Interlanguage Development of Spanish Learners: Comprehension, Production, and Interaction

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Abstract: This study explores the relationship between group interaction and interlanguage development, specifically listening comprehension and the production of target grammar forms. Two groups (39 participants in total) of first-semester Spanish students at an American university took notes on a mini-lecture, then completed a text reconstruction and listening comprehension test. The experimental group (n = 18) interactively shared notes for five minutes in small groups; the control group (n = 21) did not interact, although students were allowed to study their notes for five minutes. The experimental group scored significantly higher (p = 0.001) on the listening comprehension task. The recorded interactions, analyzed quantitatively and qualitatively, revealed significant differences between the interaction groups in the amount and types of L2 words used in the joint construction of knowledge. Quantitative analysis, conducted by means of a customized computer program that identified and counted target linguistic forms, facilitated ready comparison across interaction groups through innovative analytic techniques. This study shows that interaction may have an effect on listening comprehension and suggests that the different ways in which learners interact may explain this effect.

Résumé : Ce projet concerne la relation entre l'interaction du groupe et le développement de l'interlangage, particulièrement la compréhension orale et la production des formes grammaticales. Deux groupes (39 personnes au total) d'étudiants en premier semestre d'espagnol dans une université américaine prirent des notes pendant une mini-lecture suivie par deux activités : une reconstruction de texte et un examen de compréhension orale. Le groupe expérimental (n = 18) se partagea les cahiers d'une façon interactive pendant cinq minutes. Le groupe de contrôle (n = 21) n'avait pas la possibilité d'interagir, mais les étudiants pouvaient étudier leurs notes pendant cinq minutes. Le groupe expérimental reçut les meilleures notes à l'examen oral (p = 0,001). Les interactions furent enregistrées et analysées de manières qualitative et quantitative. Le témoignage de l'interaction révèle...
Introduction

With the growing acceptance of communicative language learning and teaching techniques, pair and group activities have become a major component of the language classroom because they provide students with the opportunity to interact in the target language (TL). In an attempt to discover why and how interaction affects second language acquisition (SLA), researchers have taken an interest in the role of interaction in interlanguage development. This growing body of research links multiple threads of SLA theory, such as Krashen's Input Hypothesis (1982), Swain's Comprehensible Output Hypothesis (1985) and what has come to be known as Long's Interaction Hypothesis (Long, 1981), with various socio-cognitive theories such as sociocultural theory (Vygotsky, 1978) and skill acquisition theory (DeKeyser, 1998). Students' interaction with other students while engaging in collaborative language tasks is increasingly regarded as a crucial element in language learning. Determining exactly how interaction promotes language learning has been the focus of many recent SLA studies (for reviews, see Gass, Mackey, & Pica, 1998; Pica, 1994). With the present study, we aim to contribute to the growing body of knowledge relating interaction to language learning.

Linking cognitive processes with the joint construction of knowledge, sociocultural theory provides an appropriate theoretical basis for communicative language learning (Van Lier, 1996). Vygotskian concepts such as scaffolding, the Zone of Proximal Development, and inter- and intrapsychological processes have served as the theoretical foundation for many recent second language (L2) studies (Aljaafreh & Lantolf, 1994; Anton, 1999; Anton & DiCamilla, 1998; De Guerrero & Villamil, 1994, 2000; Donato, 1994; Donato & McCormick, 1994; Goss, Yin-Hua, & Lantolf, 1994; Ohta, 1995). The theory of scaffolding was originally posited to describe the learning that takes place between an expert and a novice, with the expert providing support as the novice engages in problem-solving activities (Lantolf & Appel, 1994). Recently, L2 re-
searchers have expanded that theory to include joint problem-solving among novices, with the teacher as a minimally participating expert (Anton & DiCamilla, 1998; Donato, 1994; Ohta, 1995). Donato (1994) studied how language learners collectively strive for grammatical accuracy while engaged in a language task. He concluded that, because the students were working in groups, they were able to produce language that they would not have been able to produce individually. Anton and DiCamilla (1998) also extended the theory of scaffolding to include joint problem-solving among novices. They qualitatively analyzed students’ use of the first language (L1), which was English, to demonstrate how the L1 is used to perform a variety of semiotic functions in group language learning tasks. Scaffolding and studies that support its positive effects provide a persuasive argument for investigating interaction in L2 learning.

**Interaction and second language acquisition**

The study of interaction was instigated partially by Krashen’s (1982) input hypothesis, which stated that learning takes place when the learner comprehends language at a level just beyond that of his or her current competency. This theory was supported early on by Long (1983), who showed positive effects in communicative ability when native speakers (NS) modified their speech while conversing with non-native speakers (NNS), thus making their speech comprehensible. Swain (1985) shifted the focus from comprehensible input to comprehensible output, in which L2 speakers are forced to produce grammatical forms accurately, or at least with sufficient accuracy to be understood by NS interlocutors. However, Sato (1986) warned against regarding interaction as the driving force behind second language acquisition because it does not have the same beneficial effect on all learners. In a longitudinal study of two Vietnamese boys living in the United States, Sato found that, in many instances, the boys communicated with NS interlocutors without producing accurate grammar forms. She concluded that interaction does not positively affect interlanguage development for all learners.

