the participant actively responding and the participant observing showed increases in correct responding. Additionally, symmetric relations emerged in that both participants were able to produce the Spanish word after training (Ramirez & Rehfeldt, 2009). Ramirez and Rehfeldt's research adds an additional skill to this broad area of research in observational learning and begins a new line of research on using observational learning in classroom settings.

Lloyd, Elbert, and Drake (1996) used a second language classroom context to study the effects of individual and group contingencies. The authors first compared the effects of no contingencies with individual contingencies on quiz scores of English speaking students learning Spanish. They then compared the effects of individual contingencies and group contingencies on Spanish vocabulary quiz scores. Individual contingencies improved quiz scores as compared to no contingencies, and group contingencies proved to be superior to individual contingencies. Once again, the focus of this study was not entirely on the success of acquiring a second language but rather on studying basic behavioral principles in new contexts.

A second focus in behavior analytic research on second language acquisition emphasizes techniques for correct pronunciation. Specific technologies include providing explicit feedback for phoneme production and listener discrimination training (Shimamune & Smith, 1995); self-shaping procedures, including discrimination training and auditory feedback (Lane & Schneider, 1963); and See-the-Sound/Visual Phonics

(Cihon, Morford, Stephens, Morrison, Shrontz, & Kelly, under review; Cihon & Stephens, 2011; in press). Proper pronunciation of a language may be crucial to be understood by native speakers of a language, thereby increasing opportunities for reinforcement. Some may argue that pronunciation can be as equally important as the acquisition of vocabulary. However, these will not be discussed in detail because correct pronunciation was not a direct goal of the current study .

The third focus area uses foreign language as a tool to look at previously established behavioral principles; teaching efficiency is not the critical feature. For example, Washio and Houmanfar (2007) manipulated environmental stimuli to produce conditional discriminations when teaching students Japanese words. The two conditions consisted of Apparent and Subtle stimuli. Apparent stimuli referred to salient stimuli that were obvious to the participants whereas Subtle stimuli referred to differences in stimuli which were hinted at but not explicitly stated. The researchers found that responding increased in accuracy under Apparent stimuli conditions and accuracy decreased under Subtle stimuli conditions, yet response latency was variable. Therefore, apparent stimuli conditions may facilitate language acquisition (Washio & Houmanfar, 2007). The goal of this study in part was to facilitate language acquisition, but the broader goal was to study how stimulus control plays a role in the acquisition of a skill.

Finally, one approach to teaching a second language within behavior analytic research is to teach one or more of Skinner's (1957) verbal operants, either separately or in combination. Two studies examined the effects of listener training, tact training, and intraverbal training on second language acquisition in children (Petursdottir et al., 2008;

8

Petursdottir & Hafliđadóttir, 2009). A third study investigated the effects of tact training and intraverbal training on second language acquisition in adults (Dounavi, 2011). A fourth study used Multiple Exemplar Training (MET) to facilitate tacting (Rosales et al., 2011). Finally, a fifth study compared the effects of echoic training and tact training on second language acquisition (Gutierrez, 2006).

Petursdottir and colleagues (2008) taught native Icelandic speaking children a number of Spanish words by training either tacts (i.e., naming items when a picture is presented and the question "What is this called in Spanish?") or listener skills (i.e., pointing to a picture when asked "Which is called a [Spanish name]"). The researchers then tested for bi-directional relations (the translation from Icelandic to Spanish and the translation from Spanish to Icelandic) and emergent (untaught) intraverbal relations. Results showed that tact training was effective in transferring to an intraverbal repertoire when children translated Spanish to Icelandic but was somewhat less effective when children translated Icelandic to Spanish. The listener training was ineffective for promoting a full intraverbal repertoire.

Petursdottir and Hafliđadóttir (2009) built on the work of Petursdottir and colleagues (2008) with a comparison of the effects of tact, listener, and intraverbal training on the rate of native Icelandic speaking children's acquisition of Italian and the emergence of untrained foreign language relations. Listener training resulted in increases in tact and intraverbal responding but neither met criterion. Additionally, tact training led to successful emergence of listener relations. There were mixed results regarding the emergence of intraverbals. With native language translated to foreign language,

9

intraverbal training led to the fewest number of emergent relations. The authors concluded that, when teaching a new language, teaching one relation does not guarantee the emergence of other relations without explicit training.

Dounavi (2011) tested the effects of tact training and intraverbal training on foreign language acquisition with native Spanish speakers learning English using a transfer of stimulus control procedure. In the first phase, participants learned tact responses for 60 items, then the experimenters tested for intraverbal responses, both foreign-to-native and native-to-foreign. In the second phase, participants learned 60 intraverbal responses and the experimenters tested for the emergence of tacts. Dounavi reported that all training strategies produced increases in emergent relations. However, tact training was the most efficient teaching procedure for two reasons. First, it required fewer training trials than intraverbal training, and second, all untrained relations emerged and met criterion following tact training (Dounavi, 2011). Additionally, intraverbal training from native-to-foreign words resulted in more emergent responses and was therefore more efficient than foreign-to-native intraverbal training, which was possibly due to tact training resembling the native-to-foreign word relations.

Rosales and colleagues (2011) evaluated MET with typically developing children on establishing derived tact relations. First, the experimenter taught native Spanish-speaking participants to discriminate spoken English words in the presence of objects and tested for the derived tact relation. If the tact relation did not emerge, MET was implemented, directly teaching tact relations with novel stimuli. The experimenters then

tested for derived tact relations of novel stimuli, and found that MET was successful to varying degrees in facilitating these relations.

Gutierrez (2006) used tact and echoic training to teach a sequence of four Mandarin Chinese words, but focused on the role of response mediation on acquisition. Echoic and tact training were administered separately, and then joint-control training was used to produce joint tact and echoic control. Joint-control training consisted of the participant echoing a four-picture sequence and then placing the pictures in the correct order while repeating the Mandarin Chinese words aloud. Following joint-control training, Gutierrez blocked the mediation response by having participants recite a children's song. He showed that tact and echoic training were sufficient in training the four sequences to at least 80% accuracy, and that blocking decreased accuracy.

Each of these studies applied Skinner's (1957) functional analysis of verbal behavior that we often use with children with developmental delays with typically developing participants (Dounavi, 2011; Gutierrez, 2006; Petursdottir et al., 2008; Petursdottir & Hafliđadóttir, 2009; Rosales et al., 2011). A foreign language was the medium in which experimental effects were measured, but the actual teaching efficiency was not the primary goal. Nonetheless, this is a significant step in our field toward better understanding the components of learning complex verbal behavior. It is important to note that the use of a foreign language to study response mediation (Gutierrez, 2006) and equivalence relations (Dounavi, 2011; Petursdottir et al., 2008; Petursdottir & Hafliđadóttir, 2009; Rosales et al., 2011) was not a critical feature of these studies. In studying response mediation (Gutierrez, 2006), a variety of stimuli such as nonsense

words, novel words in the same language, or a particular sequence of known words could have been used to discover that response mediation is important to memorization and response blocking results in less accurate responding. Studies on equivalence relations have also shown that a variety of stimuli can be used to study emergence. However, trying to apply stimulus equivalence relations to foreign language acquisition could possibly lead to more efficient teaching strategies.

The underlying purpose of these studies (Dounavi, 2011; Gutierrez, 2006, Petursdottir et al., 2008; Petursdottir & Hafliðadóttir, 2009; Rosales et al., 2011) makes it difficult to translate the results into classroom contexts where students are expected to acquire a large repertoire in the new language. These studies focused on teaching small subsets of vocabulary from each language: 4-word sequences (Gutierrez, 2006), 12 words (Petursdottir et al., 2008; Petursdottir & Hafliðadóttir, 2009), and 24 words (Rosales et al., 2011)). Therefore, these results may be difficult to replicate at a more intensive level of instruction, such as classroom instruction when students must master large amounts of vocabulary. Dounavi (2011) extended this research to a larger subset of vocabulary (120 words) with adult learners, with a focus on effective second language instruction. This is an important step toward applying a functional analysis of verbal behavior to foreign language instruction.

Outside of behavior analysis, discussion of foreign language acquisition emphasizes different modes of learning or general theories of language instruction. The two main second language and foreign language teaching methods that are used today are communicative language teaching (CLT) and grammar translation method (GTM;

Hinkel, 2005). CLT, one of the most prevalent approaches to second language instruction in English-speaking countries, emphasizes oral communication skills and spoken fluency (Hinkel, 2005). This method encourages learners to attain fluency so that they can participate in meaningful conversations in settings where the foreign language is spoken (Hinkel, 2005). An overview of the core tenants of CLT promote language as a social tool for conversations that convey meaning. Competence is measured in relative rather than absolute terms. Culture plays a significant role in forming speakers' competence and the language must be used in a variety of contexts for many purposes to promote spoken fluency (Savignon, 2005). A criticism of CLT is the ambiguity of learners' goals using this method, as ultimately a learner must show conversational fluency (Savignon, 2005). Therefore, mastery of a language is highly dependent on context and the ability to convey and understand meanings, which does not lend itself well to a universal scale for assessing individual repertoires (Savignon, 2005).

Relating this theory of instruction back to Skinner's (1957) functional analysis, these core tenants could be rephrased in a way that looks at speaker-audience relations and functions of verbal behavior. CLT emphasizes a functional second language repertoire that allows one to be understood rather than using perfect grammar or vocabulary. Therefore, when a listener can understand a learner's ideas (i.e., tacts, intraverbals, and autoclitics) and requests (i.e., mands), the learner succeeded, even if the vocabulary and grammar is at times inaccurate. If the spoken communication is functional, then opportunities for reinforcement from the audience, or verbal community, increase. Therefore, CLT stresses function over form (as did Skinner) and provides a

framework for teaching a second language which aligns well with the goals of the verbal behavior community within behavior analysis.

Contrasting with CLT is GTM, which is more popular in countries where a second language is taught in a classroom setting and there are few opportunities to speak the language outside of the classroom (Hinkel, 2005). GTM focuses on teaching formal grammar and vocabulary, and the primary goal for learners is to prepare them to pass exams that determine future careers (Hinkel, 2005). The primary methods used are "grammar-based instruction, translation, rule memorization, [and] pattern practice..." (Fotos, 2005). However, there has been a shift in focus in the late 20th century from grammar instruction designed for the native speaker to pedagogical grammar, or grammar instruction designed to promote communicative fluency (Fotos, 2005).

While CLT looked at function over form, similar to Skinner's (1957) functional analysis, GTM stresses individual units of language and their accuracy. Intraverbal relations are drilled repetitively and language production is governed by memorizing grammatical rules. This type of instruction is similar to a discrete trial instruction (DTI), in which each individual answer is framed by an antecedent (i.e., a stimulus, such as the word to be translated or conjugated), the response (i.e.., the translation of the word), and a consequence (e.g., praise or correction) and rule-based learning. Moreover, GTM emphasizes form over function, relying on the assumption that learners must speak with accurate vocabulary, following certain rules of grammar to be understood. This is more similar to linguistic approaches to language acquisition than behavior analytic, despite the similarities to DTI.

In addition to these general theories which inform second language instruction, research has looked at the instructional environment or classroom setting and the most effective patterns of instruction and participation (Pica, 2009). One general finding is that explicitly teaching the form of the second language leads to more accurate and advanced second language acquisition than implicit approaches, which allow the students to discover rules and mistakes (Norris & Ortega, 2001). A second finding shows that connecting meaning to form in an explicit manner as well as including negative evidence (i.e., what something is *not*) is effective in making learners more aware of their own second language production and errors (Pica, 2009). Third, teachers who act as mediators by requesting clarification, providing confirmation, or recasting learners' speech production help learners focus on form and increase learners' comprehension.

While these general findings (Norris & Ortega, 2001; Pica, 2009) can help inform curricula, there is no description of how to implement teaching procedures reflecting these emphasis areas. Describing tactics in more detail and identifying functional relations are crucial steps toward disseminating effective instructional techniques into classrooms. Another problem is that this type of instruction requires a low student to teacher ratio, which oftentimes is preferred but is impractical. Therefore, further research on these findings in application settings can help maximize foreign language instruction with limited resources.

The goal of the current study was to begin a line of interdisciplinary research to identify effective strategies for teaching a foreign language in a classroom setting. Working with a community college in a midwestern city with an Italian studies learning

community (ISLC) promoting undergraduate students' knowledge of Italian language and culture, we compared the relative and combined effectiveness of two study tools on vocabulary acquisition and spoken second language performance: vocabulary banks and scripted conversations.

Teaching a broad range of vocabulary to a learner of a second language is an apparent goal regardless of the strategy used to do so. Many curricula will select which vocabulary to teach based upon the frequency distribution of words in that language, focusing on the subsection of words that appear a disproportionate amount of time in that language (Nation, 2005). For example, the ten most frequent words will account for about 25% of a text, and the 1,000 most frequent words will account for 70-80% of the text (Nation, 2005). Therefore, vocabulary instruction would likely focus on fluency of these most frequent 1,000 words. In addition to word selection, there are multiple levels of "knowing" a word to consider when developing a curriculum to teach vocabulary (Nation, 2005). There is a difference between knowing the form of the word (i.e., spelling and sound; loosely transcription or echoic relations), the meaning of the word (i.e., connecting the form to what it refers to; loosely tact or intraverbal relations), and how the word is used (i.e., the grammar, formality, and social appropriateness; loosely autoclitic relations; Nation, 2005, Skinner, 1957).

Four main strategies for learning vocabulary include guessing from context, learning from word cards, using word parts, and using a dictionary (Nation, 2005). Vocabulary banks are a common study tool in foreign language classrooms and are most similar to the second main strategy, learning from word cards. Rote memorization of a

large number of words is emphasized through both methods, though vocabulary banks present words and meanings side-by-side as opposed to on opposite sides of a paper. While vocabulary banks are frequently used in foreign language instruction, there is little research on the utility or effectiveness of them as a study tool for a second language. Typically, the teacher hands out vocabulary banks of a variety of types of words (e.g., nouns, verbs, and adjectives) and instructs the class to study them. At a subsequent class meeting, the instructor will administer a quiz to assess "language acquisition." However, this does not assess the students' ability to utilize the words in a functional and meaningful way. The use of vocabulary banks reflects the commonly-used GTM of classroom instruction, emphasizing translation over conversational context. Vocabulary banks were one of our independent variables.

