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Learners' interactions: a comparison of oral and computer-assisted written conversations

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Abstract

Previous research has underscored the role of negotiation in providing appropriate conditions for second language acquisition. Varonis and Gass (1985b), in a study of English as a Second Language (ESL), found greater amount of negotiation in non-native-non-native interaction than in native-non-native interaction. Given the increased interest in computer mediated communication and in its applications to language learning, this investigation explores whether those results are obtained when using an electronic written medium. This study compared the negotiations generated by dyads of non-native speakers (NNS–NNS), native speakers (NS–NS), and non-native and native speakers (NNS–NS), in the oral and written modes. The results revealed that the NNS–NS group negotiated in the oral mode significantly more than in the written mode; this group also negotiated significantly more than the other two groups in the oral mode. Learners' shared social and linguistic background seemed to have facilitated the comprehension of input. Conversely, lack of familiarity with native speaker's pronunciation seemed to have caused more breakdowns in the oral conversations of the mixed dyads. Though the results of this study suggest that negotiation is not the main resource to obtain modified input in a foreign language context, other learning strategies that may be beneficial in the language learning process were at use in learner-learner interaction.

1 Introduction

Over the past three decades second/foreign language instruction has shifted its focus from the teaching of discrete grammatical features to instructional practices that provide opportunities for learners to communicate. This change in focus is also apparent in the different uses to which technology has been put in language teaching. The integration of technology in the classrooms has reflected, on the one hand, the technological advancements and limitations of the time, on the other, the dominant theories and practices in the language teaching field. Thus, computer-assisted language learning tools have evolved from language software restricted to the electronic reproduction of drills and

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practice exercises to other programs that underscore a collaborative view of learning (Warschauer & Kern, 2000).

In recent years, global and local networks have provided opportunities for learners and teachers to access and share information and to engage in interpersonal contacts. Global networks, such as the Internet, have virtually eliminated geographical distance and socio-political barriers by allowing users all over the world to communicate with each other. Electronic mail, bulletin boards and discussion lists based on the Internet have brought innovative ways of learning and teaching languages into the classroom.

Local networks, which link computers in a laboratory to each other, have made possible one-to-one and many-to-many synchronous interchanges, thus affording language learners new opportunities for communicative practice. Several studies that have investigated networked interaction suggest that it may have a positive impact on acquisition. One of the advantages of this environment is that it allows all students in a group to engage in the process of input comprehension and output production, thus favoring a more equal participation pattern than oral discussions (Kelm, 1992; Kern, 1995; Sullivan & Pratt, 1996; Warschauer, 1996). Fernández-García and Martínez-Arbelaiz (2002) and Pelletieri (2000) show that local networks provide an interactional context where language learners engage in the negotiation of meaning. Such negotiation can result in modified output and in input that is more comprehensible, thus, facilitating language learning (Gass & Varonis, 1985a; 1986; Pica & Doughty, 1985; Pica, 1994; Pica, Kanagy & Falodun, 1993; Scarcella & Higa, 1981; Varonis & Gass, 1985a; 1985b).

While previous studies have compared whole-class and small group interactions in the computer and oral modes, no study to date has examined the interaction of dyads across the two modes. This study attempts to investigate to what extent the computer-generated discourse and the oral discourse of learners of Spanish as a foreign language differ in terms of negotiated interaction. It also explores to what extent the socio-linguistic background of the dyad members has an impact on the co-construction of the interactional discourse across the two modes.

2 Research background

The use of computer-assisted interaction has gradually increased in the second/foreign language classroom. Parallel to the introduction of this new pedagogical tool, research has begun to pay attention to its effect on language learners' performance and classroom dynamics. In their studies on electronic synchronous discussions, Beauvois (1992) and Kelm (1992) observed that learners of French and Portuguese that did not participate much in oral discussions did actively engage in electronic discussions. However, these studies do not provide an experimental comparison with the oral medium but rather they assumed it as a frame of reference.

Studies that did examine learners' interactions in the oral and the electronic mediums yielded sometimes comparable, sometimes somewhat contradictory results. Kern (1995) examined whole-class discussions of learners of French as a foreign language and documented specific advantages of computer-mediated interaction over the oral medium, mainly, a more democratic pattern of participation, more learner-generated output and a wider variety of discourse functions. Nevertheless, these results should be considered cautiously given that, as Kern points out, the instructor's role was not comparable across

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mediums and across sessions; on the other hand, other studies suggest a different trend with respect to the amount of output generated.