Interaction has been shown to have a positive effect in one arena of language acquisition in particular: listening comprehension (Ellis, Tanaka, & Yamazaki, 1994; Gass & Varonis, 1994; Loschky, 1994; Pica, Young, & Doughty, 1987). In these studies, on-line listening comprehension was facilitated by interaction with NS interlocutors. In the study conducted by Ellis et al. (1994), Japanese high school students learning English exhibited better comprehension and greater vocabulary
acquisition when they were able to ask questions while listening to a set of directions from their teacher.

Contrary to the potential link between interaction and listening comprehension, interaction does not seem to assist learners with accurate production of TL grammar forms in much of the interaction literature (Pica, 1994). Gass and Varonis (1994) found a possible effect of interaction on production of new forms, particularly of new vocabulary items, in their study involving NS-NNS university student dyads completing an information gap activity. However, more solid evidence linking interaction with accurate production of new linguistic forms is lacking in the interaction literature.

These studies have concentrated on describing NS-NNS interactions in situations in which fluent speakers of the TL interact with lower proficiency speakers, thus enacting the expert-novice roles found in scaffolding theory. Another major trend in interaction research is the investigation of learning processes engaged when students with the same level of linguistic ability in the L2 work in pairs or small groups to perform language activities. NNS-NNS pairing represents the modified scaffolding scenario in which pairs or small groups of novices work collaboratively through a cognitive activity (e.g., Anton & DiCamilla, 1998; Donato, 1994; Goss et al., 1994; Ohta, 1995; Storch, 1999; Swain, 1998; Swain & Lapkin, 1998).

When language students who share a first language engage in collaborative tasks, their potential to utilize scaffolding is maximized (Anton & DiCamilla, 1998; Wells, 1998). Donato (1994) found that English-speaking learners of university-level French focused on grammatical accuracy as well as meaning while engaged in a group task, even though accuracy was not stressed in task instructions. The recorded interactions showed that learners were able to produce language forms with greater accuracy than they would have been able to produce individually, even though forms were not always grammatically accurate. Anton and DiCamilla (1998) found similar behaviours among adult Spanish learners performing a writing task in dyads.

Not all NNS-NNS interaction studies include participants who share the same L1. Storch (1999) examined the production of grammatical accuracy on three tasks completed individually and in pairs by intermediate-level university ESL students from various language backgrounds. Findings indicated that students produced forms with greater accuracy, though less complexity, in the tasks completed collaboratively. This study supports the positive effect of interaction on grammatical accuracy even though participants did not have a common L1, theoretically necessary for scaffolding.
Characterizing interaction

Pica (1994) argued that characterizing the learning processes manifested through interaction is as important as examining the learning outcomes demonstrated through comprehension and production gains. Research that analyzes and characterizes how learners interact is needed because, if the dialogue between students engaged in a group activity reveals the mental processes of language learning, understanding what that dialogue entails would provide a window on how people learn languages (Platt & Brooks, 1994; Goss. et al, 1994; Swain, 1998; Swain & Lapkin, 1998). In response to this line of inquiry, some researchers have qualitatively described and defined the types of interaction that take place (e.g., Anton & DiCamilla, 1998; Ohta, 1995; Swain, 1998; Swain & Lapkin, 1998).

Swain and Lapkin (1998) described language as a psychological tool that learners use in order to accomplish a task. They examined dialogue between two native English-speaking French immersion students performing a language task to see how the L1 was used in conjunction with the TL as a tool in L2 learning. They focused specifically on students’ use of ‘language related episodes’ (LREs) that occurred while engaged in a collective task. LREs are instances in which students talk about the TL, question their own language use, and correct themselves and others. Qualitative analyses of these episodes, compared with students’ performance on post-interaction measures, demonstrated the value of collaboration in task completion and interlanguage development.

Through analysis of student interaction, Anton and DiCamilla (1998) developed a taxonomy of cognitive processes that included scaffolding, problem-solving through metatalk, evaluating and comprehending a collaboratively constructed text, creating a social and cognitive space in which learners have a shared perspective, making the task manageable, and organizing and planning the task. Ohta (1995) also proposed categories of interaction including hypothesis testing, lexical experimentation, repair, role negotiation, task management, and provision of humour in language play. These categories are useful in analyzing group interactions because they supply a framework for characterizing the mental processes involved in language learning.

Statement of the problem and research questions

Despite the abundance of research, much remains unknown about the nature of interaction in language learning. The literature shows that
there are still questions about the effectiveness of interaction on language learning in terms of listening comprehension and production of grammar forms (e.g., Ellis et al., 1994; Gass & Varonis, 1994; Loschky, 1994; Storch, 1999; Van den Branden, 1997). Also, although interaction has been characterized as providing scaffolding, there has been little evidence of how that scaffolding has been instrumental in learning gains. In many of the studies in which interaction was analyzed qualitatively (e.g., Donato, 1994; Ohta, 1995), learning outcomes demonstrated through immediate or delayed post tests were not reported.