We also analyzed the utility of scripted conversations, or a scripted dialogue based on a predetermined scenario, as study tools. We chose to utilize scripts based on preliminary research our lab had conducted with a group of students on a summer short-term study abroad experience in Italy (Cihon & Stephens, 2011) and the nature of the interdisciplinary collaboration (communication, theatre, and behavior analysis). Two professors, one of behavior analysis and one of theater and communications, formed a collaboration to study second language acquisition, Learning Community theory, and the scholarship of teaching and learning. Both professors participated in an interdisciplinary learning community comprised of students and professors interested in Italian language and culture. The ISLC was made up of American students who worked with an Italian dance company on a bilingual theatre production that was performed throughout Italy and

the United States. While communication was difficult between the English-speaking students and Italian-speaking dancers, the researchers observed students using lines from the script to initiate conversations (Cihon & Stephens, 2011). The current study sought to further explore the use of scripts in promoting spoken conversation in second language acquisition. Through the use of scripted conversation, this aspect of our research aligns with the goals of the CLT (Savignon, 2005) in that conversational fluency is emphasized in the classroom before students are immersed in the native Italian-speaking verbal community they would experience during the trip to Italy.

Our general questions were: (a) do vocabulary banks or scripts better aid the acquisition of a second language, (b) does spoken second language performance vary as a function of audience and (c) are students able to maintain and generalize the language they learn using these tools. These questions were assessed according to the following dimensions across experimental conditions: (a) number of words emitted and (b) number of Italian-Italian exchanges emitted.

METHOD

Participants and Setting

The experimenter described the study to 25 students and faculty enrolled in a Global Education Studies (GLE) 101 course at a midwestern community college. Twelve individuals consented to participation and two individuals withdrew consent before the study was completed. Experimenters excluded three participants' data from the analysis due to absences for more than 33% of data collection sessions. The data for seven individuals who participated in at least 66% of data collection sessions (see Table 1) were included in our data analysis. These individuals ranged in age from 20 to 46 years. Participants came from a variety of ethnic backgrounds, and ethnicity did not affect participation in the study. Of these seven participants, three had never participated in the ISLC, one had participated in the ISLC once, and three had participated in the ISLC at least twice.

On the first day of class, the professor gave a brief description of the research and provided the principal investigator's contact information and criteria for participation. If individuals were enrolled in GLE 101, had limited or no knowledge of the Italian language, and provided consent to participate, s/he was included in the study. The principal investigator briefed students who contacted her on the parameters of the study and provided a consent form. All participants had been or were currently involved in a study using See-the-Sound/Visual Phonics to aid in the correct production of Italian phonemes (cf., Cihon & Stephens, 2011; in press; Cihon et al., under review).

Experimenters conducted sessions on a weekly basis during the spring semester in the GLE 101 classroom at the community college. The class traveled together to Italy mid-semester for 10 days and retention and generalization were assessed following the trip.

Materials

Data collection materials included paper data sheets, pencils, and a video camera (either an iPhone 4G™ or a Sony® Bloggie™ MHS-CM5). Testing materials consisted of paper pretests (see Appendix A) with common vocabulary words and vocal verbal prompts to begin conversations during the experimental phases. Study materials included vocabulary banks and scripts. Vocabulary banks included word-for-word translation from Italian to English. Scripts did not include an English translation, but utilized words provided on that unit's vocabulary bank. Additionally, the professor read each script aloud to the class and answered any questions regarding translation before the students were required to study the scripts. Each study tool was broken into units according to the professor's course structure (see Table 2). Each unit had a corresponding vocabulary bank (Appendix B) and context specific script (Appendix C).

Procedure

For each course unit, the professor asked students to study a vocabulary bank for one week. In the subsequent class session, the experimenter asked participants to engage in a conversation using vocabulary from that bank. The professor gave participants a new vocabulary bank (next unit) and a script that corresponded to the prior week's vocabulary bank. In the next class session, the experimenter asked participants to engage in a

conversation using the script and to engage in a second conversation using the new vocabulary bank. This structure was followed for a total of five units (see Figure 1).

Conversations occurred in dyads. The experimenters initially paired students based on scores from an Italian vocabulary pretest administered prior to the onset of experimental conditions. The experimenter created dyads based on students with similar pretest scores. Dyads remained as consistent as possible; however, due to absences, dyads occasionally changed throughout the course of the study. As absences occurred, the experimenter rearranged student dyads based on the original vocabulary pretest scores, continuing to pair students with the most similar scores. As a result of rearranged student dyads, each participant had two to five different conversational partners (see Table 3). For each testing session (i.e., vocabulary bank and script conversations, retention checks, and generalization probes), the experimenter recorded the conversations using the video camera and delivered nonspecific praise at the end of the conversation to each participant, regardless of performance.

Traditional classroom instruction. The professor exposed participants to traditional classroom instruction on Italian language acquisition for 1 to 3 hrs per week. Typical classroom instruction included orientation to the course text book (Riga & Dal Martello, 2007); pronunciation rules; verb conjugation rules and practice; rules regarding parts of speech; basic sentence structure and formation; vocabulary acquisition and reinforcement; active student responding to instructor provided prompts in Italian; practice worksheets, listening sessions that included Italian radio, film, etc.; and study sessions arranged by the instructor or classmates that included native Italian speakers.

Italian vocabulary pretest. Participants took a pretest which consisted of a list of English words. Each participant filled in as many Italian equivalent words as possible (see Appendix A). The words were randomly selected from each of the five vocabulary banks used over the course of the semester, which had not yet been distributed to students.

Vocabulary banks. In the weeks preceding the study abroad trip (pretrip test conditions), the professor passed out vocabulary banks (see Appendix B) to each participant and delivered the instructions, "Study this vocabulary bank before next week's class. Next week in class, you will be asked to engage in a conversation in Italian with a partner using the vocabulary you studied." The following class period, the experimenter arranged student dyads and delivered the instruction, "Have a conversation related to (corresponding scenario) using as much of the vocabulary you can remember."

Scripts. In pretrip testing conditions, the professor passed out scripts (see Appendix C) to each participant and delivered the instructions, "Memorize this script before next week's class. Next week in class, you will be asked to perform the script and add to it with any additional vocabulary you see fit." The following class period, the experimenter arranged student dyads and the experimenter delivered the instruction, "Use the script as a basis for having a conversation related to (corresponding scenario). If you can, use the vocabulary you have learned to go beyond the script."

Script retention tests. Retention tests on the scripts were conducted approximately 2 months after the original testing over the course of two class periods. The professor did not tell participants about the retention tests prior to the class period to prevent

participants from studying the scripts prior to the checks. The experimenter delivered each of the five scenarios and said, "Have a conversation related to (corresponding scenario). Do your best to remember the scripts, and use any vocabulary you can remember to respond."

Script generalization tests. After participants completed script retention tests in student dyads, the script tests were repeated with a fluent Italian speaker - the course professor. He gave the same instructions as in the retention tests for each of the five scripts.

Novel generalization probes. Following the retention checks, the experimenter asked participants to have a conversation related to two novel scenarios (see Appendix D). The professor did not tell participants about the generalization probes prior to that class period. The experimenter delivered the first scenario to participants in student dyads (GP1) and delivered the second scenario to participants paired with a fluent Italian speaker (GP2). The instructions for both probes were, "Use the vocabulary you have learned to have a conversation related to (corresponding scenario)."

Social validity questionnaire. Participants completed a social validity questionnaire regarding components of the study (see Appendix E). Students rated the helpfulness of the vocabulary banks, scripts, and generalization probes using a 5-point Likert scale, and responded to several open-ended questions. These questions asked students about the number of hours they studied each week, what they liked most and least about the different study tools, and which made it easier to have a conversation.

Dependent Variable and Data Analysis

Several dependent variables were assessed in order to determine the utility of vocabulary banks and scripts. The primary dependent variables used for analysis included the number of Italian-Italian exchanges emitted in each conversation, the number of correct Italian words, the number of Italian words with grammatical error, the number of repeated Italian words, and the number of errors. The dependent variables and definitions are provided in Table 4.

To answer the question of study tool effectiveness, we analyzed the data in terms of the total number of Italian-Italian exchanges and Italian words emitted in each pretrip testing condition across all participants. We then divided participants into groups based on prior participation in the ISLC. There were three participants who had never participated in the ISLC (0 yr experience group), one participant who had participated once before, and three participants who had participated two or more times prior to the study (2 yr experience group). We omitted the participant who had participated once before to protect identity. Splitting the group of participants into subgroups based on prior experience showed more detailed information regarding individual differences in testing conditions. We, therefore, chose to present the group data by experience not by overall totals. Moreover, we analyzed post-trip retention and generalization data at the individual level to better show these differences.

We tabulated and graphed the total number of Italian-Italian exchanges and Italian words for each test conducted in each experimental condition. There were a total of five conversation tests in each experimental condition; however, we did not include these

24

graphs due to participant absences. Inconsistent participation in conversation quizzes made the total comparisons across conditions inaccurate. We chose, instead, to present these data for each participant by individual conversation quiz in the chronological order of testing.

We then created more specific categories of Italian word use: number of Italian words with grammatical error and number of repeated words. This provided a measure of response accuracy and variability by experimental condition.

Experimental Analysis

We used a modified alternating treatments design (Barlow & Hayes, 1979) to examine the differences in the number of Italian-Italian exchanges and Italian words after studying vocabulary banks and scripts. The alternating treatments design was modified due to the change of study materials within each condition. While the design alternated between vocabulary bank and script study tools, after the first week (vocabulary bank only) participants had a script and a new vocabulary bank each week. Rather than a rapid alternation of two experimental conditions, testing conditions alternated but participants had access to material corresponding to each independent variable simultaneously. In essence, the design allowed us to explicitly test the additive effects of scripted conversations over the use of vocabulary banks alone.

Independent Variables

The primary independent variables were the study materials given to participants (i.e., the vocabulary banks and scripts). Independent variables also included the vocal

verbal scenarios presented during each experimental testing session and the number of

years of prior experience in the ISLC each participant had.

<center>Interobserver Agreement (IOA)</center>

IOA data were collected for two data collection methods: transcribing

conversations from the videotaped sessions and scoring the dependent variables.

Research assistants transcribed 38.5% of videotaped sessions across all test conditions.

IOA for transcriptions was 89.2% (range, 71.4% to 100%). Then, the experimenter

trained research assistants to identify the Italian vocabulary and phrases used within this

study. Research assistants conducted a frequency count of the dependent variables using

the primary experimenter's transcripts. IOA was determined by counting the number of

agreements and disagreements for each session, and dividing the total agreements over

the total agreements and disagreements and multiplying by 100. IOA was calculated for

at least 36% of conversations within each test condition. Across dependent variables and

test conditions, IOA ranged from 80.0% to 100% (see Table 5).

<center>Treatment Integrity</center>

The experimenters collected treatment integrity data for the instructor's delivery

of group instructions to the class when presenting both vocabulary banks and scripts for

each unit (see Appendices F and G). The experimenters also collected treatment integrity

data during vocabulary bank and script testing sessions, retention sessions, and

generalization sessions. Treatment integrity was scored for the delivery of instructions

(including reading the correct prompt), starting and stopping the video camera, and the

delivery of nonspecific praise (see Appendices H, I, and J).

<center>26</center>

We calculated treatment integrity by dividing the number of steps the experimenter completed correctly by the total number of possible steps. We assessed treatment integrity for 80% of group instruction and for at least 37% of testing sessions across conditions. Treatment integrity for group instruction was 100%. Treatment integrity for vocabulary and script testing sessions averaged 100% and 99% (range, 75% to 100%), respectively. Treatment integrity for script retention checks, script generalization tests, and novel generalization probes both in student dyads and with the fluent Italian speaker was 100%.

RESULTS

Pretrip Group Data

The participants with no prior ISLC membership engaged in more Italian-Italian exchanges (Figure 2; top panel) and emitted more Italian words (Figure 2; bottom panel) after studying scripts than after studying vocabulary banks. In contrast, the participants with two or more years of ISLC membership engaged in more Italian-Italian exchanges (Figure 2; top panel) and emitted more Italian words (Figure 1; bottom panel) after studying vocabulary banks than after studying scripts.

Individual Data

Data are displayed in two graphs for each participant: the top panels show the number of Italian-Italian exchanges across vocabulary bank and script tests and the bottom panels show the number (and type) of Italian words emitted across vocabulary bank and script tests. The test conditions are presented in chronological order along the x-axis, beginning with vocabulary bank (VB1, VB2, etc.) and script (S1, S2, etc.) tests conducted prior to the study-abroad trip. Posttrip conditions include retention of scripts in student dyads (RS1, RS2, etc.), generalization of scripts with a fluent Italian speaker (GS1, GS2, etc.), and the novel generalization prompts, one with another student (GP1) and one with a fluent Italian speaker (GP2). Each of the graphs have a series of diamonds (for script tests) indicating how many exchanges or words were in the original scripts for each unit and for the "role" the student played during that test condition. In the graphs in the bottom panels, Italian words are broken into three types: first instances (the first time

a grammatically correct word was emitted in each conversation), grammatical errors (each instance of a grammatical error), and repeats (each word following the first instance within the conversation). Each vertical bar represents the total number of Italian words spoken, with the proportion of first instances, grammatical errors, and repeats displayed within each stacked bar.

BB. BB engaged in more Italian-Italian exchanges during script tests than vocabulary bank tests for all pretrip tests (Figure 3; top panel). Each script test showed more exchanges than during vocabulary bank tests from that same unit (e.g., the increase from VB1 to S1, and then again from VB2 to S2). The number of exchanges BB emitted during the first four script tests matched the total possible exchanges programmed in the scripts. Posttrip data showed that BB engaged in more Italian-Italian exchanges during the generalization tests with a fluent Italian speaker than during the retention tests with peers. Particularly, BB engaged in fewer Italian-Italian exchanges across retention scripts 3-5 than retention scripts 1-2, but engaged in a higher number of exchanges across these units when tested with a fluent Italian speaker (GS3-GS5). The number of exchanges during the first generalization probe with peers was comparable to most posttrip tests, while the number of exchanges emitted in the second generalization probe with a fluent Italian speaker exceeded any previous test.

Overall, BB emitted more Italian words during script tests than vocabulary bank tests in pretrip sessions (Figure 3; bottom panel). This pattern is evident across the first two units (see VB1 to S1 and VB2 to S2). However, responding dropped across the last three units and the reverse pattern is seen: BB emitted slightly more words in VB3 (as

compared to S3) and in VB4 (as compared to S4). The number of grammatical errors and repeated words was low across pre-trip tests regardless of study tool format. BB emitted fewer words than were in the original script for all pretrip script tests. In posttrip tests, BB emitted a similar number of words across script retention checks with peers (RS1-RS5) and script generalization tests with a fluent Italian speaker (GS1-GS5). While the total number of words increased in posttrip test conditions, the number of first instances in any one test condition did not notably increase. Rather, the number of repeated words increased. The number of words BB emitted during GP1 (student dyad) was consistent with previous testing conditions, but there were more grammatical errors. When generalization was tested with a fluent Italian speaker, BB emitted over twice as many words as in any previous conversation, yet many were repeated words.