Sullivan and Pratt (1996) compared large group and small group discussions in two ESL writing environments, a networked computer-assisted classroom and a traditional oral classroom. As Kern, they report an equalizing effect of the electronic medium in participation. With respect to large group discussions, all students contributed in the networked environment but only half of them participated in the oral discussion. In small group discussions, an analysis of the quality of interactions revealed that oral interactions were dominated by the author of the essay discussed whereas no individual member dominated the computer discussion. Regarding the amount of production, Sullivan and Pratt report that learners in the small groups produced more turns in the oral discussion than in the electronic one. They point out that this result is not unexpected as "[t]yped comments take longer to produce than oral responses" (p. 498). Production data for the whole-class discussion is not reported, nevertheless, the results for the small group seem to follow a trend opposite to that found in Kern's study. In light of these results it maybe premature to conclude that learners generate more output in one medium than in the other. Furthermore, such conclusion would neglect the fact that the number of interactants may be an important variable to consider.

Warschauer (1996) compared small group face-to-face and electronic interactions of ESL learners and also found a tendency toward more equal participation in computer-mediated discussions. In addition, he reports that learners used more formal and complex language in this medium. A less encouraging observation was that "the electronic discussion had fewer of the interactional features – such as questioning, recasting, confirmation checks, and paraphrasing – that are often found in face-to-face interaction and which are viewed as important for language learning" (p. 24).

The literature, therefore, suggests that the electronic mode affords equal opportunities for participation to all members of a group discussion. The benefits of this equalizing effect are that each learner would be exposed to more input and thus would, theoretically, have more opportunities to get comprehensible input, a necessary ingredient for acquisition (Krashen, 1985). Likewise, each learner would have more opportunities to generate meaningful output, which according to Swain's output hypothesis (1985) is crucial for L2 development given that it pushes learners to 'stretch' their interlanguage in order to meet communicative goals.

Obviously, in the electronic medium conversational participants are less affected by wait time, turn-taking and other oral interaction constraints, and are thus able to contribute as much as they want and whenever they want. Nevertheless, this potential advantage of the electronic medium may result in a disconnected and not always easy to follow discourse. In his study, Kern noted that electronic discussions often lacked coherence and continuity. In addition, more than half of the survey respondents involved in his study agreed that "it was difficult to read everything that everybody wrote" (p. 469). Given that the electronic medium allows interactants to simultaneously intervene in the discussion, the larger the group size the more disconnected the resulting discourse may look. Even though Warschauer's study (1996) did not involve whole class/teacher led discussions but rather four-member group interactions, he still noticed that the written discourse was less interactive than the oral one, "with people expressing their own ideas as opposed to directly answering questions" (p. 17). Hence, the discourse generated in

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electronic discussions should be further researched to clearly discern the advantages and disadvantages of the electronic over the oral mode of interaction. A study comparing the output generated in dyad interaction in the two modes would help to sort out the relative contribution of each medium.

A particular aspect that could be investigated in the dyad setting is whether the computer environment promotes a type of discourse rich in input made comprehensible through interaction. Such an investigation is relevant in view of the role that interaction and negotiation are claimed to play in the language learning process. In the early 80's, Long used the term "interactional modifications" to refer to what NNSs and NSs do to avoid and repair conversational breakdowns. Later on, second language researchers referred to interactional modifications as "negotiation". Negotiation or interactional modifications can help to make input more comprehensible and assist language learning (Gass & Varonis, 1985a; 1986; Pica & Doughty, 1985; Pica, 1994; Pica, Kanagy & Falodun, 1993; Scarcella & Higa, 1981; Varonis & Gass, 1985a; 1985b; for a different perspective on the role of negotiation in second language acquisition (SLA), see Aston, 1985 and Foster, 1998[1]).

Consequently, a relevant goal of research on network-based communication is to investigate to what extent these features of oral interactions that are considered to be conducive to interlanguage development are also present in the electronic environment (Chapelle, 1997; Ortega, 1997). Two studies of Spanish as a foreign language (Fernández-García & Martínez-Arbelaiz, 2002; Pelletieri, 2000)) found the use of negotiation routines, as operationalized by Varonis & Gass (1985b), in computer-mediated interaction. Fernández-García and Martínez-Arbelaiz examined electronic group discussions and observed that the computer medium allowed each participant in a group to engage in the negotiation of meaning, that is, to indicate a breakdown in communication, and to work towards its resolution at different stages in the unfolding of the group discussion. Pelletieri also found the presence of negotiation routines in the synchronous written discourse of dyads of learners of Spanish. Thus, both studies suggest that interactive features facilitative of second language acquisition are present in the electronic medium.