In the present study, we attempt to address the problem of determining the effect of interaction by examining two related sub-problems. The first sub-problem involves determining whether interaction has a positive effect on interlanguage development. The second sub-problem involves determining the features or characteristics that might account for this effectiveness. Two research questions (RQs) guided this study: (a) What is the effect of group interaction on interlanguage development, specifically listening comprehension (LC) and production of new grammar forms (RQ1)?; and (b) What are the characteristics of the language used by L2 learners when interacting in a group activity (RQ2)? Based on the literature reviewed above, for RQ1, we hypothesized that interaction would have a positive effect on LC and on the production of new grammatical forms. For RQ2, we formed a third hypothesis that participants would use the L1 in conjunction with the TL to question language use, correct themselves and others, and repair grammar forms and vocabulary, as seen in previous analyses of interaction talk (Swain & Lapkin, 1998).

Methodology

Project design

Interaction was investigated using a one-shot design with one independent variable (i.e., interaction) with two levels (i.e., interaction in small groups or no interaction). The experimental group and the control group each comprised two separate classes of Spanish 101 and were therefore convenience samples. Within the experimental group, small interaction groups, ranging from three to four students each, were assigned randomly. The grammar pre-test and LC pre-test were used as baseline measures. The text reconstruction activity was intended to serve as a measure of acquisition of the target grammar forms. Table 1 outlines the design of the study.
TABLE 1
Outline of activities for experimental and control groups

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre-tests and Student Background Questionnaire&lt;br&gt;Listening comprehension pre-test, grammar pre-test, questionnaire</td>
</tr>
<tr>
<td>2</td>
<td>Instruction of Target Forms&lt;br&gt;Approximately 3 hours of instruction in target grammar forms</td>
</tr>
<tr>
<td>3</td>
<td>The Experiment&lt;br&gt;• Both groups listen to a 150-word mini-lecture and take notes&lt;br&gt;Experimental group engages in interaction (recorded on audiotape) for five minutes&lt;br&gt;• Control group has no interaction, notes studied individually for five minutes&lt;br&gt;• Text reconstruction activity completed individually using notes&lt;br&gt;• Multiple-choice listening comprehension post-test completed individually using notes</td>
</tr>
</tbody>
</table>

Participants

The 39 participants were native English speakers enrolled in two different classes of first-semester Spanish (i.e., Spanish 101) at a university in the southwestern United States. Classes met Monday through Thursday for one hour. Both classes were taught by the same instructor, a native Spanish speaker. Group and pair work were common in both classes, occurring at least three times per week. The main difference between the two classes was that one class took place one hour earlier than the other. The control group consisted of 21 students (12 females and nine males). The experimental group consisted of 18 students (14 females and four males). All were undergraduate students ranging in age from 18 to 30 years.

In order to determine the effectiveness of interaction on students' acquisition of the target grammar forms, we needed to determine that the participants were unfamiliar with the forms prior to the experiment. A grammar pre-test (maximum score of nine) to assess students' knowledge of the target forms was created and administered. Means for this pre-test were 3.61 for the control group and 4.00 for the experimental group. From these low means, we determined that the participants were not familiar with the target grammar forms. Furthermore, in order to be sure that there were no differences in listening comprehension ability between the two groups, we extracted scores from the listening comprehension section of a recently administered mid-term examination. A one-way ANOVA comparing the two groups' scores
showed no significant difference on the grammar pre-test \( (F = 0.24, p = 0.63) \) or on the LC pre-test \( (F = 0.65, p = 0.43) \). Based on these comparisons, it was assumed that both groups had little previous knowledge of the target grammar forms and had similar listening comprehension abilities prior to the experimental task.

A preliminary questionnaire asking about previous Spanish study showed that a quarter had never studied Spanish, and nearly three quarters had studied Spanish for a period ranging from one to four years. However, these students were evenly distributed between the two groups, with 1.37 average years of previous Spanish study for the control group and 1.59 average years for the experimental group. A one-way ANOVA comparing number of years of previous Spanish study of both groups showed no significant difference \( (F = 0.30, p = 0.59) \). The lack of significant differences between the two groups on the grammar pre-test, the listening comprehension pre-test, and amount of previous Spanish study led us to establish that, although not randomly assigned, the two groups were equivalent and could be compared in this study.

**Materials**

Materials developed especially for this study included a questionnaire, a grammar pre-test focusing on the target grammar forms, a mini-lecture script (see Appendix A), a formatted note-taking sheet (see Appendix B), a text reconstruction sheet, and a listening post-test answer sheet. The questionnaire collected information on students’ familiarity with and attitudes toward Spanish, which are beyond the focus of the present study. The formatted note-taking sheet was divided into three sections, with the names of the three characters described in the mini-lecture at the top. This material was meant to provide a context for the mini-lecture.