CA. CA engaged in more Italian-Italian exchanges in script tests as compared to vocabulary bank tests before the trip (Figure 4; top panel). In units 2 and 3, the number of exchanges was notably higher in script tests (S2 and S3) than in vocabulary bank tests (VB2 and VB3). This comparison cannot be made for units 1 and 5 due to absences; however, the number of exchanges remained high for the script tests that were conducted. In four of the five pretrip script tests, CA emitted the total possible exchanges, and sometimes exceeded this number. During posttrip tests, CA engaged in fewer Italian-Italian exchanges in script retention checks than script tests before the trip.

CA emitted more Italian words during script tests than vocabulary bank tests before the trip (Figure 4; bottom panel). In units 2 and 3, the number of Italian words was notably higher in script tests (S3 and S4) than in vocabulary bank tests (VB2 and VB3).

30

This comparison could not be made for units 1 and 5 due to absences; however, the number of Italian words remained high for the script tests that were conducted. The number of grammatical errors and repeated words were low across script tests, and did not occur in vocabulary bank tests. In three of the five pretrip script tests, CA emitted nearly as many Italian words as were in the original script (S2, S3, and S5). During posttrip tests, CA emitted fewer Italian words in script retention checks than script tests before the trip, and notably fewer words than were in the original scripts. The number of grammatical errors remained low across retention test conditions, but the proportion of repeated words (as compared to first instances) increased in two script retention tests (RS2 and RS4). CA was absent during generalization probes.

KA. KA engaged in more Italian-Italian exchanges in script tests as compared to vocabulary bank tests before the trip (Figure 5; top panel). In units 2 and 3, the number of exchanges was notably higher in script tests (S2 and S3) than in vocabulary bank tests (VB2 and VB3). This comparison cannot be made for units 1 and 5 due to absences; however, the number of exchanges remained high for the script tests that were conducted. In four of the five pretrip script tests, KA emitted the total possible exchanges, and sometimes exceeded this number. Post-trip data showed that KA engaged in more Italian-Italian exchanges during the generalization tests with a fluent Italian speaker than during the retention tests with peers. The number of exchanges during the first generalization probe with peers was comparable to most prior tests, while the number of exchanges emitted in the second generalization probe with a fluent Italian speaker exceeded any previous test.

KA emitted more Italian words during script tests than vocabulary bank tests (Figure 5; bottom panel). In units 2 and 3, the number of Italian words was notably higher in script tests (S3 and S4) than in vocabulary bank tests (VB2 and VB3). This comparison cannot be made for units 1 and 5 due to absences; however, the number of Italian words remained high for the script tests that were conducted. The number of grammatical errors and the number of repeated words was low across all pretrip tests regardless of study tool format. In four of the five pretrip script tests, KA emitted a similar number of Italian words as in the original scripts, and either exceeded the original number (S1 and S2) or emitted slightly fewer words than were included in the script (S3 and S5). During posttrip tests, KA emitted a similar number of words across script retention checks with peers (RS1-RS5) and script generalization tests with a fluent Italian speaker (GS1-GS5). KA emitted fewer Italian words in script retention checks than pretrip script tests. The number of grammatical errors remained low across retention and generalization test conditions, but the proportion of repeated words was higher in three script retention tests (RS3, RS4, and RS5) and all script generalization tests. The number of words KA emitted during GP1 (student dyad) was consistent with previous tests, but there was a larger proportion of repeated words. When generalization was tested with a fluent Italian speaker, KA emitted over twice as many words as in any previous conversation, yet nearly half of these words were repeated words.

DS. DS engaged in slightly more Italian-Italian exchanges during vocabulary bank tests than script tests for each unit tested pretrip (Figure 6; top panel). The number of exchanges increased in the first unit from vocabulary test to script test (i.e., from VB1

to S1), and the number of exchanges in the script test exceeded the number in the original script. However, for units 2 through 4, the number of exchanges decreased from vocabulary bank tests to script tests (e.g., from VB2 to S2). This comparison cannot be made for unit 5 due to absences. During posttrip tests, DS engaged in a similar number of exchanges across script retention checks with peers (RS1-RS5) and script generalization tests with an Italian speaker (GS1-GS5). The number of exchanges during the first generalization probe with peers did not exceed any posttrip tests, while the number of exchanges emitted in the second generalization probe with a fluent Italian speaker exceeded any previous testing session.

DS emitted more Italian words during script tests in the first two units (see VB1 to S1 and VB2 to S2), and emitted a similar number of Italian words across both vocabulary tests and scripts in units 3 and 4 (see VB3 to S3 and VB4 to S4 in Figure 6; bottom panel). This comparison cannot be made for unit 5 due to absences. Responding decreased across all tests for the last three units. For most tests, the number of grammatical errors and repeated words was low across pretrip tests regardless of study tool format (with the exception of VB2, in which grammatical errors and repeats were high). DS emitted fewer words than were in the original script for all pretrip script tests, but was closest to the total possible words in units 1 and 2. In posttrip tests, DS emitted a similar number of words across script retention checks with peers (RS1-RS5) and script generalization tests with an Italian speaker (GS1-GS5), without a notable increase in grammatical errors and repeated words. The number of words DS emitted during GP1 (student dyad) was much higher than previous testing conditions, but there was a higher

proportion of repeated words. The number of first instances was similar to previous conditions. When generalization was tested with the fluent Italian speaker, DS emitted more words as in any previous conversation, yet again many words were repeated.

PG. PG engaged in more Italian-Italian exchanges in script tests as compared to vocabulary bank tests before the trip (Figure 7; top panel). In units 1-3, the number of exchanges was notably higher in script tests (S1 through S3) than in vocabulary bank tests (VB1 through VB3). The number of exchanges in the vocabulary bank and script tests in unit 4 (VB4 and S4), and in unit 5 was higher in the vocabulary bank tests as compared to the script tests (VB5 and S5). In three of the five pretrip script tests (S1-S3), PG exceeded the number of exchanges in the original script. Posttrip data showed that PG engaged in more Italian-Italian exchanges during the retention tests with peers than during the generalization tests with a fluent Italian speaker. The number of exchanges during the first generalization probe with peers was slightly higher than most previous tests, while the number of exchanges emitted in the second generalization probe with a fluent Italian speaker exceeded any previous testing session.

PG emitted more Italian words during script tests than vocabulary bank tests for three units (S2, S3, and S4) and a similar number of words across both tests in two units (S1 and S5, see Figure 7, bottom panel). The number of repeated words and grammatical errors varied across pretrip tests regardless of study tool format, at times accounting for a just a few words in that test (e.g., VB2 and VB3), and at other times, accounting for nearly half of the words in that test (e.g., VB1 and S1). In four of the five pretrip script tests, PG exceeded the number of Italian words in the original script (with the exception

of S2). During posttrip tests, PG emitted a similar number of words across script retention checks with peers (RS1-RS5) and script generalization tests with a fluent Italian speaker (GS1-GS5), and the number of words was similar in posttrip tests compared to pretrip tests. As in pretrip tests, the number of grammatical errors and repeats varied in posttrip conditions from a small number (RS3 and RS5) to over half of the conversation (e.g., RS1 and GS3). The number of words PG emitted during GP1 (student dyad) was higher than previous testing conditions, but there was a large proportion of repeated words that account for more than half of the total number of words. Thus, the number of first instances was not notably more than in previous tests. When generalization was tested with the fluent Italian speaker, PG emitted more words than in any previous conversation, yet again many words were repeated.

BW. BW engaged in more Italian-Italian exchanges in vocabulary bank tests as compared to script tests before the trip (Figure 8; top panel). BW exceeded the total possible exchanges in only two of five pretrip script tests (S2 and S3). Posttrip data show BW engaged in slightly more Italian-Italian exchanges during the retention tests with peers than during the generalization tests with a fluent Italian speaker. The number of exchanges during the first generalization probe with peers was comparable to pretrip vocabulary tests, while the number of exchanges emitted in the second generalization probe with a fluent Italian speaker far exceeded any previous testing session.

BW emitted more Italian words during script tests than vocabulary bank tests for the first two units and more Italian words during vocabulary bank tests than script tests for the latter three units (see Figure 8; bottom panel). The number of repeated words and

grammatical errors varied across pretrip tests regardless of the study tool, sometimes accounting for just a few words in that test (e.g., S4), and sometimes accounting for nearly a third of the words in that test (e.g., S2 and VB3). In four of the five pretrip script tests, BW exceeded the number of Italian words in the original script (with the exception of S1). During posttrip tests, BW emitted more words across script retention checks with peers (RS1-RS5) than script generalization tests with an Italian speaker (GS1-GS5). The total number of words decreased from pretrip to posttrip test conditions. As in pretrip tests, the number of grammatical errors and repeats varied in posttrip tests from a few (GS1 and GS4) to nearly half of the conversation (e.g., RS5 and GS2). The number of words BW emitted during GP1 (student dyad) was higher than previous testing conditions, but there were more repeated words, accounting for almost half of the total words. Thus, the number of first instances was not notably more than previous tests. When generalization was tested with the fluent Italian speaker, BW emitted more words than in any previous conversation, yet again many words were repeated.

LP. LP engaged in more Italian-Italian exchanges in vocabulary bank tests as compared to script tests before the trip (Figure 9; top panel). Across units 2 through 4, LP engaged in notably more exchanges in vocabulary bank tests as compared to script tests. This comparison cannot be made for unit 5, due to absences; however, the number of exchanges remained high for the vocabulary bank test conducted in that unit. LP met or exceeded the total possible exchanges in three of four pretrip script tests (S1, S2, and S3). Posttrip data showed that LP engaged in slightly more Italian-Italian exchanges during

the retention tests with peers than during the generalization tests with a fluent Italian speaker. LP was absent during generalization probes.

LP emitted more Italian words during vocabulary bank tests than script tests before the trip(Figure 9; bottom panel). The number of repeated words and grammatical errors varied across pretrip tests, sometimes accounting for relatively few words in that test (e.g., S1 and S4), and sometimes accounting for nearly half of the words in that test (e.g., VB4 and VB5). In three of the four pretrip script tests, LP exceeded the number of Italian words in the original script (with the exception of S4). During posttrip tests, LP emitted a similar number of Italian words in script retention checks with peers (RS1-RS5) and script generalization tests with a fluent Italian speaker (GS1-GS5). The number of words decreased overall from pretrip to posttrip conditions. As in pretrip tests, the number of grammatical errors and repeats varied in posttrip conditions, from just a few (e.g., RS3) to over half of the words emitted (e.g., RS4 and GS1). LP was absent during generalization probes.

Social Validity Questionnaire

Four participants returned social validity questionnaires. All participants found the vocabulary banks ($M = 4.75$; range, 4 to 5) and scripts (all participants ranked them as a 5) helpful based on a 5-point Likert scale rating. Participants liked that the vocabulary banks provided English translations and thought they were well organized, but did not like the number of words included. They reported that there were too many words to memorize each week. Participants indicated that the scripts were helpful because they were based on situations which they would likely encounter in Italy. One respondent

reported this made it easier to have a conversation. However, two participants reported

that the scripts were difficult to memorize or were stressful. One participant elaborated on

each study tool's utility, stating that "...the scripts showed how to use words in a

sentence, so I could just make it up as I went along, and the vocabulary banks gave me

the words to improvise with. Both had their strengths and weaknesses, but without both I

don't feel I could have talked to the locals in Italy as many times as I did." Additionally,

respondents noted that the generalization probes with the fluent Italian speaker were very

helpful (all participants ranked them as a 5), and in three of the four questionnaires, they

noted that it was more helpful than the script retention checks with another student ($M =$

3.75; range, 2 to 5). One respondent commented that s/he could understand more than

s/he could say, so speaking with another non-fluent student was more difficult.

DISCUSSION

Overall, the results suggest that participants respond differentially to vocabulary banks or scripts as study tools. The data suggest that these differences may be a function of experience with the language. Specifically, those with no prior ISLC membership engaged in more Italian-Italian exchanges and emitted more Italian words after studying scripts, whereas those with two or more years of prior ISLC membership engaged in more Italian-Italian exchanges and emitted more Italian words after studying vocabulary banks. For the three participants who had no prior ISLC membership, the number of Italian-Italian exchanges and Italian words increased after they received the scripts associated with the conversation prompt. In most script tests, the number of Italian-Italian exchanges and words approached or matched the number of exchanges and words in the original scripts. For the participants who had previous ISLC membership, the number of exchanges or words typically exceed the possible exchanges or words in the original scripts, but these participants performed best prior to receiving the scripts (i.e., after receiving only the associated vocabulary bank). There is not a notable difference in terms of Italian-Italian exchanges or Italian words between posttrip script retention and script generalization tests for all participants. However, several participants (BB, CA, KA, and DS) emitted more repeated words in posttrip tests than in pretrip tests. There are not noticeable differences in grammatical errors between pre and posttrip tests, as grammatical errors were generally low in each conversation. Finally, all participants for whom novel generalization probes were conducted engaged in the highest number of

39

Italian-Italian exchanges and emitted the highest number of words in the novel

generalization probe test with a fluent Italian speaker. The number of repeated words also

increased in these tests, while the number of grammatical errors remained consistent

across tests.

Perhaps most importantly, the results indicate that each participant acquired some

Italian using the two study tools. This is indicated based on the overall increases in

Italian-Italian exchanges and Italian words emitted throughout the course of the study.

These data suggest that instruction combined with these study tools is at least moderately

effective in teaching basic Italian. Similar levels of performance during generalization

tests with peers and notably higher levels of performance in generalization tests with the

fluent Italian speaker (see discussion of audience below) suggest that the acquired Italian

language repertoires were flexible and could be recombined under novel stimulus

conditions (cf., Alessi, 1987).

The finding that different study tools were more or less useful for different

participants, seemingly based on prior language experience, has implications for those

teaching or learning a foreign language. Participants who were early learners emitted

more responses in script tests, suggesting that the scripts helped aid communication. Each

script included important language-specific features, such as sentence structure

(adjective-noun agreement or ordering), sentence (autoclitic) frames (e.g., "I need" or "I

want"), verb conjugations, and other components critical to organizing coherent

sentences. In addition, the early learners frequently matched the number of exchanges or

words they emitted to the numbers in the original scripts, suggesting that scripts were

memorized in their entirety. On the other hand, those participants who had previous experience with the Italian language engaged in more exchanges and emitted more words during vocabulary bank tests. In fact, these participants often emitted fewer words or exchanges after receiving the script. It is possible that these participants had a basic understanding of Italian linguistic structure and were more easily able to recombine old and new repertoires into novel utterances. The scripts may have created a ceiling for these participants. Understanding when and how second language learners begin to recombine features of the language can inform teaching practices suggesting when instructors should use specific teaching strategies or change teaching strategies based on student performance.

Many phrases that repeated across the programmed scripts involved autoclitic frames for self-descriptive behavior (Skinner, 1957), such as "I want" or "I need." These autoclitic frames provided a few important phrases that might have promoted expansion if recombined with the vocabulary included in the vocabulary banks. In other words, autoclitic frames helped "...transform minimal recombinative repertoires into other novel repertoires" (Alessi, 1987, p. 15). More research is needed to study how teaching autoclitic frames plus vocabulary affects second language acquisition. For example, one question might be which frames (autoclitic-mand or autoclitic-tact) more easily lead to recombination with new vocabulary under what conditions?