Still, there remains to be seen whether the oral and synchronous electronic mediums are comparable with respect to the frequency with which interactants engage in negotiating non-understandings. One possibility is that the electronic medium, due to its written nature and the additional planning and processing time it allows, facilitates the codification and decodification of messages. If that were the case, fewer non-understandings and, consequently, fewer negotiation routines would emerge in this medium. On the other hand, in those cases in which non-understandings emerge, the graphic nature and

1 Aston challenges the assumption that there is a relationship between quantity of interactional modifications and acquisition. We believe that Aston's objections do not invalidate the premises of an interactionist approach, given that: (1) even though not all interactional modifications generate the linguistic material the system needs to ultimately evolve, some of them do; (2) some negotiations can have a social function; and (3) opportunities to negotiate are beneficial when conversation unfolds and advances at a minimally comfortable pace. Based on the results of her study, Foster (1998) concludes that negotiation for meaning is infrequent in the classroom. Nevertheless, several methodological flaws (ie., some participants appear across several tasks while others do not, a grammar-based drill is considered a communicative task) call into question the validity of these conclusions.

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the additional planning and processing time of the electronic medium may provide learners more opportunities for noticing (Schmidt, 1990) features in the input. This would allow learners to be more precise indicating and solving the source of a non-understanding. In addition, the graphic nature of the input may allow the speaker to compare adjacent turns and to notice gaps between his/her output and that of the interlocutor.

The possibility of contrasting turns and noticing gaps in one's output may diminish in electronic group interactions where related turns are not always adjacent. This is due to the fact that all interactants can simultaneously contribute to the discussion in the electronic medium. In contrast, in oral group discussions there are floor-sharing conventions that prevent simultaneous turn taking (Sacks, Schegloff & Jefferson, 1974). Given that the asymmetry between the oral and electronic mediums with respect to turn taking options increases with group size, a more informative approach to comparing the opportunities for and the nature of negotiated interaction across mediums would be to focus on the interaction of dyads.

The interactive features of dyad-generated discourse have been extensively studied in the oral mode (Hawkins, 1985; Long, 1983a; 1983b; Gass & Varonis, 1985a; 1985b; 1986; Varonis & Gass, 1985a; 1985b; Pica, 1994). One aspect addressed by this line of research has been whether learners can assist each other in the way native speakers can to provide the type of help that fosters L2 comprehension through negotiated interaction. A specific study (Varonis & Gass, 1985b) found a greater amount of negotiation work in NNS-NNS discourse than in either NS-NS or NS-NNS discourse. The researchers hypothesized that NNSs are more prone to negotiate with each other than with NSs because they feel they do not lose face by negotiating meaning between them. In contrast, lack of shared status (as language learners) discourages learners from negotiating with NSs. Within the group of NNSs, the highest incidence of negotiation was found in those dyads that did not share the L1 neither the L2 level of proficiency, and the lowest in those that shared both the L1 and the L2 level of proficiency. In other words, the more homogenous the backgrounds of the conversational participants were, the fewer the number of negotiation routines.

To summarize, so far the topic of interaction and negotiation has been investigated either in the oral or in the electronic medium, using different research methods (e.g., different tasks, participants). This study compares the oral and the electronic mediums in an attempt to assess how each of them contributes to making input comprehensible through interactional modifications. The study also examines whether the incidence of negotiations varies according to the socio-linguistic background of the conversational participants.

The specific questions addressed in this study are: (1) does the amount of negotiation vary according to the dyad composition (NS-NS, NS-NNS, NNS-NNS)? (2) does the amount of negotiation vary according to the mode of the conversation (oral versus electronic)?

3 This study

To address these questions we conducted a study similar in design to Varonis and Gass (1985b). The study differs from theirs in that it focuses on Spanish in a foreign language context, and it compares face-to-face oral and synchronous electronic interactions. The following section describes the participants that took part in the study, the network tool

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used in data collection, the tasks, and the procedures used to collect, code, and analyze the data.

4 Methods and procedures

4.1 Participants

The pool of participants consisted of NSs and NNSs of Spanish paired in the following way: 14 NNS-NNS dyads, 4 NS-NNS dyads, and 9 NS-NS dyads. The study compares the interactions of NSs-NNSs with those of NNSs-NNSs. The NS-NS dyads were added as a control group. The NNSs were typical foreign language learners of Spanish. All of them were first language speakers of English, and were enrolled in one of two sections of a third-year grammar and composition course at Michigan State University. The NSs were from Hispanic countries and were pursuing studies at the university. All of them were graduate or post-doctoral students except for three who were pursuing a BA and two who were studying English as a second language. The places of origin of the native speakers were Spain, Venezuela, Puerto Rico, Peru, Chile and Mexico and the pairing that resulted, due mostly to individuals' availability to participate in the study, included the following nationalities: 4 Spanish-Spanish dyads, 1 Mexican-Peruvian dyad, 1 Spanish-Puerto Rican dyad, 1 Venezuelan-Puerto Rican dyad, 1 Peruvian-Chilean dyad, 1 Chilean-Mexican dyad.