The mini-lecture focused on daily routines and schedules, for example, ‘Silvia gets up at ten o’clock. She eats lunch, then goes to school.’ The topic of daily routines was chosen because it mirrors the way in which the target grammar forms are taught in the Spanish 101 curriculum at our university. The target grammar forms were reflexive pronouns used with special verbs (e.g., bañarse – to bathe); stem-changing verbs (e.g., volver – to return); and the prepositions antes de (before) and después de (after) used with infinitives. These grammar forms were selected because they were scheduled to be taught at the time of the experiment according to the syllabus used by all Spanish 101 classes.
Interlanguage Development of Spanish Learners

Procedures

Prior to the experiment, students received a minimum of three hours of instruction in the target grammar forms. Informed that they would be taking part in a research experiment, students signed waivers of consent. In their regularly scheduled classes with their regular teacher, students were instructed to listen to and take notes on a mini-lecture (of 150 words) on which they would have to complete a text reconstruction task and LC test. The teacher read the following instructions:

I will read you a short passage about Teresa, Silvia, and Felipe. Take notes on their daily routines on the sheet provided. After I read, you will compare your notes with the notes of the other people in your group. You will have 5 minutes to do this and your conversations will be tape-recorded. (The control group heard: After I read, you will have 5 minutes to refer to your dictionaries or textbooks to make your notes more helpful for you to recreate the passage.) After the 5 minutes, you will be asked to recreate the passage as best as you can using only your notes. Pay special attention to the grammar forms that you use. You must work individually to do this. You will have 7 minutes to write the passage. Then, I will collect them and give you a short listening comprehension test. Any questions?

The instructor, a native speaker of Spanish, read the mini-lecture twice at a slower pace than her natural speaking rate. All participants were observed taking notes independently using the note-taking sheet.

After hearing the mini-lecture, the experimental group students were divided randomly into five groups of three to four members in which they shared notes for five minutes while being taped. In the other class, the control group students studied their notes for five minutes; they could consult dictionaries and textbooks to supplement their notes. All students then individually completed a text reconstruction task using only their notes. Students were advised to pay special attention to the production of the target grammar forms. After completing the text reconstruction activity, students took an LC post-test. LC question items were read twice by the instructor and answered on a sheet with multiple choice answers only (see Appendix for LC post-test questions and answers). Because the intent of the LC post-test was to assess their comprehension of the questions, not how well they remembered specific details of the passage, participants could consult their notes. The whole procedure took approximately 45 minutes.
Results

Post-test outcomes: A comparison of production and comprehension

The text reconstruction task was scored by two raters. For each grammatically accurate use of one of the three target grammar forms (i.e., reflexive pronouns, stem-changing verbs, and prepositions with infinitives), the student was awarded one point. In some cases, an accurately produced form was worth two points if it involved two grammar structures. For example, *se despierta* (wakes up) is both a stem-changing verb and a reflexive verb; therefore, if a student used it accurately, two points were awarded. Twenty-one uses of the target grammar forms (17 one-point forms and four two-point forms) occurred in the listening text; therefore, there were 21 possible points on the text reconstruction. If a student used one of the target grammar forms with vocabulary words other than those used in the listening script, for instance *antes de regresar* (before returning) instead of *antes de volver* (also before returning), the point was still awarded because the student had used the form accurately. Inter-rater reliability of the text reconstruction activity was calculated at 0.98 using Pearson’s product-moment correlation, an appropriate inter-rater reliability method for equal interval data (Hayes & Hatch, 1999).

The LC post-test consisted of 10 multiple choice questions worth one point each. The total possible number of points was 10. Reliability was calculated at 0.73 using the Spearman-Brown prophecy formula, a split-half method that can be used with a traditional test consisting of ten items or more (Linn & Gronlund, 1995, p. 87).

In response to RQ1, on the effect of interaction on the production of target grammar forms and LC, the text reconstructions (i.e., grammar production measures) and LC post-tests were scored and analyzed (see Table 2).

The experimental group had a higher mean on the LC post-test and a slightly higher mean on the text reconstruction task. The experimental

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Post-test descriptive statistics for experimental and control groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>Control group (<em>n</em> = 21)</td>
</tr>
<tr>
<td></td>
<td><em>M</em></td>
</tr>
<tr>
<td>Text reconstruction</td>
<td>5.67</td>
</tr>
<tr>
<td>LC post-test</td>
<td>6.86</td>
</tr>
</tbody>
</table>

group also had smaller standard deviations (SDs) on both measures and an overall higher range on the LC post-test.

Inferential statistics provided a clearer perspective on these differences. Alpha was set at 0.05 for all analyses. A one-way ANOVA revealed no significant difference between the two groups on the text reconstruction activity ($F = 0.48, p = 0.49$). However, the experimental group scored significantly higher than the control group on the LC post-test ($F = 13.56, p = 0.001$).