The variation in responding across learners by study tool type can be interpreted from a theatre perspective. The script condition more closely resembles that of traditional performance methods in which actors are given a script, asked to memorize their lines,

41

and then perform. The vocabulary bank condition resembles theatre training for improvisation in which actors are given a context but no script. In relation to foreign language acquisition, the types of repertoires we seek to develop more closely align with what occurs during improvisational performances. However, without particular prerequisite skills (i.e., the ability to combine words to form sentences and some vocabulary), it is difficult to create a successful improvisational conversation. This study brought both theatre methods into a foreign language acquisition context and found differential effects based on previous repertoires. The scripts in this study provided these prerequisite skills for learners with less experience with the Italian language while simultaneously testing improvisational conversations during vocabulary bank tests for all learners to determine when these begin to develop. As discussed earlier, however, the scripts in a second language acquisition setting may have created a ceiling effect. Due to typical classroom contingencies (e.g., memorizing study materials for a test), participants may have placed more importance on showing they could memorize the scripts word-for-word rather than the ability to improvise, which is the ultimate goal for second language acquisition.

In posttrip tests, all participants retained some Italian language, but how much of that language matched the programmed script is unclear. We were initially interested in which study tool differentially strengthened particular verbal responses. For example, to what degree did participants use the words from the current unit, words from the previous units, and words that were not taught within the context of the study. This would allow us to measure how much of the original scripts were retained word-for-word versus

improvised. However, the sheer number of words included in each condition in addition to the frequency and repetition of many words, especially articles and pronouns, made it difficult to classify words as "current" or "previous." Therefore, we chose to exclude these data from our current analysis. While the results indicate some language was retained, it is possible that participants improvised with other Italian words rather than retaining the scripts.

In script retention tests with peers, there were not large differences between the number of exchanges and the number of words emitted in pretrip script tests and posttrip script retention tests with peers. The participants with no prior ISLC membership who had emitted nearly the same number of words in most pretrip script tests (CA, KA, and DS) did not reach these numbers in retention tests, suggesting they did not retain some parts of the scripts. However, while total word counts looked similar across pre and posttrip tests, the proportion of repeated words increased across posttrip script retention checks for most participants (BB, CA, DS, and PG). There were not noticeable trends in the number of grammatical errors emitted.

Similar patterns occurred in posttrip script generalization tests with the fluent Italian speaker. While there were slight increases in the number of Italian-Italian exchanges emitted with a fluent Italian speaker for some participants (BB and KA), there were also slight decreases in the number of Italian-Italian exchanges emitted for others (PG and BW). No one showed large variations in the number of Italian words emitted between script retention and script generalization tests. It is possible the proposed ceiling effects of the scripts suppressed potentially larger differences, and that participants felt

43

constrained to the scripts regardless of the audience. However, there was an increase in repeated words from pretrip script tests to posttrip script generalization tests with a fluent Italian speaker for several participants (BB, KA, and DS). Once again, there are no clear patterns in terms of the number of grammatical errors emitted.

A functional approach to verbal behavior identifies audience as an important factor that influences verbal behavior (Skinner, 1957). An audience can act as a discriminative stimulus for verbal behavior. You might talk about your weekend plans with your best friend, but not with a co-worker. Moreover, the audience is responsible for mediating the reinforcement for verbal behavior. For example, if you speak Italian to a non-Italian speaking audience, they would likely not reinforce that behavior. They may ask you "what did you say?" in order to determine how to provide reinforcement, or they may ignore your utterance. Audience relations made conversations in student dyads difficult at times. Each participant acquired Italian vocabulary and linguistic structure at a different pace, and if a speaker had more Italian language fluency than the listener, opportunities for reinforcement were limited. On the other hand, conversations with a fluent Italian speaker reversed these contingencies. In these conversation tests, participants had more opportunities to emit echoic relations and potentially more opportunities for reinforcement because of the listener's vast Italian repertoire. The data collected in the novel generalization probes highlight how audience variables may affect the emission of a new language. All participants emitted more Italian-Italian exchanges and more Italian words in this test condition than any other test condition over the course of the study. Further research examining variables that can be strategically manipulated

with respect to the role of audience in second language acquisition could provide useful information for structuring teaching and testing conditions.

Participants repeated more words following the trip to Italy than before the trip to Italy. Certain response forms might have been strengthened during the study-abroad experience. For example, "andiamo" (i.e., "let's go") became a very popular word among members of the ISLC while in Italy and for some period of time after return. One person would shout "Andiamo!" when it was time to move to the next location, and everyone in the group would start to shout "Andiamo! Andiamo!" Skinner (1957) stated that immediate repetition of a response is an indication of strength. Within each conversation, participants repeated words. It is possible that those responses repeated can be interpreted as responses that were stronger in each participant's repertoire.

The nature of our design suggests that certain response forms could have strengthened in a variety of different ways. First, there were words that commonly repeated across the scripts out of necessity to create coherent conversations, such as pronouns, articles, and autoclitic frames to name a few. There are common words in any language that naturally repeat a disproportionate amount of times (e.g., the ten most common words account for 25% of a sample; Nation, 2005). Therefore, some repeated words are to be expected within any conversation, and the scripts programmed for certain words to be repeated and may have aided in strengthening certain words. Second, the study abroad experience likely strengthened certain response forms because words were more frequently used due to the situations experienced. For example, words to order food such as "vorrei" (i.e., "I would like") were used at every meal, compared to words for

asking directions which were needed less often, if at all. Therefore, particular words were repeated in multiple contexts throughout the study abroad experience, reinforced by an Italian-speaking audience, and subsequently strengthened. Third, the ISLC acted as a verbal community for participants, providing a learning environment in which to ask each other the meanings of particular Italian words and to practice together. Through this active learning process, words were selected and repeated more frequently than others, resulting in reinforcement opportunities and repetition of these words throughout the learning experience (as in the example with "andiamo!" above). What this study did not provide information on was which specific words were repeated. Analyzing conversations in this way could provide a better understanding of Skinner's analysis of repetition and strength. Future research should examine the effects of repetition within study tools, study abroad experience, and learning communities on the strength of foreign language repertoires, while accounting for those words which naturally appear in that language more frequently.

We attempted to analyze conversations according to Skinner's (1957) verbal operants, including mands, tacts, intraverbals, and autoclitics. There is a need to study these operants in more complex verbal behavior (Critchfield, 2010; Dixon et al., 2007; Miguel, 2011), yet there should be preliminary research identifying sources of control before applying the operants as they are currently defined to entire conversations. It was difficult to identify the functions of speech looking at transcripts of conversations. Nearly every word was multiply controlled in some combination. It was difficult to gain IOA particularly when deciphering what would constitute a tact, mand or autoclitic tact or

autoclitic mand frame due to the subjective nature of functionality as it relates to verbal behavior post hoc. Even after a preliminary analysis of conversations by verbal operant, we found ourselves asking how this analysis would lead us to any new conclusions or recommendations for teaching and research. We were not able to make conclusions based on the conversations scored, and found that simply categorizing the operants was lacking utility for predicting and controlling behavior. It may be that "...operants, itemized individually, do not define or capture the essence of conversations. More likely, *sequences* and *interactions* of primary verbal operants defined different kinds of conversations" (Critchfield, 139). These data lead us to agree with Critchfield (2010) and prompt a number of ideas for additional research in this area.

A major limitation of the current study was that experimenters did not control for the number of words in the vocabulary banks and the scripts. Each vocabulary bank and script varied in the total number of words and word classification (e.g., noun, verb, etc.). Some words were repeated across units, particularly across and within the scripts. Most words and phrases that were disproportionately repeated were pronouns and articles, which is in accordance with natural repetitions of a small subset of vocabulary in any language (Nation, 2005). The scripts would have been incoherent had we controlled for repeated words. Nonetheless, this prevented us from analyzing participant conversations in terms of the number of words from current or previous units. Controlling the number of words in each study tool and the number of repeated words within each tool should be considered for future research. Perhaps comparisons of different study tools would lend themselves better to this type of analysis (e.g., tact training as compared to intraverbal

training for vocabulary acquisition).

A second limitation was the use of the fluent Italian speaker only during retention and generalization tests. No data were collected during teaching or before the trip with a fluent Italian speaker as the conversational partner. As a result, we could not assess the role of audience on pre and posttrip script tests. Another benefit of participants conversing with a fluent Italian speaker in pretrip tests is that more opportunities for feedback and reinforcement during the learning phases, rather than retention and generalization, may have promoted language acquisition.

Third, there were several logistical issues that occurred throughout the study. Some of these revolved around video taping technology, such as a few instances where conversations were lost or cut off due to the video itself. Some participants spoke too softly (perhaps another indicator of strength) and certain words or phrases could not be heard at the time of transcription and scoring. While these issues eliminated a few words or sentences from data analysis, it is still recommended to video tape conversations for scoring purposes rather than scoring in-vivo for the added benefits of repeating the conversations and pausing to make accurate transcripts. Other logistical problems arose from absences throughout the study, which caused some student dyads to be unevenly matched in terms of language fluency. However, there may be benefits to pairing students with a variety of conversational partners in terms of teaching for generalization (Stokes & Baer, 1977). Finally, there were no programmed contingencies for memorizing the scripts or studying the vocabulary banks. Participants were expected to respond to the same conversational prompts for a final grade at the end of the class, but participation in

48

weekly conversation dyads did not affect their grade in the class. Therefore, while participants generally came to class prepared, there were weeks where they came unprepared for the conversation and either chose to not participate or were limited in how much they could participate. For example, some conversations consisted of one exchange: Participant one says, "Ciao!" and Participant two responds, "Ciao. Arrivederci." and ends the conversation). This led to incomplete data sets for most participants. Had grade contingencies been in place weekly, it is likely absences would have decreased and quality of conversations would have improved. Future research should explicitly arrange the language course contingencies to promote preparing for each test and active participation across conditions.

Finally, the design of the study may have been a limitation for identifying the specific effects of each study tool independent of one another. There was a relatively short amount of time to give participants a functional Italian repertoire before embarking to Italy mid-semester. Additionally, we tried to achieve this within the context of a global education course, which taught cultural and historical components of the study abroad experience in addition to language, rather than a course which focused only on second language acquisition. Therefore, after the first week we tested both a script from the previous week's unit, and the vocabulary bank from the current week's unit. Though two different prompts were delivered for each corresponding with the vocabulary taught in the different units, it is possible that participants may have used both study tools to have a conversation about both prompts. This is less likely for the participants with no prior ISLC membership because of the evidence of script memorization, but is more likely for

those with more language experience who did not clearly memorize scripts word for word. On the other hand, participants may have chosen to study one or the other tool at any time and improvise for the condition for which they did not study. The vocabulary banks contained a large amount of vocabulary (e.g., 146 words), providing several pages of Italian words with English translations, whereas the scripts were brief containing up to three or four exchanges. Those participants with no prior membership in the ISLC may have shown an increase in script conditions because this was the only study tool they accessed. It may have been preferred due to its length and the information it provided regarding sentence structure. This would explain the few words and exchanges emitted during vocabulary bank conditions. In future studies, it would be advisable to test different study tools on different weeks to more clearly analyze the effects of each.

We have considered a plethora of extensions to this study; one of the strengths of this study is that it has created more questions than it has answered. For example, we are still interested in the differential effects of vocabulary banks and scripts on second language acquisition. Extensions of this sort might bring in methods from theatre and performing arts (i.e., improvisation or script) and behavior analytic strategies such as data-based decision making for individual learners to better inform teaching strategies. Specifically, we are interested in identifying at what point in language acquisition do vocabulary banks become more useful for aiding in conversations. Within the interdisciplinary context, we also hope to utilize verbal operant analyses such as autoclitic-mand and autoclitic-tact frames in combination with other response topographies as dependent variables. Moreover, there are a number of other commonly

used study tools such as flashcards or asking students to translate conversations that may provide added benefit to learners of a new language. It is likely that a combination of instructional strategies (CLT & GTM, scripts and improvisation, DTI and natural environment training) will lead to the most fluent and flexible second language repertoires. Research that explicitly arranges various combinations of interdisciplinary strategies and systematically measures the effectiveness in combination and alone will have great implications across a variety of disciplines. Some of our questions with respect to verbal behavior and a functional analysis of language acquisition are related to the role of audience, the notion of the strength of verbal behavior, and how we define and measure "conversational fluency." More questions with respect to the verbal operants include the potential benefits of framing dependent variables as specific verbal operants or arranging controlling variables consistent with these operants (e.g., establishing motivating operations, the role of text or of a nonverbal stimulus), and potential contributions of adding the autoclitic to our instruction or data analysis.

While sifting through the opportunities to extend this research, we chose to control for some of the limitations within this study and further investigate foreign language acquisition using a functional analysis. In the current extension, we are comparing vocabulary banks which use word to word translations (intraverbal relations) and vocabulary banks which use picture to word translations (tact relations). We are controlling for the number of words in each vocabulary bank as well as eliminating any repeated words across banks. Two dependent variables will be used to compare these two strategies, vocabulary quizzes and conversation quizzes similar to the script tests;

however, this extension does not provide scripts for student dyad conversations. Vocabulary quizzes will compare the accuracy of intraverbal and tact relations between the two conditions (word to word and picture to word translations). We hope to find differential effects of the two study tools not only on language acquisition, but on emergent relations as well. Therefore, after participants study vocabulary banks where only word to word translations were provided, we are also testing tact relations by presenting pictures and asking for the Italian word. Second, conversation quizzes will allow us to determine the conversational fluency that arises from each study tool, looking at the number of words per minute and other factors. We have also developed a rubric that will serve as an initial tool for assessing what is meant by "conversational fluency". This extension will examine second language acquisition from a functional perspective while accounting for some of the limitations within the current research.

This study has several important implications that deserve further attention. Most importantly, this research initiates a line within the behavior analytic base focusing on the acquisition of a foreign language rather than a variety of behavior analytic principles applied to foreign language acquisition. As a community, it is important to study language not only within those with impaired repertoires, but also typical development of language to improve classroom technologies for all. This study provided useful information for foreign language teachers, particularly in the differential effects of two study methods for learners at different levels of Italian fluency. This study also directly benefited the participants in that they developed an Italian repertoire, despite prior knowledge of the language. Regardless of repertoire sophistication, each participant had

more opportunities to engage with the Italian community while abroad and had more opportunities for reinforcement by having this repertoire. This study also allowed for a creative interdisciplinary opportunity by combining theatre, communication and behavior analytic methods to maximize language acquisition in a unique way. To our knowledge, using scripts and acting out scenarios have not been explicitly studied in the context of foreign language acquisition and teaching basic conversation skills, and provided participants with a unique way to apply what they are learning in the classroom in the smaller context of dyads. We hope that this research spurs a variety of extensions seeking to learn more about foreign language acquisition and results in a new host of efficient technologies to teach a difficult repertoire.