Within each group, an attempt was made to control for the variable sex, however, it was not possible to have an equal number of male-male (MM), female-female (FF), male-female (MF) dyads due to the predominance of females in Spanish language classes and the unavailability of native speakers to meet at particular times. The final composition of dyads was as follows: 1 MM, 6 FF, 7 MF in the NNS-NNS group; 1 FF, 3 MF in the NS-NNS group, and 4 MM, 2 FF, and 3 MF in the NS-NS group.

Since the tasks required from participants to exchange information about each other's lives, we assigned to the NS-NS and the NS-NNS dyads participants who had not previously met. In the case of the NNS-NNS dyads, scheduling constraints did not allow us to pair students from one section with those of the other. To minimize possible previous knowledge, we paired together students that ordinarily sat far away from each other in class.

4.2 Network tool

The software program used was Chatnet[2], a simple Macintosh interface that allows for synchronous networked communication. It also allows to capture the transcripts of the language data produced during each task.

When working with Chatnet, the user views the computer screen divided into two areas. On the bottom part of the screen there is an area for the user to type his/her own messages. The writer can view up to two lines of the message s/he is typing and can write up to three lines of text in each turn. Although Chatnet allows users to edit messages before sending them, the review process is constrained to a certain extent given

2 For the latest information on Chatnet visit the ELS, Inc. web site: http://www.elsinc.com/

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that it is not possible to roll up or down the window where the text is composed. To send a message users can either hit the return key or click a 'send-message' box on the screen. Messages are posted in the order they are sent on the top part of everyone's screen.

Though synchronous, the Chatnet conversation is different from an oral conversation in that reading and composing messages takes longer than coding and decoding them orally. Still, there exists some pressure to keep the conversation going and thus, the resulting flow of the turn-taking sequence resembles that of an oral conversation.

4.3 Tasks

There were two tasks in this study. The instructions for one of the tasks asked participants to find out about each other's lives before coming to the university. The instructions for the other task asked participants to find out about their plans once they had finished at the university. We assumed that both tasks would be of an approximately equal level of difficulty for the non-native speaker participants, given that talking about past experiences and future plans are typical activities in beginning and intermediate Spanish courses. In addition, both tasks were open-ended and therefore, allowed participants to focus on sub-topics of their choosing.

All dyads completed one task in the oral mode and one in the computer mode.[3] Dyads were given 10 minutes to complete the task in the oral mode. Given that computer written interactions are slower than oral interactions, we tried to minimize the effect of mode on amount of production by giving dyads more time to complete the task in the written mode. Nevertheless, we were constrained by the logistics of the experimental setting. Since the set up for the synchronous interactions had to be carried out during class time, only 20 minutes could be allotted for the actual written interaction task.

4.4 Data collection

All dyads received the instructions for the tasks in written and oral form. Oral conversations were tape-recorded[4] in a recording room that belonged to the Language Learning Center of Michigan State University. The synchronous written conversations were carried out in the same Language Learning Center using Macintosh computers and the Chatnet software.

4.5 Coding of the data

Instances of negotiation in the oral and written conversations were identified and counted. We follow Varonis and Gass' operationalization (1985b) of the construct of non-understanding routines as "exchanges in which there is some overt indication that understanding between participants has not been complete" (p. 73). These exchanges (see Table 1) occur when one interlocutor indicates (Indicator) in an overt way that the

3 Although the order was counterbalanced in the original design of the study, cancellations of appointments by NSs resulted in a smaller pool of pairs and therefore it was not possible to strictly adhere to the original design.

4 We would like to thank Michael Kramizeh for his help with the tape-recording of the oral data.

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other's preceding turn (Trigger) has not been successfully understood. The other interlocutor provides additional information, either repeating, paraphrasing, expanding, reducing or acknowledging the problematic turn (Response). An optional prime (Reaction to Response) may tie up the routine.

In the example presented in Table 1, the first turn activates a non-understanding and, therefore, acts as the Trigger in this routine (*the school closed because of tulips, it is very strange. Are there many people in the parade?*[5]). The question of NNS2 (*what is 'parade'?*) functions as the second prime, the Indicator, and points to the specific source of the non-understanding. In the following turn, NNS1 responds providing the English translation of the Spanish word (*Parade!*).