To follow-up on this finding and to determine where the differences lie, we took a closer look at the LC post-test means for the interaction groups and compared them to the control group. Means on the LC post-test were 6.8 for the control group, 8.0 for Group A, 8.5 for Group B, 10.0 for Group C, 8.0 for Group D, and 8.5 for Group E. Fisher's least significant difference (LSD) post-hoc test showed that significant differences in LC post-test scores existed between the control group and Group B ($p = .05$), Group C ($p < .01$), and Group E ($p = .05$). These results indicate that the variability on the LC post-test between the control group and the experimental group was accounted for mainly by interaction Groups B, C, and E.

In search of a possible explanation for the differences among the interaction groups, we re-examined the number of years of previous Spanish study for the interaction groups. A calculation of means resulted in 1.37 years of previous Spanish study for the control group, 2.67 years for Group A, 1.50 years for Group B, 1.50 years for Group C, 1.00 for Group D, and 1.25 for Group E. A one-way ANOVA found no significant difference between the groups in this respect ($F = 0.70, p < 0.63$). Therefore, the differences between Groups B, C, and E and the other groups cannot be accounted for by previous Spanish study. Furthermore, there is no possibility that students cheated within their groups because they were watched carefully by both the instructor and the researcher during administration of the LC post-test.

Quantitative analysis of the recorded interactions

Before we present the data from the analyzed interactions, we will describe the make-up of the groups. Students from the experimental class were divided randomly into five groups to ensure that each group had a variety of ability levels. As well, there were only four males, so four of the groups had one male, and one group (Group B) was comprised of all females. While all students interacted, some of course contributed to the conversation more than others. However, in no group did a single student dominate the interaction for the whole period.
Instead of differences in participation within the groups, we saw differences between the groups. The data presented below will show how each group interacted in different ways.

In response to RQ2, on the characteristics of language used in interactions, we used three computer programs to analyze the small group interactions. The first two programs merely prepared the data for analysis by the third program. The first program, a ‘tagger’ developed by Biber (1988), identified each word in the transcribed interactions with up to four grammatical categories. The second program, referred to as a ‘fix-tagger,’ also developed by Biber, allows the user to double-check tagged words for accuracy and to adjust any miscoded words. This was especially important for the tagging of Spanish words, which were not identifiable by the tagger or fix-tagger. The third program, written by one of the researchers exclusively for the purposes of this study, identified and counted target Spanish forms. This custom-made program was written in Pascal language with Delphi 4 software. Similar types of analysis have been used in the examination of classroom talk. Wegerif, Mercer, and Rojas-Drummond (1999) used a computer program to investigate the interactions between teachers and students in Mexican pre-schools, finding that the computer-based method enhanced the efficiency and accuracy of their analysis. Raw counts for each group’s total number of words and total number of Spanish words produced are presented in Table 3.

This analysis reveals much variation in the amount of talk in the interaction groups, with Groups B, C, and E producing the highest number of words. Group C especially stands out in total number of Spanish words used. An examination of the transcripts showed that no single member of Group C contributed more Spanish words than the other members; in other words, all members contributed similarly.

The customized computer program counted the following features: reflexive pronouns with reflexive verbs; the prepositions antes de and después de; and stem-changing verbs. These counts were then normed to 100 words because the group sizes were uneven, with three groups of four members and two groups of three members. Norming allowed for comparisons across the groups. Normed counts for these features are listed in Table 4.

The normed counts of the total number of Spanish words and the target grammar forms were then plotted on a graph to show the differences among the interaction groups (See Figure 1).

Group C produced the highest frequency of all target grammar forms. Group E produced a relatively high frequency of stem-changing verbs, and Group B produced a relatively high frequency of prepositions.
Table 3
Raw counts of Spanish words and total words per interaction group

<table>
<thead>
<tr>
<th>Interaction group</th>
<th>Total Spanish words</th>
<th>Total words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (n = 3)</td>
<td>14</td>
<td>439</td>
</tr>
<tr>
<td>Group B (n = 4)</td>
<td>24</td>
<td>610</td>
</tr>
<tr>
<td>Group C (n = 4)</td>
<td>143</td>
<td>609</td>
</tr>
<tr>
<td>Group D (n = 3)</td>
<td>3</td>
<td>391</td>
</tr>
<tr>
<td>Group E (n = 4)</td>
<td>65</td>
<td>744</td>
</tr>
</tbody>
</table>

Table 4
Counts of grammatical features used in interactions (normed per 100 words)

<table>
<thead>
<tr>
<th>Interaction group</th>
<th>S/W</th>
<th>R/P</th>
<th>Prep</th>
<th>S/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (n = 3)</td>
<td>23.48</td>
<td>0.00</td>
<td>0.23</td>
<td>0.00</td>
</tr>
<tr>
<td>Group B (n = 4)</td>
<td>3.93</td>
<td>0.00</td>
<td>0.82</td>
<td>0.49</td>
</tr>
<tr>
<td>Group C (n = 4)</td>
<td>23.48</td>
<td>1.64</td>
<td>1.81</td>
<td></td>
</tr>
<tr>
<td>Group D (n = 3)</td>
<td>0.77</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Group E (n = 4)</td>
<td>8.74</td>
<td>0.54</td>
<td></td>
<td>1.34</td>
</tr>
</tbody>
</table>

S/W: total Spanish words; R/P: reflexive pronouns; Prep: prepositions; S/C: stem-changing verbs.