Table 1

Participant Exposure to Conditions

Conditions (# of possible sessions)	BB	CA	KA	DS	PG	BW	LP
Vocabulary Bank (5)	5	4	4	5	5	5	5
Scripts (5)	4	5	5	4	5	5	4
Script Retention (5)	5	5	5	5	5	5	5
Script Retention with Professor (5)	5	0	5	5	5	5	5
Generalization in Dyads (1)	1	0	1	1	1	1	0
Generalization with Professor (1)	1	0	1	1	1	1	0

Table 2

Subject of Each Vocabulary Unit

Unit	Subject
1	Asking for directions, locations, verb "to be"
2	-are verbs, adjectives, prepositions, common objects, time, verb "to have"
3	-ere and -ire verbs, restaurant terms, food, adjectives
4	family, adjectives, useful phrases, irregular verbs
5	travel, time, additional verbs

Table 3

Number of Different Partners Throughout All Conditions

Participant	Number of Partners
BB	4
CA	2
KA	2
DS	5
PG	4
BW	3
LP	2

Table 4

Dependent Variables and Definitions

Dependent Variable	Definition
Italian-Italian Exchanges	Involves a speaker and a listener, always based on the first speaker. Includes the responses of both. It begins with the speaker's initial statement and the listener must provide a verbal response related to the speaker's question or statement for the dialogue to count as an exchange. An exchange must end with the listener's speaker behavior. A new exchange begins with a new comment/question made by the speaker. **Both speaker and listener phrases in the exchange must consist of only Italian words. (e.g., S: "Io ho molto fame" L: "Anch'io").**
Correct Italian Words	Includes all correct Italian words that are without grammatical error, regardless if they are in context or not (e.g., "buona notte" (good night) would count as 2 correct words; "buono vicino" (good nearby) does not contextually make sense but still counts as 2 correct words; "un sciarpa" would count as 1 correct word (sciarpa) and 1 "correct italian word with grammatical error" (un; see row below) because un is masculine and sciarpa is feminine.
Correct Italian Words With Grammatical Error	Words that exist that grammatically are out of place(e.g. "una zaino" because una is feminine and zaino is masculine) or "tu parla" is incorrect but a correct word (because it should be "tu parli" to represent correct conjugation).
Repeats	Italian words that have already been spoken within the current session by the same participant. Includes all parts of speech, including every instance of the word throughout the conversation after the first instance.

Table 5

IOA Calculations for Dependent Variable Scoring

Dependent Variable	Vocabulary Banks	Scripts	Retention Scripts	Generalization Scripts	G1	G2
Italian-Italian Exchanges	95.8	100.0	80.4	98.0	88.5	95.7
Italian Words	86.6	93.0	97.6	99.1	97.9	98.5
Grammatical Errors	83.3	82.7	83.3	89.3	85.0	80.0
Repeats	88.6	91.1	87.0	85.1	84.5	80.1

Figure 1. Chronological order of experimental conditions, retention checks, and generalization probes. "VB" indicates the time of testing for each vocabulary bank for units 1 through 5. "S" indicates the time of testing for each script for units 1 through 5. "GP1" and "GP2" indicate the time of testing for the two novel generalization probes.

Pre-Trip Italian-Italian Exchanges by Experience and Test Condition

Pre-Trip Italian Words by Experience and Test Condition

Figure 2. The graphs show the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) emitted by participants across pre-trip vocabulary bank and script tests. The two groups are based on prior participation in the ISLC (0 yr or 2 yr). The dotted line represents the number of exchanges or words in the original scripts studied for each condition.

Figure 3. The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) BB emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.
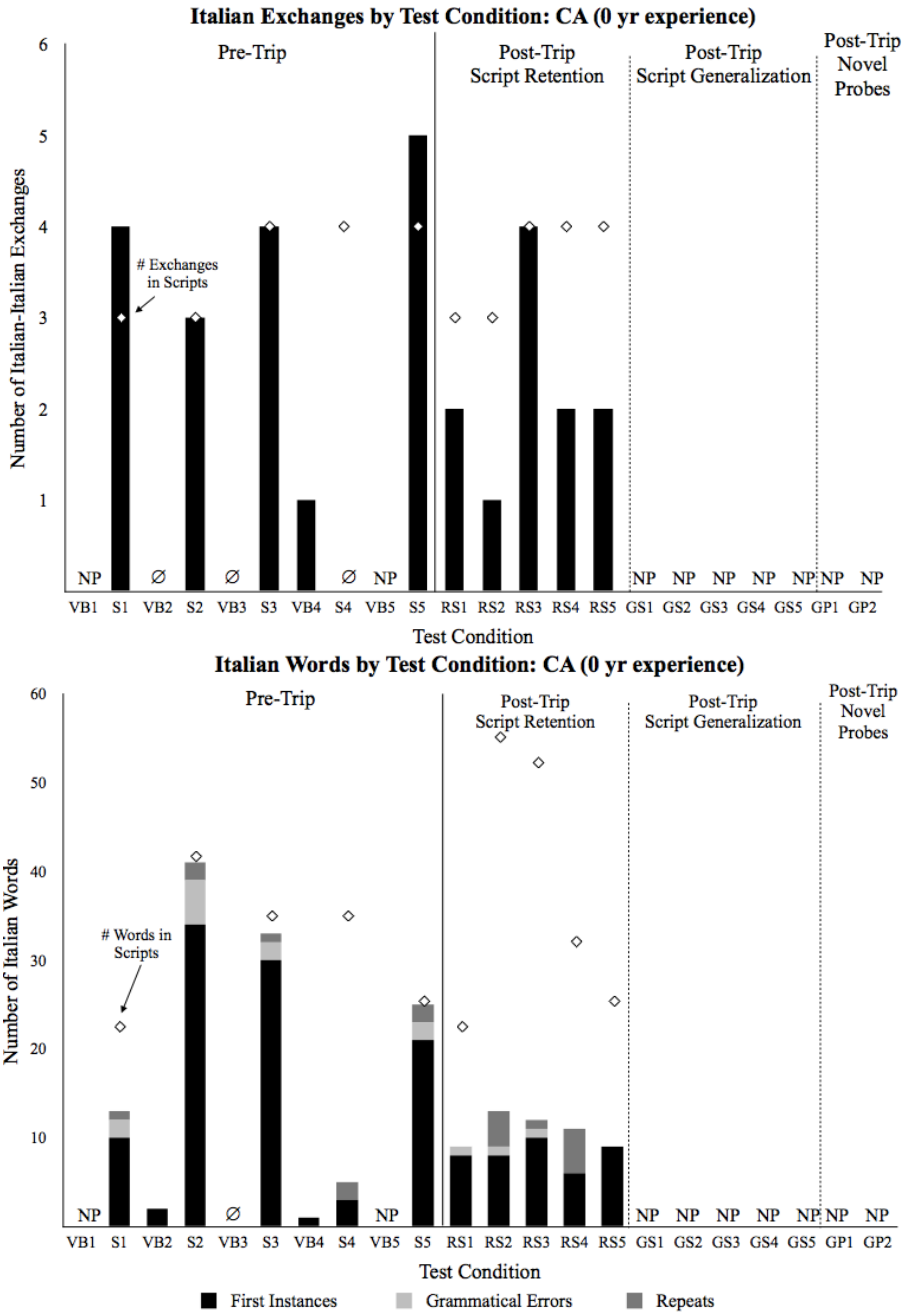
Figure 4. The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) CA emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.
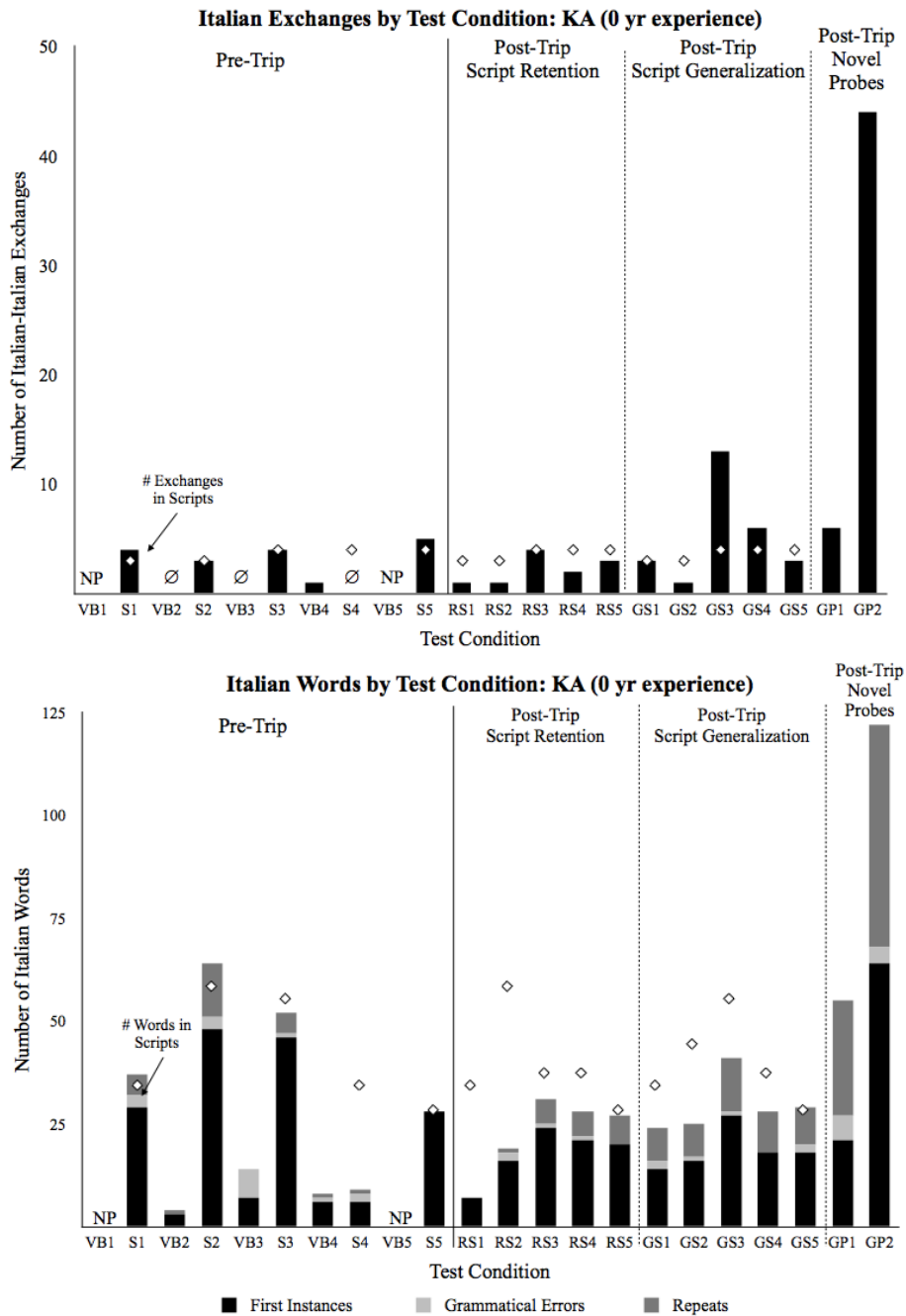
Figure 5. The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) KA emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.
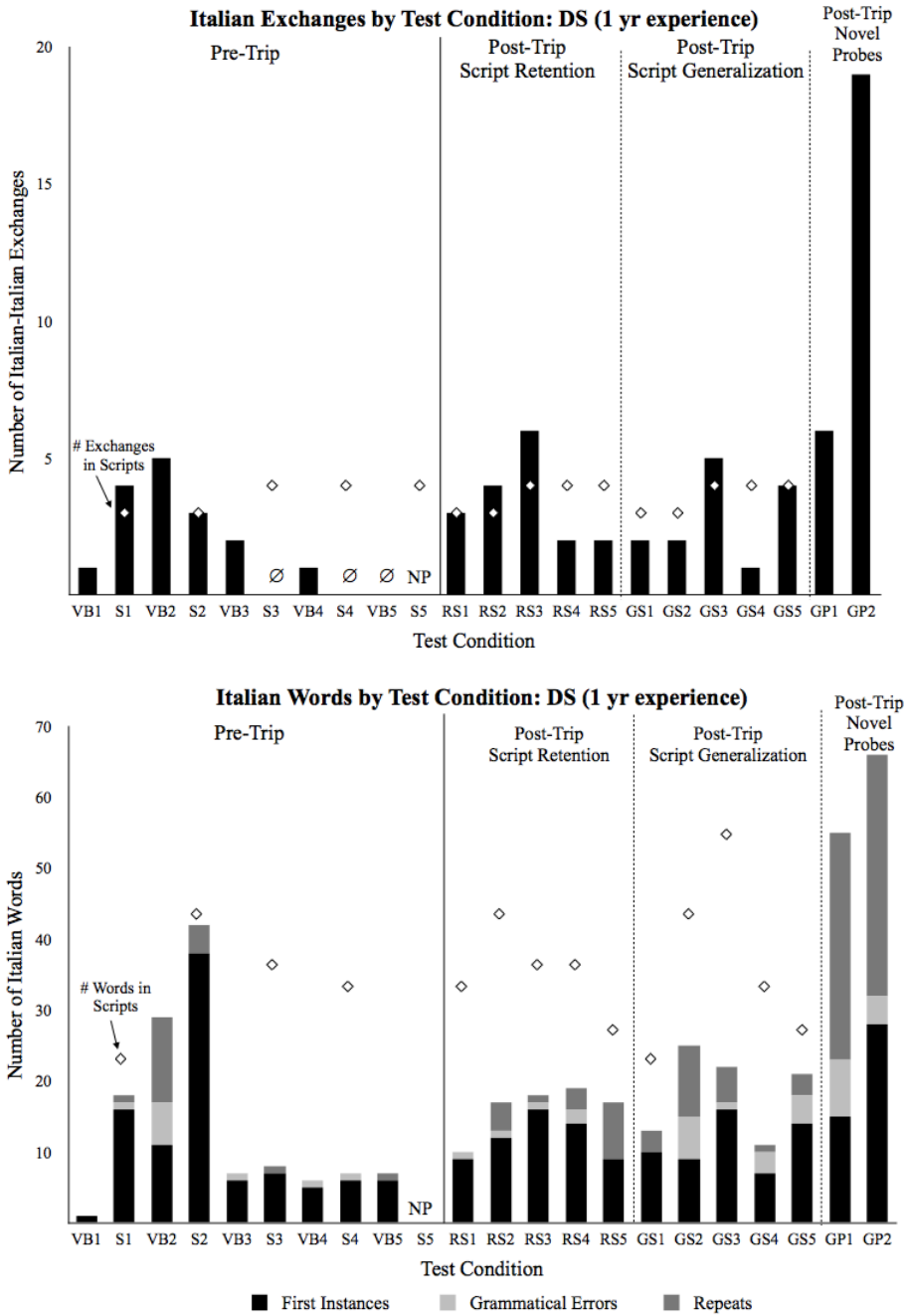
Figure 6. The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) DS emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.