4.6 Analyses[6] and results

The data was analyzed using the Generalized Linear Model procedure. The main analysis included two factors: Group and Mode. The factor Group included three levels: NS-NS, NS-NNS and NNS-NNS. The factor Mode included two levels: Oral Mode (OM) and Written Mode (WM). The level of significance was set at .05.

The results of the main analysis revealed a significant main effect for Group. No significant effect was found for Mode; no interaction was found. A post-hoc comparison of groups showed that the NS-NNS Group had a significantly higher number of negotiation routines than the NS-NS Group, and also than the NNS-NNS Group. A post-hoc comparison across Modes, showed that the NS-NNS Group was the only one that had negotiated significantly more in the Oral Mode than in the Written Mode.

Separate Generalized Linear Model procedures for the Oral and Written Modes revealed that the NS-NNS Group had outperformed the other two groups only in the Oral Mode. Specific details about the analyses carried out are presented in Appendix A.

5 Discussion

With respect to the first research question, which referred to the variable Group, we found that the NS-NNS dyads were the ones with the highest number of negotiation routines. Nevertheless, it was only in the oral mode that the number of negotiations of this group was significantly higher than the number of negotiations in the other two groups.

Table 1. *Example of negotiation routine*

Trigger:	NNS1: La escuela cerro por tulips, es muy extrano. Hay muchas personas en el desfile?
Indicator	NNS2: Que es "desfile"
Response	NNS1: Parade!
Reaction to Response	NNS2: oh

5 The translations are approximate glosses of participants' exchanges. When possible, we reflected the errors in Spanish in the English translation.

6 We thank the statistical consultant services at Michigan State University for their assistance with the statistical analyses for this project. Any errors are responsibility of the authors.

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In other words, this study provides evidence that suggests that learners of Spanish in a foreign language context negotiate more with native speakers than with other learners in oral conversations. Nevertheless, this conclusion should be tempered given that, on the one hand, there was a small number of dyads in the mixed group; on the other, there was more variability in this group than in the other two. Learners also tended to negotiate more with native speakers than with other learners in the written mode, however, the difference in number of negotiations was not significant.

With respect to the second research question, which concerned the mode of the conversations, the results show that there is a difference between both modes only in the case of the NS-NNS. These dyads negotiated significantly more in oral than in written mode.

In sub-sections 5.1 and 5.2 we will present several factors that may partially account for the results obtained in this study. These factors relate to the nature of each medium and to characteristics that are inherent to a foreign language learning situation. In subsection 5.3, we address a particular use of cooperative strategies that was found in learner-learner interactions. The analysis of the use of these strategies illustrates how, in the unfolding of the conversations, learners provide linguistic support to each other to make up for gaps in their knowledge of the L2.

5.1 Factors that relate to the nature of the medium

In order to understand why the NS-NNS group negotiated more in the oral medium than in the written medium, it is useful to compare the types of indicators that this group used in each mode. With the indicator, the speaker expresses in an overt way that his/her interlocutor's turn has not been successfully understood and, in doing so, it points to the source of non-understanding. Thus, a close look at the indicators can help us to understand whether the nature of the non-understandings varied across modes. Given that a difference across modes was not found in the NNS-NNS group, we will examine the type of indicators used by this group and whether they differed from those used by the mixed group.

An example[7] of each type of indicator present in our data is presented below. The first four were also found by Varonis and Gass (1985b), while the last four were not present in their study[8]:

1	**Explicit statement of non-understanding**
Trigger:	¿qué . qué hacías con las amigas o los amigos después de escuela? *what . what did you use to do with your female friends or with your friends after school?*
Indicator:	¿qué? *what?*

7 The transcription conventions used are the following: . = pause of less than three seconds; … = pause of three-seven seconds; uh = hesitation filler, " " = English word; X = word not comprehensible; _ = rising intonation indicating uncertainty. We thank María José Alvarez-Torres for her careful work with the transcription of the oral data.

8 Overt correction, included in Varonis and Gass, was not considered an indicator in this study because, in the first few cases we found, there did not seem to be a problem in understanding, but rather an intent on the part of the NS to correct a non-target-like form produced by the NS.

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2 **Inappropriate response**

Trigger: y cuántos años llevas?
and how many years have you been (at school)?
Indicator: dos 'all right' (laugh) ... veinte (laugh) . lo siento (laugh)
two 'all right' (laugh) ...twenty (laugh) . I am sorry (laugh)

3 **No verbal response**

Trigger: no es un apartamento . está . ¿has estado fuera de Michigan tú antes no? sí
it is not an apartment . is . you have been out of Michigan before, didn't you? yes
Indicator:

4 **Echo**

Trigger: Cual seria tu recuerdo mas grato de tu vida en Lapeer?
What would be your most pleasing memory of your life in Laper?
Indicator: grato?
pleasing?