FIGURE 1
Normed counts of Spanish words and target grammar forms per interaction group
Group A produced barely any target grammar forms, and Group D produced none at all.

Qualitative analysis of the recorded interactions

In further response to RQ2, the recorded interactions were analyzed for communicative features that might reflect scaffolding. We observed students questioning language use and repairing grammar forms, findings similar to other research on interaction (Ohta, 1995; Swain & Lapkin, 1998). We also observed two additional characteristics that we identified as confirmation and code-switching.

Questioning language use, a characteristic of students' language-related episodes (LREs) described by Swain and Lapkin (1998), involves participants asking one another in the L1 about usage of the TL. This type of question-answer exchange demonstrates how members of a group request clarification regarding the TL. All of the interaction groups were observed using this strategy, except for Group D, which produced very few Spanish words, as reported above. In some examples of questioning language use, the student directly asked what an unfamiliar word meant, as in this example from Group C:

Example 1

Student A: I have él empieza trabajar a las ... (he starts working at ...)
Student B: What is empieza?
Student C: Starts, he starts work.
Student A: Yeah, begins to work.

Student B explicitly asks for the meaning of a word, and his classmates provide the information. In other examples of questioning language use, the student has an idea of what a word means but wants to clarify it, as in this example from Group B:

Example 2

Student A: Wouldn't it be after that she brushes her teeth?
Student B: I thought she said antes de? (before)
Student A: Antes de.
Student B: Antes de ... that's before, right?
Student C: Yeah.

When Student B asks 'that's before, right?', she is clarifying the meaning of antes de in order to address the question raised by Student A.
Student A apparently thought that something happened after the character brushes her teeth. The other members of the group remembered that it was *antes de*, which means 'before.' The meaning of *antes de* is then clarified so that the group can be confident about the sequence of events.

Ohta (1995) pointed out how students repair grammar forms while engaged in collaborative activities. In our analysis, two examples that represent this characteristic were found. Here is an example from Group C:

**Example 3**

Student A: Then *jugar volibol con amigas*. (to play volleyball with friends)
Student B: Is it *jugar* or was it *jugan*, like uh ...?
Student C: Before she goes to the house ...
Student D: *Juega*. (she plays)
Student B: She plays volleyball with her, with her ...
Student D: It has to be *juega* ... (plays)
Student A: *Juega* ...
Student B: I think it's uh ...
Student D: *Juega*.
Student B: Yeah, I think it should be uh conjugated, uh ...
Student C: *Juega con sus amigas*. Is that what you guys had? (plays with her friends)

Student B is not sure how to conjugate the verb *jugar*, a stem-changing verb that changes to *juega* in the third-person singular present tense. Student D is sure about this form and utters it early on in the exchange. However, the students continue to discuss it until all of the members of the group are in agreement. The next example, from Group E, also concerns a stem-changing verb.

**Example 4**

Student A: She gets up at ten in the morning
Student B: *Despierta, despierta*? (wakes)
Student A: Yeah.
Student C: Mmhmm.
Student B: *Despierta* or *desperta*, right?
Student C: *Despierta*, yeah.

Here Student B is unsure how the verb *despertarse* changes in the third-person singular present tense. Her question elicits assurance from her classmates.
In Examples 3 and 4, we observe students working out the correct grammar forms as a collective activity. The students who are in doubt feel comfortable experimenting with possible yet incorrect forms like *jugan or *desperta. By asking about the forms about which they are unsure, students elicit the correct forms from their co-learners.

We found several instances where students used translation as a means of confirming their own accuracy and comprehension. These confirmations occurred when a student uttered his or her own translation of a word or phrase in the TL, as in these examples from Groups B and E respectively:

Example 5

Student A: And then he takes a nap and desayuna, he eats breakfast. (eats breakfast)

Example 6

Student A: She levanta a las siete de la mañana. (gets up at seven in the morning)
Student B: Mmhmm.
Student A: She gets up at seven in the morning.

In these examples, Student A associates a word or phrase in the TL with its direct translation in the L1. These confirmations of meaning were not uttered with rising intonation as they might have been if the student were checking his or her understanding with the other members of the group. We think that confirmations represent a strategy for reinforcing meaning between the word or phrase in the TL and the L1, and may be a step toward acquisition.

A final feature that we observed was code-switching, which is highly surprising in a group of beginners because it is a characteristic of bilingualism (Baker, 1996) and requires a high level of proficiency in two languages (Poplack, 1980). This characteristic was observed in the interaction of Group C only. The following are examples of this feature from their dialogue.