60
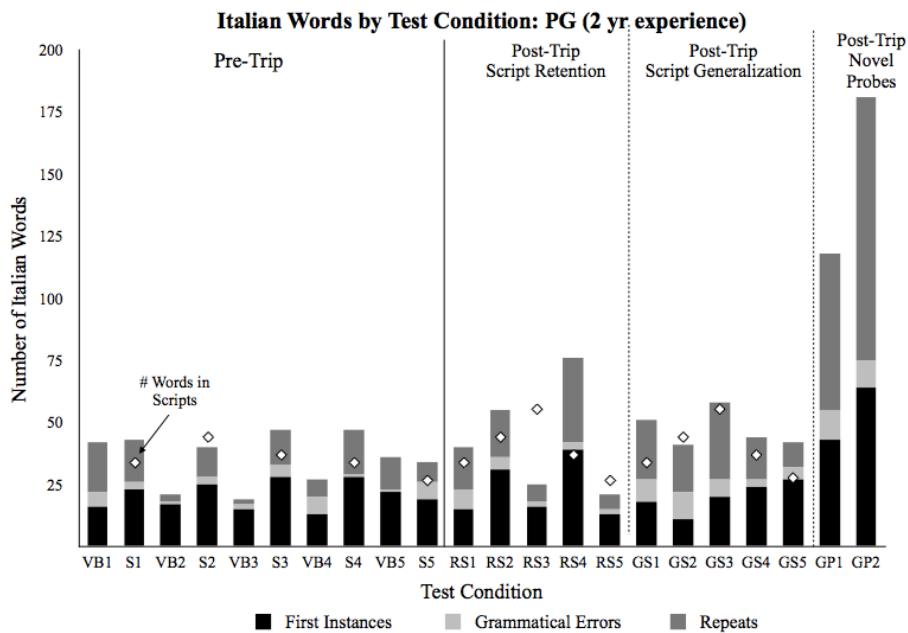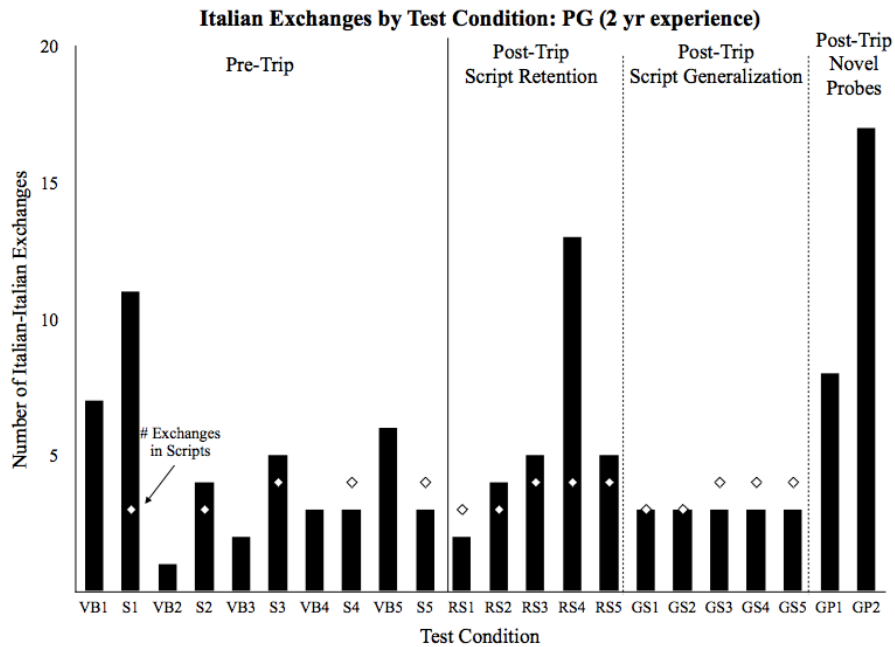
Figure 7. The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) PG emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.
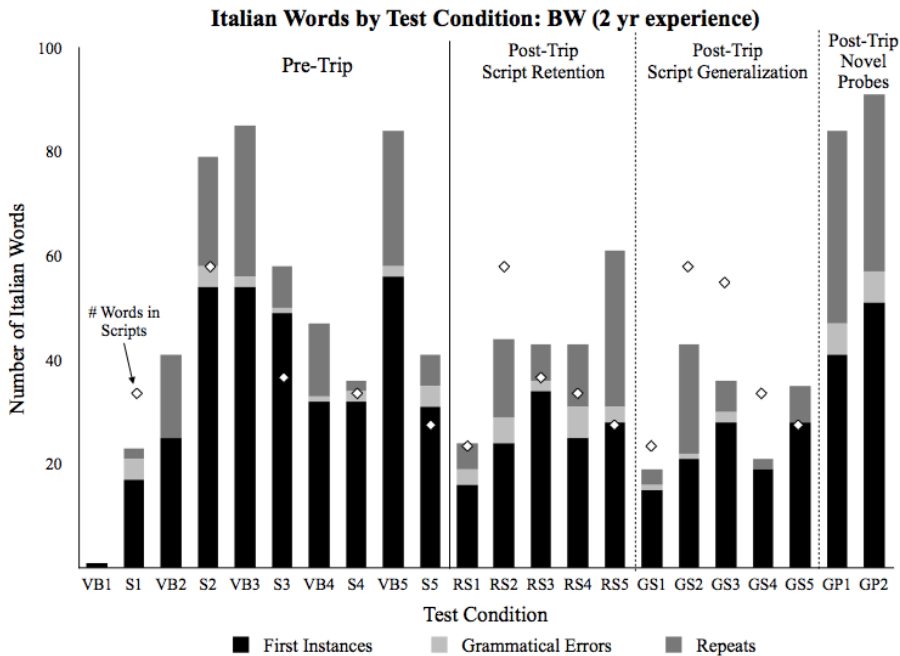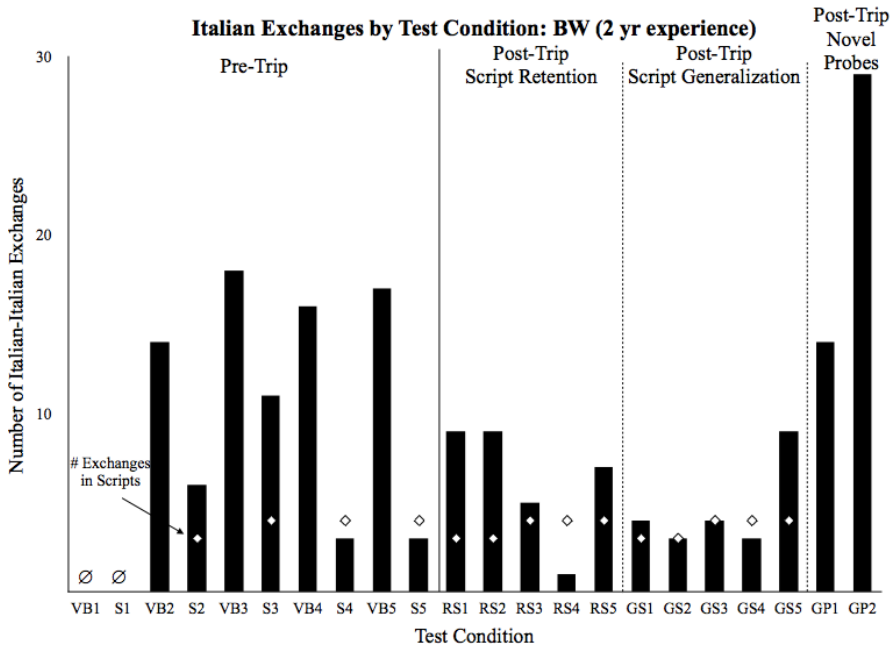
Figure 8. The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) BW emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.

62

Italian Exchanges by Test Condition: LP (2 yr experience)

Italian Words by Test Condition: LP (2 yr experience)

First Instances   Grammatical Errors   Repeats
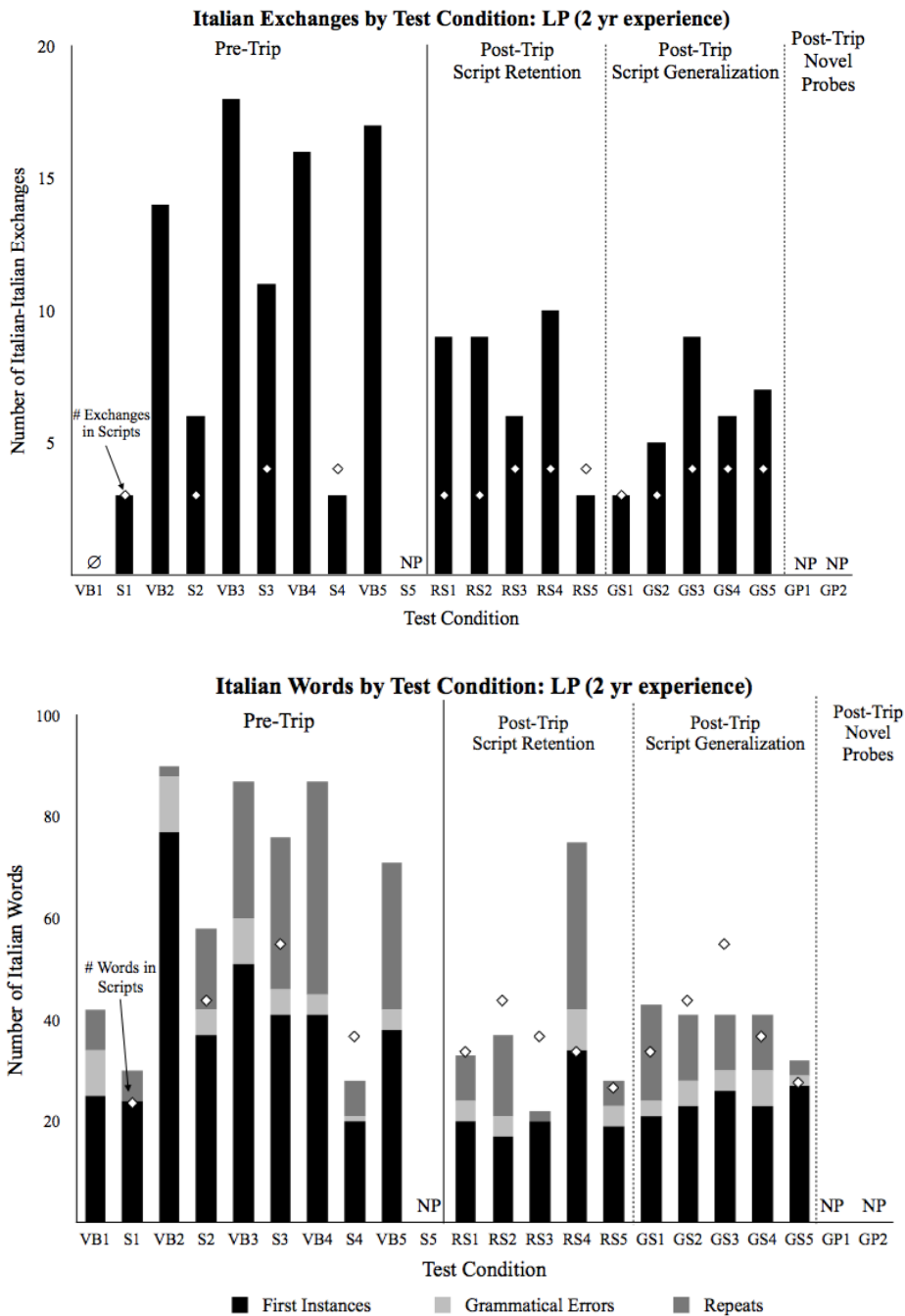
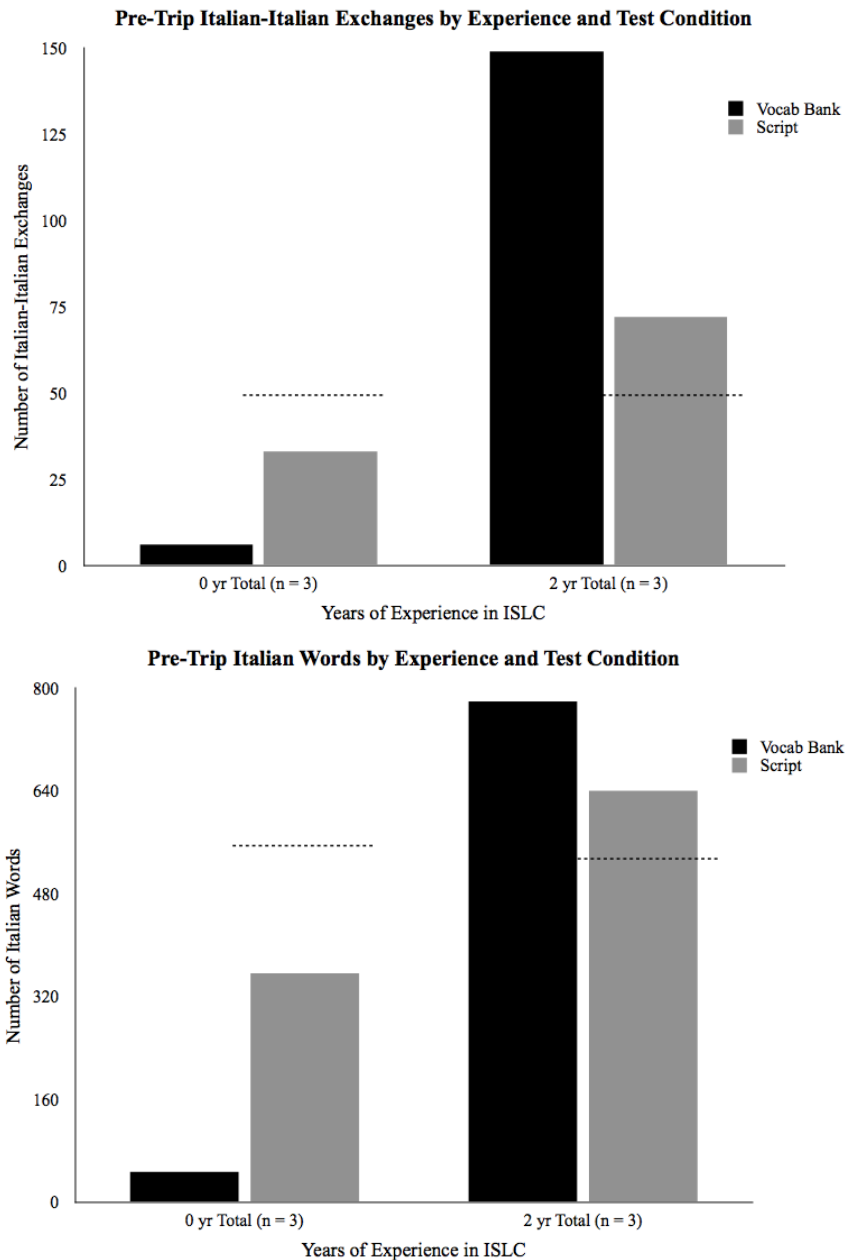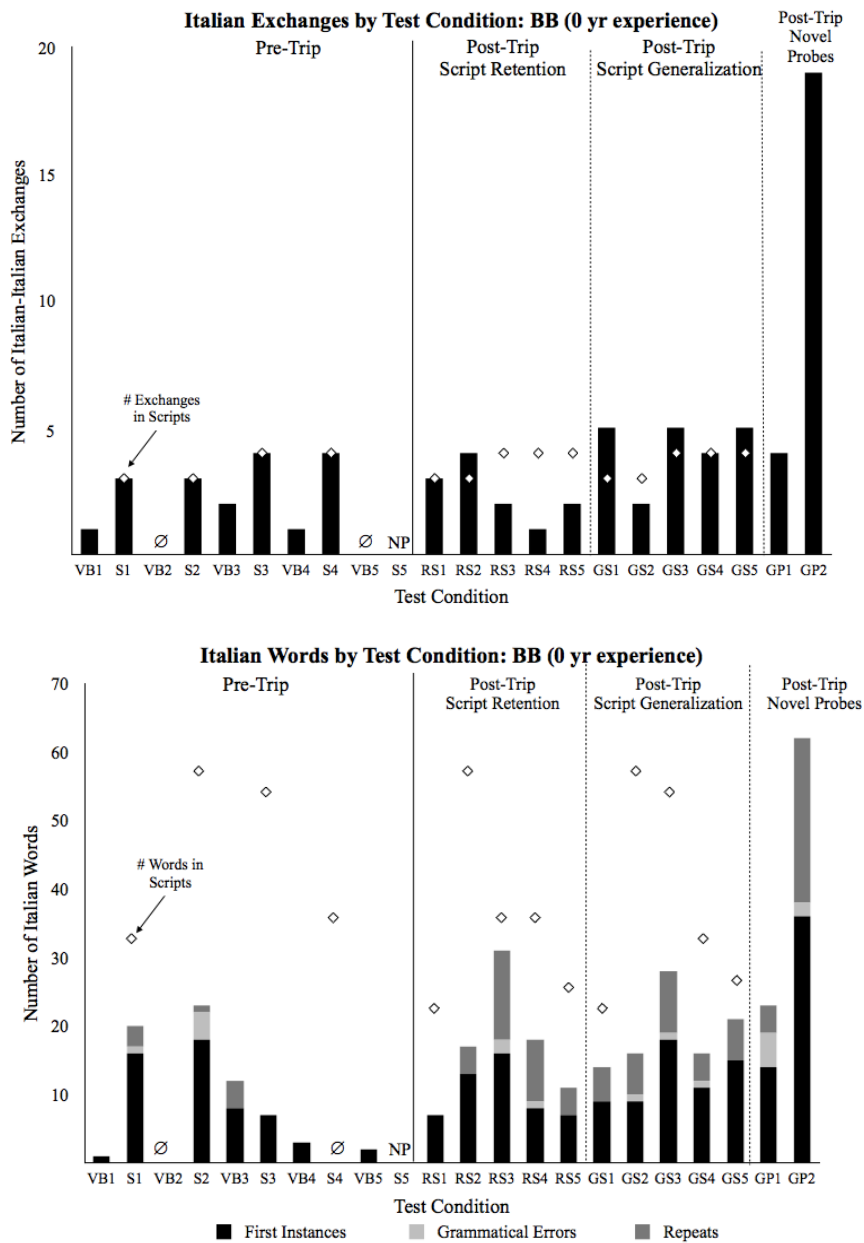*Figure 9.* The graphs detail the total number of Italian-Italian exchanges (top panel) and Italian words (bottom panel) LP emitted in each test condition. The diamonds represent the number of exchanges or words in the original scripts studied for each condition.