5 **Echo + L1**

Trigger: y mi gato es tiene uh un ojo ¿te acuerdas cuando en clase hablamos de? puedes ser que no estabas alli.
And my cat is has uh an eye, do you remember when in class we talked about? You might be that you were not there
Indicator: ¿ojo '(sheep)'?
eye '(sheep)'?

6 **Rephrasing with rising intonation/question mark**

Trigger: ¿Tiene tienes planes para uh el año . en el futuro?
Do you have plans for uh the year . in the future?
Indicator: sí sí sí en el año que viene?
yes yes yes in the next year?

7 **Direct Appeal for Assistance**

Trigger: Quieres casarse en el futuro?
Do you want to get married in the future?
Indicator: que quiere decir casar?
What does casar mean?

8 **L1 + question mark**

Trigger: judias frescas
cool beans
Indicator: cool?
cool?

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Tables 2 and 3 include the distribution of indicators for the NNS-NNS and the NS-NNS groups in the oral and written modes respectively. As Table 2 shows, the indicators used by the NS-NNS group in the oral mode were: explicit statement of non-understanding (6), inappropriate response (1), no verbal response (3), and rephrasing with rising intonation (3). As shown in Table 3, the indicators used in the written mode were: explicit statement of non-understanding (1), echo (2), and direct appeal for assistance (1). A comparison of the types of indicators used in each medium reveals that, in the oral mode, the ones that predominate are those that do not reproduce the previous turn neither a part within it (i.e., no entiendo, *I do not understand;* ¿qué?, *what?;* ¿cómo?, *excuse me?*). In contrast, the majority of indicators in the written mode identify the linguistic item that was problematic in the previous turn (i.e., qué es una carrera? *what is a career?*; grato?, *pleasing?*).

When interpreting the results of the study, it is relevant to look not only at the types of indicators used, i.e. at how the non-understanding is expressed, but also to pay attention to the direction of the indicator, i.e. who signals non-understanding to whom. Table 2 shows that in the oral mode, the NNS is the one that indicates non-understanding to the NS in the majority of the routines (10 out of 13). Table 3 shows that in the written mode all the indicators come from the NNS (4). If NNSs are the ones that signal non-understanding to the NS in the majority of the interactions, why do indicators vary across modes? The types of indicators used in the oral mode suggest that learners were not able

Table 2. *Types of indicators in NNS-NNS conversations and in NS-NNS conversations in the Oral Mode. (Note: * NNS indicates non-understanding)*

	NNS-NNS	NS-NNS
Explicit statement of non-understanding	4	6*
Inappropriate response	–	1*
No verbal response	–	3*
Echo	3	–
Echo + L1	1	–
Rephrasing with rising intonation	4	3

Table 3. *Types of indicators in NNS-NNS conversations and in NS-NNS conversations in the Written Mode. (Note: * NNS indicates non-understanding)*

	NNS-NNS	NS-NNS
Explicit statement of non-understanding	1	1*
Inappropriate response	1	–
No verbal response	–	–
Echo	–	2*
Rephrasing with question mark	1	–
Direct appeal for assistance	5	1*
L1 + question mark	1	–

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to perceive and segment the linguistic units of the NS's turn. This may have been due to the pressure imposed by the immediacy of the oral mode, together with factors such as learners' lack of familiarity with the pronunciation and intonation of the NS. The latter factors do not play any role in the processing of written input. Furthermore, the written medium allows for additional processing time, which may explain why there were less breakdowns in communication in this medium, and why learners were able to make explicit the source of non-understanding, that is, to use indicators that incorporate part of the interlocutor's turn.

When comparing the types of indicators used by the NNS-NNS group and the NS-NNS group in the oral mode (Table 2), it can be observed that, in the NNS-NNS group, the learners were able to incorporate or rephrase other learners' turn in 8 out of 12 indicators (i.e., Echo, Echo + L1, and Rephrasing with rising intonation). In contrast, in the NS-NNS group, the NS produced the only indicators that rephrased the turn that contained the trigger (i.e., Rephrasing with rising intonation). This data provides further evidence that suggests that learners had more difficulty processing native speaker's input than processing other learner's input.