Example 7

Student A: And then she said Silvia se desperta a las seis, right? (wakes up at six)
Student B: Yes. Is it seis? (six)
Student C: I got diez. (ten)  
Student D: I got ten.  
Student B: I got ten.  
Student A: Alright. I'm just not hearing things right.  
Student C: Ten in the morning después almorzar, she va a la universidad. Is that what you had? (after eating lunch, she goes to the university)

Example 8

Student A: Didn’t she say she was muy ocupada?  
Student B: Yeah.

Example 9

Student A: Por eso *levanta five in the morning, se baña, and then I missed a bunch of it. (therefore, he gets up) (he bathes)  
Student B: Por eso se levanta five in the morning. (therefore he gets up)  
Student C: And then se baña. (he bathes)

In Example 7, Students B and C use numbers in Spanish as easily as they would use them in English. Student C’s final remark begins in English, switches to Spanish, goes back to English with the word ‘she,’ then switches back to Spanish. In Example 8, Student A uses an English subject and verb with a Spanish predicate: ‘... she was muy ocupada.’

In the final example, the students are trying to figure out a sequence of events. From the stress and intonation of their recorded utterances, we concluded that they were not concerned with grammar or vocabulary. Student A switches from Spanish to English, then back to Spanish, omitting the required reflexive pronoun. Student B repeats Student A but inserts the reflexive pronoun without stressing it, as she would if she were correcting him. Student C continues the dialogue by adding new information in Spanish. Spanish is used to discuss the actions of one of the characters, not to clarify vocabulary or work out grammar forms, as seen in the examples of questioning language use or repairing grammar forms. This reminded us of code-switching because there seemed to be no readily apparent reason for the students to use the TL in this context other than the fact that they could use it.

These examples have shown the various ways in which students interact and work out language forms. In these interactions, although not always grammatically accurate as noted by the asterisk (*), the variety of strategies that beginning-level students use to maximize the knowledge of the other learners in their groups becomes apparent.
Discussion

Our first research question asked: What is the effect of group interaction on interlanguage development, specifically listening comprehension and production of new grammar forms? We hypothesized that interaction would have a positive effect on both. Results from the post-tests revealed that interaction did not seem to have a positive effect on participants' production of the target grammar forms. However, in the case of Groups B, C, and E, interaction may have had an effect on listening comprehension of the target forms. This outcome supports much of the previous literature on the effects of interaction (e.g., Ellis, Tanaka, & Yamazaki, 1994; Gass & Varonis, 1994; Loschky, 1994; Pica, Young, & Doughty, 1987).

Our second research question asked: What are the characteristics of the language used by students while interacting in a group activity? We hypothesized that participants would use the L1 in conjunction with the TL to question language use, correct themselves and others, and repair grammar forms and vocabulary. From the quantitative analysis of the taped interactions, we found that Group C produced considerably more Spanish than the other groups. Furthermore, some groups used the target grammar forms and others did not. The lack of target grammar forms in the interactions of Groups A and D are perplexing because students were told to pay special attention to grammatical accuracy. These two groups seemed to be more concerned with facts and sequences of events. Perhaps these students were thrown off by our instructions to 'recreate the text.' The three groups who used the target grammar forms while interacting also scored the highest on the LC post-test.

From the qualitative analysis of the taped interactions, we can see how participants used language as a cognitive tool. Examples of questioning language use and repairing grammar forms show how students used 'language to co-construct the language they need to express the meaning they want and to co-construct knowledge about language' (Swain & Lapkin, 1998, p. 333). These techniques are used as scaffolding for learning from each other. Confirmation and code-switching show how learners at this level become comfortable with a new language. Code-switching has been observed as a communication strategy used by language learners to compensate for lack of L2 knowledge (Poulisse, 1997) by switching from the L2 to the L1. However, our examples show students switching from the L1 to the L2, mainly with verb phrases. This switch to the L2 may be a strategy for automatizing new verb forms.
Although these learners were all enrolled in the same course and did not demonstrate wide disparity on pre-tests, they still had varying levels of ability. This variability within a small group may be the key element for scaffolding to take place. Variability also existed between groups. Some groups took more advantage of the collaborative nature of the task than did others. When given the resource of other learners, participants reacted diversely. Groups A and D hardly used the TL at all and were more concerned with content, about which they talked almost exclusively in the L1, than with grammar or vocabulary. Group C incorporated the TL into the fabric of conversation, as seen in the code-switching examples. Group B made a lot of clarifications regarding language use. Group E used a mixture of questioning language use, repairing grammar forms, and confirming meaning. How a group interacts may be connected to how its interlanguage develops. We argue that the higher LC post-test means of Groups B, C, and E can be accounted for by their interaction strategies.

Conclusion

This study was originally designed to investigate the effect of interaction on listening comprehension and the production of target grammar forms. It has shown that listening comprehension can improve with the addition of interaction, although teachers and language researchers need clearer guidance in the types of interaction that are effective. One option is to take the interaction features described above as models of how successful language learners interact. Further research is needed in this area in terms of how interaction strategies can affect language learning success.