APPENDIX A

ITALIAN VOCABULARY PRETEST

Name: _____

Italian Vocabulary Pre-Test

Write in the Italian next to the English.

I am _____

You are (singular) _____

He/She is _____

We are _____

You are (plural) _____

They are _____

Who? _____

What? _____

How? _____

Where? _____

When? _____

I have _____

You have (singular) _____

He/She has _____

We have _____

You have (plural) _____

They have _____

Hotel _____

Restaurant _____

Coffee Shop _____

Credit Card _____

Purse/Bag _____

Steak _____

Glass of wine _____

Ham sandwich _____

Round-trip ticket _____

Train _____

To be hungry _____

To begin _____

To read _____

To order _____

To go _____

To give _____

To go shopping _____

To drink _____

To run _____

To spend (money) _____

Beautiful _____

Good _____

Tired _____

Much _____

Delicious _____

Happy _____

Excellent _____

First _____

Old _____

Big _____

APPENDIX B

VOCABULARY BANKS

Greetings			
Ciao!	Hello! Good-bye!	(Molto) piacere.	(Very) nice to meet you.
Salve!	Hello! (more formal than Ciao!)	Piacere mio.	My pleasure.
Buon giorno, signore	Good morning (Good Day), Sir.	Per favore/Per piacere.	Please
Buona sera, signora.	Good evening, Madam.	Grazie.	Thank you.
Buona notte, signorina.	Good night, Miss.	Prego.	You're welcome./That's quite all right./After you.
Arrivederci/ArrivederLa (formal sing.)	Good-bye.	Scusi. (formal sing.)/ Scusa. (familiar sing.)	Excuse me.
A domani.	I'll see you tomorrow.	Come sta? (formal sing.)/ Come stai? (familiar sing.)	How are you?
A presto.	I'll see you soon.	Come va?	How's it going?
Come si chiama? (formal sing.)/Come ti chiami? (familiar sing.)	What is your name?	Bene, grazie, e Lei? (formal sing.)/Bene, grazie, e tu? (familiar sing.)	Fine, thank you, and you?
Mi chiamo...	My name is...	Molto bene.	Very well.
Ti presento... (familiar sing.)/ Vi presento...(familiar pl.)	Let me introduce...to you	Non c'è male.	Not bad.
Di dove sei tu? (familiar sing.)/ Di dov'è Lei? (formal sing.)	Where are you from?	Così-così.	So-so.

Comprehension	
Sì, capisco.	Yes, I understand.
Non capisco.	I don't understand
Ripeta, per favore.	Repeat, please
Come si dice...in italiano?	How do you say...in Italian?
Cosa vuol dire...?	What does...mean?
Tutti insieme!	All together!
Ripetete!	Repeat!

Essere	
Io sono	I am
tu sei	you are (familiar)
lui è	he is
lei è	she is
Lei è	you are (formal)
noi siamo	we are
voi siete	you are (familiar)
loro sono	they are
Loro sono	they are (formal)

Wh- Questions			
Chi?	Who? Whom?	Chi è...?	Who is...?
Che cosa? Cosa? Che?	What?	Cos'è...?	What is...?
Come?	How? Like what?	Com'è...?	What is...like?
Dove?	Where?	Dov'è...?	Where is...?
Quando?	When?	Quando...?	When...?

There...	
C'è	There is
Ci sono	there are
Ecco	Here is.../ Here are.../ There is.../ There are.../ (in sight)

Unit 1 Vocab Bank

Directions			
Scusi, dov'è ...?	Excuse me, where is ...?	lontano	far
C'è un tour?	Is there a tour?	vicino, qui vicino	near, nearby
Sì, c'è. Ecco le informazioni.	Yes, there is. Here is the information.	avanti diritto	straight ahead
a destra	to the right	in centro	downtown
a sinistra	to the left		

Locations & Transportation					
una strada	street/road	un bar	coffee shop	uno stadio	stadium
una via	street, way	un ristorante	restaurant	un parco (pl. -chi)	park
una piazza	square	un negozio	store, shop	uno zoo	zoo
una fontana	fountain	un supermercato	supermarket	una stazione	station
un monumento	monument	un ufficio postale	post office	un treno	train
una chiesa	church	un ufficio turistico	tourist office	un autobus	bus
un museo	museum	una banca (pl. -che)	bank	un tram	streetcar
una scuola	school	una farmacia	pharmacy	un'auto(mobile) (f.), una macchina	car
un'università	university	un ospedale	hospital	una moto(cicletta)	motorcycle
un edificio	building	un cinema(tografo)	movie	una bici(cletta)	bicycle
un albergo	hotel	un teatro	theater	un motorino, uno scooter	moped, motorscooter

Unit 2 Vocab Bank

Verbs					
abitare	to live	giocare (a)	to play (a game)	parlare (a)/(di)	to speak (to)/(about)
ascoltare	to listen (to)	guardare	to watch, look at	pensare (a)/(di)	to think (about a person/ about a thing)
aspettare	to wait (for)	imparare	to learn	spiegare	to explain
comprare	to buy	cominciare	to begin	suonare	to play (an instrument)
desiderare	to wish, to want	lavorare	to work	incontrare	to meet
domandare	to ask	mangiare	to eat		

Avere	
io ho	I have
tu hai	you have
lui ha	he has
lei ha	she has
Lei ha	you have (formal)
noi abbiamo	we have
voi avete	you have (familiar)
loro hanno	they have
Loro hanno	they have (formal)

Verbs with Avere	
avere fame	to be hungry
avere sete	to be thirsty
avere sonno	to be sleepy
avere paura (di)	to be afraid (of)
avere voglia (di)	to feel like
avere bisogno (di)	to need
avere caldo	to be hot
avere freddo	to be cold
avere ragione	to be right
avere torto	to be wrong
avere fretta	to be in a hurry

Cantare (-are verb conjugation)	
io canto	I sing
tu canti	you sing
lui canta	he sings
lei canta	she sings
Lei canta	you sing (formal)
noi cantiamo	we sing
voi cantate	you sing
loro cantano	they sing

Adjectives			
altro	other	occupato	busy
bello	beautiful, handsome, fine	ordinato	neat
brutto	ugly, plain	paziente	patient
buono	good	piccolo	small, short
bravo	good, talented	primo	first
cattivo	bad, mean, naughty	pronto	ready
che	what kind of	quale...?	which...?
disordinato	messy	solo	alone
giovane	young	stesso	same
grande	big, large; great	stanco (pl. stanchi)	tired
libero	free	ultimo	last
il mio, la mia	my	vecchio	old
molto	much (pl. many)	vero	TRUE
nuovo	new		

Prepositions	
da	from, by
davanti (a)	in front (of)
dentro	in, inside
dietro	behind
dopo	after
fuori	out, outside
là	there, over there
lontano (da)	far (from)
la mattina	in the morning
o	or
sempre	always
sopra	on, on top of
sotto	under
spesso	often
su	on, over, above
tra (or fra)	between, among
va bene	OK
vicino (a)	near

Everyday Objects			
l'acqua	water	la libreria	bookstore
la borsa	purse/bag	i mobili (la mobilia)	furniture
il caffè	coffee	l'oggetto	object
la carta	paper	l'orologio	watch, clock
la carta di credito	credit card	lo scaffale	shelf
la chiave	key	i soldi	money
la coca	coke	il telefonino	cell phone
la cosa	thing	la TV (televisione)	television
il foglio	sheet (of paper)	la valigia	suitcase
la fotografia	photo, picture	il vino	wine
la lampada	lamp	la vita	life
il letto	bed	lo zaino	backpack

Time	
domani	tomorrow
la mattina	morning
l'ora	hour
oggi	today
pomeriggio	afternoon
stasera	tonight

Food			
Desserts		**Vegetables**	
il formaggio	cheese	**i broccoli**	broccoli
il gelato al cioccolato	chocolate gelato	**le carote**	carrots
il gelato alla panna	gelato with whipped cream	**i funghi**	mushrooms
al limone	lemon	**le melanzane**	eggplant
le paste	pastries	**le patate fritte**	fried potatoes
la torta al cioccolato	chocolate cake	**i peperoni**	bell peppers
la torta di mele	apple pie	**i piselli**	peas
Fruit		**gli spinaci**	spinach
l'arancia	orange	**le zucchine**	zucchini
la banana	banana	**Lunch**	
la fragola	strawberry	**un panino al formaggio**	cheese sandwich
la macedonia di frutta	fruit cup	**un panino al prosciutto**	ham sandwich
la mela	apple	**una pizzetta**	pizza
la pera	pear		
la pesca	peach		
l'uva	grapes		

Dormire (-ire verb conjugation)	
io dormo	I sleep
tu dormi	You sleep
lei/lui/Lei dorme	He/She sleeps
noi dormiamo	We sleep
voi dormite	You sleep
loro dormono	They sleep

Scrivere (-ere verb conjugation)	
io scrivo	I write
tu scrivi	You write
lei/lui/Lei scrive	He/She writes
noi scriviamo	We write
voi scrivete	You write
loro scrivono	They write

More -are Verbs	
amare	to love
arrivare	to arrive
augurare	to wish (somebody)
costare	cost
cucinare	to cook
dimenticare	to forget
festeggiare	to celebrate
incontrare	to meet
invitare	to invite
ordinare	to order
organizzare	to organize
pagare	to pay
portare	to bring, to carry,to wear
preparare	to prepare
regalare	to give a present

-ire Verbs	
aprire	to open
dormire	to sleep
offrire	to offer
seguire	to follow
sentire	to hear
servire	to serve

-ere Verbs	
chiedere	to ask
chiudere	to close
credere	to believe
leggere	to read
perdere	to lose; to miss (the bus, etc.)
prendere	to take
ricevere	to receive
ripetere	to repeat
rispondere (a)	to answer
scrivere	to write
vedere	to see
vivere	to live

Meals & Courses	
l'antipasto	appetizer
le bevande	drinks
la cena	dinner
la colazione	breakfast
il dessert	dessert
il dolce	sweet
la frutta	fruit
il piatto	dish, course
il primo piatto	first course
il pranzo	lunch
il secondo piatto	second course
le verdure	vegetables

Restaurant	
il cameriere	waiter
la cameriera	waitress
cenare	to eat dinner
il conto	check, bill
la cucina	kitchen; cooking, cuisine
Cosa desidera?/ Cosa vorrebbe?	What would you like?
Le piace (piacciono)...?	Do you like...? (formal)
la mancia	tip
Non mi piace	I don't like...
pranzare	to eat lunch
quanto costa?	How much is...?
al ristorante	restaurant
Ti piace (piacciono)...?	Do you like...? (informal)
una specialità	a specialty
Io vorrei...	I would like...