5.2 Factors that relate to the foreign language learning context

Issues that relate to the foreign language learning situation may help to understand why learners negotiated less with each other than with NSs. It is useful to remember that the participants of this study were foreign language learners, and not second language learners, given that they were learning Spanish in an English dominant setting.[9] Varonis and Gass found evidence that supports the hypothesis that "the greater the degree of difference which exists in the background of the conversational participants, the greater the amount of negotiation between two non-native speakers" (1985b: 84). While in a typical second language context learners' socio-cultural background may vary, in a foreign language situation learners' background tends to be rather homogeneous. In this study, it seems that learners' shared socio-cultural and linguistic background facilitated the expression and interpretation of meaning, thus minimizing the need for negotiation.

Shared socio-cultural background, which encompassed a combination of variables, such as similar place of origin, age, social class and, academic training, among others, resulted in the convergence and recurrence of themes in conversations, which in turn seems to have facilitated input comprehension. As shown in the excerpts below, conversations revolved around themes with which both of the participants were familiar. For example, the interaction in 1 shows that both interlocutors are acquainted with the towns they mention in the conversation. The information in parenthesis after each example refers to the mode where this interaction was generated.

1

NNS1: Hola, donde esta su casa?
Hello, where is your house?

9 The distinction between foreign language and second language is made with respect to the speech community where the language is learnt, as in Stern (1983). The participants of this study are foreign language learners given that they learn Spanish in an English dominant setting.

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NNS2: Esta en Williamston (un ciudad muy pequeno cerca de East Lansing). Y tu?
It's in Williamston (a town very small near East Lansing). And you?
NNS2: Tienes un hermano o una hermana?
Do you have a brother or a sister?
NNS1: Si, tengo un amigo que vive en Williamston! Y una amiga en Perry. Vivo en Middleville (es mas pequeno que Williamston, no tiene un McDonalds! Seta al sur de Gran Rapids) Tiene algunos animales?
Yes, I have a friend who lives in Williamston! And a friend in Perry. I live in Middleville (it's smaller than Williamston, it does not have a McDonalds! It's south of Gran Rapids) Do you have some animals?
NNS2: Quienes vive en Williamston? Tengo unos amigos que viven en Perry tambien. Tengo muchos amigos que viven en Gran Rapids. Tengo una amgia que asist Aquinas College. [Tengo uno perro. Se llama Chipper. Y tu?]
Who live in Williamston? I have some friends that live in Perry as well. I have many friends that live in Grand Rapids. I have a friend that attends Aquinas College. [I have one dog. Its name is Chipper. And you?]

(WM)

Example 2 shows that participants share similar previous experiences (e.g., went to similar high schools, and spent the summer in similar ways).

2
NNS1: Antes de atendes la universidad . uh que haces?
Before you attend the university. uh what do you do?
NNS2: uh yo fui a escuela secundaria en la escuela de Norte Farmington por cuatro años . que hiciste tu?
uh I attended secondary school in the school of North Farmington for four years. what did you do?
NNS1: yo atende a la escula en Traverse City en Michigan uh y vive alli y prepara para la universidad. trabajes tu en su ciudad?
I attend school in Traverse City in Michigan uh and I lives there and prepares for college. do you work in your city?
NNS2: si uh el verano pasado yo trabajé tres lugares. si. siempre yo regresé de trabajo y salí inmediatamente por otro necesité mucho dinero para pagar este escuela
yes uh last summer I worked three places. yes. always I returned from work and left immediately for another one I needed a lot of money to pay for this school
NNS1: yo también y en loas veranos necesito gano mucho dinero
me too and in the summers I need I earn a lot of money

(OM)

Example 3 illustrates how interlocutors concurred when they talked about their childhood.

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3

NNS1: y de nina yo veia “mr. rogers” y “plaza sesame”
and as a child I used to watch “mr. rogers” and “sesame street”

NNS2: veia “punky brewster” cada dia!
I used to watch “punky brewster” every day!

NNS1: a mi me encantaba punky brewster tambien!!!
I loved punky brewster too!!!

NNS2: fue un programa bueno!
It was a good program!

(5 turns in between)

NNS2: que musica escuchabas?
What type of music did you listen to?

NNS1: perdoname si yo te pregunto cosas raras pues es verdad que estoy cansada!! yo escuchaba…um…dejame pensar!
Excuse me if I ask you strange things since it is true that I am tired!!
I listened to…um…let me think!

NNS2: madonna…
madonna…

NNS1: george michael…
george michael…

NNS2: para mi, los “New Kids On the Block”, los Beatles, y los “Monkees” fueron interesante
for me, the “New Kids On the Block”, the Beatles, and the “Monkees” were interesting

NNS1: cual ‘new kid’ era tu favorito????
Which ‘new kid’ was your favorite????