This study also attempted to identify the types of interaction that students use while engaged in a collaborative task. Observation of how scaffolding takes place, whether in the form of questioning language use, repairing grammar forms, confirming, or code-switching, allows us to witness how students approach language learning. The groups examined here displayed some interaction types already identified by previous researchers, as well as two new ones, confirmation and code-switching. As this area continues to be researched, more interaction types will surface. Much more research on the benefits of interaction must be done so that teachers and researchers can have a full understanding of the advantages of interactive activities and of how to maximize those advantages.
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Note

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References


Interlanguage Development of Spanish Learners


Appendix A

Mini-lecture script

Spanish version

Mi nombre es Teresa y vivo con mis hermanos, Silvia y Felipe. Soy una persona muy ocupada. Me levanto a las siete de la mañana. Antes de bañarme, me cepillo los dientes. Luego, me visto y salgo para mi escuela. Mis clases empiezan a las nueve de la mañana.
Mis hermanos son diferentes. Silvia se despierta a las diez de la mañana. Y después de almorzar, va a la universidad. Antes de volver a la casa a las ocho de la noche, Silvia juega voleibol con sus amigas.

Mi hermano Felipe empieza a trabajar a las siete de la mañana. Por eso, se levanta a las cinco de la mañana. El se baña y se desayuna antes de ir al trabajo. Va a la casa a las tres de la tarde. Después de tomar una siesta, sale con sus amigos. Felipe se acuesta a las doce de la medianoche después de cenar pizza.

English Version

My name is Teresa and I live with my siblings, Silvia and Felipe. I am a very busy person. I get up at seven in the morning. Before taking a bath, I brush my teeth. Later, I get dressed and leave for school. My classes start at nine in the morning.

My siblings are different. Silvia wakes up at ten in the morning. And after eating breakfast, she goes to the university. Before returning home at eight at night, Silvia plays volleyball with her friends.

My brother Felipe starts work at seven in the morning. Therefore, he gets up at five in the morning. He bathes and eats breakfast before going to work. He returns home at three in the afternoon. After taking a nap, he goes out with his friends. Felipe goes to bed at twelve at night after eating pizza for dinner.

Appendix B

Sample note-taking sheet

Name: _______________________

<table>
<thead>
<tr>
<th>Teresa</th>
<th>Silvia</th>
<th>Felipe</th>
</tr>
</thead>
</table>

Appendix C

Listening post-test answer key

Listen to the questions as your teacher reads them. Circle the letter of the answer you think is the correct response to each question according to the passage you heard. You may refer to your notes.
Spanish version

1. ¿Quién se levanta primero?
   a. Teresa
   b. Silvia
   c. Felipe

2. ¿Qué hace Teresa antes de bañarse?
   a. va a la escuela
   b. se viste
   c. se cepilla los dientes

3. ¿Cuándo empiezan las clases de Teresa?
   a. a las diez de la mañana
   b. en la tarde
   c. las nueve de la mañana

4. ¿Cuándo se despierta Silvia?
   a. después de Teresa
   b. antes de Teresa
   c. antes de Felipe

5. ¿Qué hace Silvia antes de ir a la universidad?
   a. almuerza
   b. juega voleibol
   c. desayuna

6. ¿Qué hace Silvia después de jugar voleibol?
   a. almuerza
   b. va a la casa
   c. va al trabajo

7. ¿Cuándo vuelve Silvia a casa?
   a. por la medianoche
   b. por la noche
   c. a las cinco

8. ¿Por qué se levanta Felipe a las cinco de la mañana?
   a. va a la escuela con Teresa
   b. empieza a trabajar a las siete
   c. tiene que salir con sus amigos

9. ¿Qué hace Felipe después de tomar una siesta?
   a. va al trabajo
   b. sale con sus amigos
   c. cena pizza

10. ¿Quién se acuesta a la medianoche?
    a. Teresa
    b. Silvia
    c. Felipe

English Version

1. Who gets up first?
   a. Teresa
   b. Silvia
   c. Felipe

2. What does Teresa do before bathing?
   a. goes to school
   b. gets dressed
   c. brushes her teeth
3. When do Teresa’s classes start?  a. at 10 in the morning
b. in the afternoon
c. at 9 in the morning

4. When does Silvia wake up?  a. after Teresa
b. before Teresa
c. before Felipe

5. What does Silvia do before going to the university?  a. eats lunch
b. plays volleyball
c. eats breakfast

6. What does Silvia do after playing volleyball?  a. eats lunch
b. goes home
c. goes to work

7. When does Silvia return home?  a. at midnight
b. at night
c. at five

8. Why does Felipe get up at 5 in the morning?  a. to go to school with Teresa
b. he starts work at 7
c. he has to go out with friends

9. What does Felipe do after taking a nap?  a. he goes to work
b. he goes out with friends
c. he eats pizza for dinner

10. Who goes to bed at midnight?  a. Teresa
b. Silvia
c. Felipe