Adjectives	
alcuni(e)	some, a few
delizioso	delicious
ogni (inv.)	each, every
poco (pl. pochi)	little; few
qualche (sing.)	some
quanto	how much
tanto	much, so much
troppo	too much
tutto	the whole; all, every
vegetariano/ vegetariana	vegetarian

Food			
Drinks		Appetizers	
l'acqua	water	avocado con olio e limone	avocado with olive oil and lemon
un bicchiere di vino bianco	a glass of white wine	il cocktail di gamberetti	shrimp
un bicchiere di vino rosso	a glass of red wine	prosciutto e melone	ham and cantaloupe
il caffè	coffee	First Course	
il caffè espresso	espresso	i cannelloni alla napoletana	stuffed pasta with tomato sauce
il caffelatte	latte	la minestra	soup
il cappuccino	cappuccino	le lasagne alla bolognese	lasagna with tomato, meat, and white sauce
una Coca-Cola	coke	gli spaghetti al pomodoro	spaghetti with tomato sauce
con ghiaccio	with ice	i ravioli alla panna	ravioli with cream sauce
il latte	milk	la zuppa di verdura	vegetable soup
limonata	lemonade	Second Course	
il succo d'arancia	orange juice	l'arrosto di vitello	roast veal
il succo di pompelmo	grapefruit juice	la bistecca	steak
il tè	tea	il pesce fritto	fried fish
Breakfast		il pollo	chicken
il burro	butter	il salmone	salmon
i cereali	cereal	le scaloppine	veal cutlets
la marmellata	jam	la sogliola ai ferri	grilled sole
il pane	bread	la trota	trout
il toast	toast		
le uova strapazzate	scrambled eggs		

71

Irregular Verbs: Bere (to drink)	
io bevo	I drink
tu bevi	you drink
lei/lui/Lei beve	he/she drinks
noi beviamo	we drink
voi bevete	you drink
loro bevono	they drink

Irregular Verbs: Dovere (to have to, to must; to owe)	
io devo	I have to
tu devi	you have to
lei/lui/Lei deve	he/she has to
noi dobbiamo	we have to
voi dovete	you have to
loro devono	they have to

Irregular Verbs: Potere (can, may, to be able to)	
io posso	I can
tu puoi	you can
lei/lui/Lei può	he/she can
noi possiamo	we can
voi potete	you can
loro possono	they can

Irregular Verbs: Volere (to want)	
io voglio	I want
tu vuoi	you want
lei/lui/Lei vuole	he/she wants
noi vogliamo	we want
voi volete	you want
loro vogliono	they want

Irregular Verbs: Dire (to say; to tell)	
io dico	I say
tu dici	you say
lei/lui/Lei dice	he/she says
noi diciamo	we say
voi dite	you say
loro dicono	they say

Irregular Verbs: Uscire (to go out)	
io esco	I go out
tu esci	you go out
lei/lui/Lei esce	he/she goes out
noi usciamo	we go out
voi uscite	you go out
loro escono	they go out

Irregular Verbs: Venire (to come)			
io vengo	I come	noi veniamo	we come
tu vieni	you come	voi venite	you come
lei/lui/Lei viene	he/she comes	loro vengono	they come

Sapere (to know; to know how to do something, to know a fact)	
io so	I know
tu sai	you know
lei/lui/Lei sa	he/she knows
noi sappiamo	we know
voi sapete	you know
loro sanno	they know

Conoscere (to know; to be acquainted with a person or place; to meet someone for the first time)	
io conosco	I know
tu conosci	you know
lei/lui/Lei conosce	he/she knows
noi conosciamo	we know
voi conoscete	you know
loro conoscono	they know

Finire (-isc-: to finish)	
io finisco	I finish
tu finisci	you finish
lei/lui/Lei finisce	he/she finishes
noi finiamo	we finish
voi finite	you finish
loro finiscono	they finish

Verbs with -isc-	
capire	to understand
finire	to finish
preferire	to prefer
pulire	to clean
restituire	to give back

Travel			
l'agenzia di viaggi	travel agency	la dogana	customs
prenotare	to reserve	la fermata del treno (dell'autobus, del tram)	train (bus, street car) stop
la prenotazione	reservation	il biglietto di andata e ritorno	round-trip ticket
fare il biglietto	to buy the ticket	confermare	to confirm
viaggiare	to travel	annullare	to cancel
il viaggio	trip	la prima (seconda) classe	first (second) class
la gita	short trip, excursion	il posto	seat
il pullman	tour bus	salire	to get on
la carta d'identità	I.D. card	scendere	to get off
il passaporto	passport	la coincidenza	connection
all'estero	abroad	in orario	on time
la nave	ship	perdere il treno (l'aereo, ecc.)	to miss the train (plane, etc.)
la crociera	cruise	il cartello	sign
il tassì	taxi	l'albergo	hotel
la vacanza	vacation	la pensione	inn

Time					
Che ora è?	What time is it?	a mezzogiorno	at noon	in anticipo	ahead of time, early
Che ore sono?	What time is it?	o mezzanotte	midnight	in orario	on time
A che ora?	At what time?	la mattina	in the morning	in ritardo	late
di mattina	a.m.	il pomeriggio	in the afternoon	presto	early
di notte	a.m.	la sera	in the evening	tardi	late
del pomeriggio	p.m.	la notte	at night	ieri	yesterday
di sera	a.m.	in punto	sharp, precisely		

Verbs			
ammirare	to admire	nascere	to be born
cadere	to fall	passare	to spend (time)
correre	to run	restare	to remain
(di)scendere	to descend	ricordare	to remember
diventare	to become	rimanere	to remain
entrare	to enter	salire	to climb, to go up, to get on
lasciare	to leave (someone/something)	salutare	to greet, to say good-bye
mettere	to put; to wear	spendere	to spend (money)
morire	to die	visitare	to visit (a place)

73

APPENDIX C

SCRIPTS

Unit 1 Script

You are lost and trying to find your way back to a museum to take a tour. You find the tourist information office. Ask the staff in the office for information on how to return to the museum and information on a tour.

You. Scusi, sono un(a) turista. Dov'è il museo?
Staff. Il museo? A quel semaforo, vicino l'autobus, giri a destra, poi avanti diritto. Non può sbagliare.
You. Un autobus? Ripeta, per favore.
Staff. A quel semaforo, giri a destra, poi avanti diritto. Capisce?
You. Si, capisco. Grazie. C'è un tour turistico, per favore?
Staff. Si, c'è uno turistico. Ecco le informazioni.
You. Grazie, arrivederci!

Unit 2 Script

You and your friend are getting ready for breakfast in Italy and you want to practice your Italian. You are incredibly hungry and your friend is excited to go shopping later that day.

You. Io ho molto fame questa mattina! Io ho bisogno di caffè!
Friend. Io desidero fare le spese questo pomeriggio. Io ho bisogno di uno zaino.
You. Io ho fretta di mangiare colazione. Io desidero mangiare una mela, il formaggio, il prosciutto, e il pane.
Friend. Posso usurare una carta di credito? Io desidero comprare una lampada azzurra, vino roso, e una sciarpa viola.
You. Mmmmmm. Forse io ho voglia di due uova strapazzate...Loro cucinano le uova in l'Italia?
Friend. Tu ascolti? Tu parli l'italiano? Io ho bisogno di comprare molte cose!
You. Si, si! Io imparo l'italiano! Io ho bisogno di mangiare! Andiamo fuori a mangiare.

Unit 3 Script

You are at a restaurant in Italy and you want help deciding what you should order for dinner. You would like to try the local specialities.

Cameriere: Buona sera, signore/signora. Benvenuto/a? Cosa desidera?
You: Noi abbiamo fame! Noi vorremmo una bella cena. Quanto per tutto il ristorante!
Cameriere: (ridere) Non è in vendita! Posso offrire un antipasto o un primo piatto?
You: Si. Ma non mangiamo carne ne la frutta.
Cameriere: Un'insalata di frutti di mare o prosciutto e melone?
You: Si, un'insalata di frutti di mare. Ma non mangiamo cana ne frutta. Per il primo mangiamo un bel risotto con tartufi, e per il secondo la trota.
Cameriere: Buona scelta! E da bere? Rosso o Bianco?

You: Bianco della casa, per favore.

Unit 4 Script

You are on a guided tour in Rome. You start a conversation with the guide to help you plan your free time after the tour.

You: Mi scusi. Posso fare una domanda?
Guida: Si. Cosa vorrebbe sapere?
You: Dopo facciamo una pausa, vogliamo fare le spese.
Guida: Cosa volete comprare?
You: Io cerco una sciarpa blu e una cravata azzurra. C'è un mercato qui vicino?
Guida: Tu puoi prendere la metropolitana linea blu al mercato di Via Sannio. È la seconda uscita.
You: Grazie! È aperto nel pomeriggio?
Guida: No. Tu devi andare rapido dopo la pausa. Non aspettare fino all'ultimo minuto.

Unit 5 Script

You are studying in Milan and go to a travel agency to book a weekend train trip to Cinque Terre. Hold a conversation with the travel agent to purchase a ticket.

You. Ciao! Vorrei comprare un biglietto per Cinque Terre.
Staff. Vuoi un biglietto andata e ritorno o un biglietto di solo andata?
You. Andata e ritorno per favore.
Staff. Quando vuoi andare e ritornare?
You. Voglio andare Venerdì, di mattina, e ritornare Lunedì, di sera.
Staff. Avete bisogno di un albergo?
You. No, grazie. Quanto costa?
Staff. € 30. Buon viaggio!

APPENDIX D

NOVEL GENERALIZATION PROBES

Generalization Probe 1 (student dyads): You are meeting one another for the first time and want to get to know each other. Please tell each other about the following topics, both of you should be asking questions to each other and answering each topic:

    -Where you live
    -How old you are
    -What you do for work or where you go to school and what you're studying
    -Information about your family
    -What you like to do

Generalization Probe 2 (with fluent Italian speaker): An Italian meets you in the streets of a small town and starts a conversation. He wants to know why you are visiting his small town. Tell him the purpose of your visit, about the class you are with, and about your travels in Italy.

APPENDIX E

SOCIAL VALIDITY QUESTIONNAIRE

SOCIAL VALIDITY QUESTIONNAIRE

1. On average, how long did you study Italian per week in preparation for each week's class?

2. Please rate the helpfulness of the following aspects:

	Not at all helpful				*Very helpful*
Vocabulary Banks	1	2	3	4	5
Scripts	1	2	3	4	5
Generalization probe with other student	1	2	3	4	5
Generalization probe with Chris	1	2	3	4	5

3. For any of the above not rated as helpful, please describe the reasons and what would have made them more helpful.

4. What did you like most about the **vocabulary banks**?

5. What did you like the least about the **vocabulary banks**?

6. What did you like most about the **scripts**?

7. What did you like least about the **scripts**?

8. Was it easier for you to have a conversation after studying the vocabulary banks or studying the scripts? Why?

9. Can you think of any additional study tools or opportunities which may have been helpful?

10. Additional comments/suggestions?

APPENDIX F

VOCABULARY BANK GROUP INSTRUCTION TREATMENT INTEGRITY

Vocabulary Bank Group Instruction Treatment Integrity

Experimenter:_____   Date: _____

TI Collector: _____   Unit: _____

Instructions: Use this data sheet when the experimenter presents a new vocabulary bank to the class and delivers instructions regarding how to study that week.

Place a check mark in the "yes" column if the experimenter behavior occurred, and place a check mark in the "no" column if the experimenter behavior did not occur.

Experimenter Behavior	Yes	No
Experimenter gives a copy of the vocabulary bank to each student in the class.		
Experimenter delivers the correct vocabulary unit according to the schedule.		
Experimenter delivers the instructions: "Study this vocabulary bank before next week's class. Next week in class, you will be asked to engage in a conversation in Italian with a partner using the vocabulary you studied."		

APPENDIX G

SCRIPT GROUP INSTRUCTION TREATMENT INTEGRITY

Script Group Instruction Treatment Integrity

Experimenter:_____   Date: _____

TI Collector: _____   Unit: _____

Instructions: Use this data sheet when the experimenter presents a new script to the class and delivers instructions regarding how to study that week.

Place a check mark in the "yes" column if the experimenter behavior occurred, and place a check mark in the "no" column if the experimenter behavior did not occur.

Experimenter Behavior	Yes	No
Experimenter gives a copy of the script to each student in the class.		
Experimenter delivers the correct script unit according to the schedule.		
Experimenter delivers the instructions: "Memorize this script before next week's class. Next week in class, you will be asked to perform the script and add to it with any additional vocabulary you see fit."		

APPENDIX H

VOCABULARY BANK DATA COLLECTION TREATMENT INTEGRITY

Vocabulary Bank Data Collection Treatment Integrity

Experimenter:_____   Date:_____
TI Collector: _____   Unit: _____
Student #1: _____
Student #2: _____

Instructions: Use this data sheet when the experimenter tests each dyad's conversation using the vocabulary bank.

Place a check mark in the "yes" column if the experimenter behavior occurred, and place a check mark in the "no" column if the experimenter behavior did not occur.

Experimenter Behavior	Yes	No
Experimenter starts the video camera.		
Experimenter delivers the instructions: "Have a conversation using as much of the vocabulary you can remember."		
Experimenter delivers nonspecific praise following the end of the conversation to each student.		
Experimenter stops the video camera.		

APPENDIX I

SCRIPT DATA COLLECTION TREATMENT INTEGRITY

Script Data Collection Treatment Integrity

Experimenter:_____   Date: _____

TI Collector: _____

Student #1: _____

Student #2: _____

Instructions: Use this data sheet when the experimenter tests each dyad's conversation using the script.

Place a check mark in the "yes" column if the experimenter behavior occurred, and place a check mark in the "no" column if the experimenter behavior did not occur.

Experimenter Behavior	Yes	No	N/A
Experimenter starts the video camera.			
Experimenter delivers the instructions: "Use the following prompt as a basis for having a conversation related to (insert scenario)."			
Experimenter delivers nonspecific praise following the end of the conversation to each student.			
Experimenter stops the video camera.			

APPENDIX J

RETENTION/GENERALIZATION DATA COLLECTION TREATMENT

INTEGRITY

Retention/Generalization Data Collection Treatment Integrity

Experimenter:_____   Date: _____

TI Collector: _____

Student #1: _____

Student #2: _____

Italian Speaker: _____

Instructions: Use this data sheet when the experimenter tests each dyad's conversation using the script.

Place a check mark in the "yes" column if the experimenter behavior occurred, and place a check mark in the "no" column if the experimenter behavior did not occur.

Experimenter Behavior	Yes	No	N/A
Experimenter starts the video camera.			
Experimenter delivers the instructions: "Use the following prompt as a basis for having a conversation related to (insert scenario)."			
Experimenter delivers nonspecific praise following the end of the conversation to each student.			
Experimenter stops the video camera.			
An Italian speaker is present to participate in the dyad			

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