NNS1: :)

NNS1: estabas enamorada de uno de ello?
were you in love with one of them?

NNS2: pienso que jordan!
I think that jordan!

(WM)

In contrast to the NNS-NNS group, the experiences of the members of the NS-NNS dyads were somewhat different. On the one hand, they came from different countries, on the other, all of them were familiar with an American academic setting. Thus, the social background did not differ to an extent that could be a main source of breakdowns in communication. As explained above, learners’ lack of familiarity with the pronunciation and intonation of the native speaker seems to be the main cause of most non-understandings in the NS-NNS group in the oral mode.

Returning to the NNS-NNS group, in addition to sharing similar socio-cultural backgrounds, they share the L1 and second language proficiency in Spanish. The data shows that, in the unfolding of the conversation, learners resort to the L1 when they experience difficulties to express an idea in the L2. The use of L1-based strategies help the learners to keep the flow of conversation going without fully exploiting their resources in the L2. Thus, L1-based strategies are favored over other L2-based communication strategies, such as circumlocution or approximation (see Faerch & Kasper, 1983; Tarone, 1984), that could

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have been used instead. In some cases learners use the L1 lexical item probably because they do not know or cannot access the L2 equivalent, as shown in examples 4 and 5:

4
NNS1: Uh Tomo el autobús a la universidad todas las días porque es una parada del autobús cerca de mi casa…es muy **convenient**
Uh I take the bus to the university every day because it is a bus stop next to my house…it is very convenient
(OM)

5
NNS1: Y muy intre-interesante uh mañana tengo un uh reunión con un uh "**advisor**" en uh "**business**"
*And very interesting uh tomorrow I have a uh meeting with a uh "**advisor**" en uh "**business**"*
(OM)

There are cases where the learner makes the English lexical item conform to the morpho-phonology of the target language, as in 6 and 7:

6
NNS1: ¿Es cara alquilar una casa?
Is it expensive to rent a house?
NNS2: Sí, es…más o menos cara…pero es muy **expensivo**…"well"…no es muy…pero es más expensivo vive.
Yes, it is…more or less expensive…but it is very expensive…"well"…it is not very…but it is more expensive lives.
(OM)

7
NNS1: Yo planaré ser muy rico porque no creo que los **quemicistas** ganan mucho
I will plan to be very rich because I do not think that the chemicists earn a lot.
(WM)

Still, in other cases, we found a communicative strategy that consists of using an L1 morpho-syntactic frame with a combination of L1 and L2 lexical items, as in 8 and 9:

8
NNS1: Tu estas yendo a "SPring Break"?
You are going to "SPring Break"?
(WM)

9
NNS1: Sí . "yes"…dos años…"ago"
Yes . "yes"…two years…"ago"
(OM)

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As the examples above illustrate, learners do not make optimal use of communication strategies that exploit the L2 code. Instead, they move the conversation along by resorting to the L1 as a device that enables them to make themselves understood.[10] Since learners do not push their L2 in order to make maximal use of their developing system, there are few chances for a breakdown in communication to occur.

According to the results of this study, negotiation is not the main resource to obtain modified and more comprehensible input in a foreign language context. Similar results are reported in García-Mayo and Pica (2000), who found a low incidence of negotiations in the oral conversations of foreign language learners of English using different tasks and more advanced language learners. Given that learners in a foreign language context interact mainly with other learners, the results of this study could seem discouraging, as they might suggest that foreign language learners have less opportunities to develop their interim system through interaction. Nevertheless, it should be noted that we observe in learner-learner interaction the use of a set of strategies that may have a beneficial impact in the language learning process. The use of these strategies is discussed in the following sub-section.

5.3 Collaborative learning strategies

In learner-learner interaction (NNS-NNS interaction) we found the use of a strategy we refer to as "lexical search". It is an exchange in which one of the participants requests the Spanish equivalent of a particular English lexical item. The cooperation is successful when the other participant responds providing the correct Spanish word. In some cases the interchange is not successful because the interlocutor either does not know/remember the word or ignores the request. Obviously, the use of this strategy is expected to be more productive when the learner interacts with an interlocutor with a higher level of proficiency.

We can say that in this study learners attempted, through collaborative interaction, to add to their own L2 knowledge and extend that of their peers. Most cooperations for lexical search start with a question of the type *¿Cómo se dice X en español?* "How do you say X in Spanish?" as in examples 10 and 11. The fact that all learners shared similar L2 training may encourage the use of this gambit, which is frequently used in the classroom context.

10

NNS1:	¿vivi vivirás uh en "campus" uh ¿**cómo se dice "next year**"?
	Will you live uh in "campus" uh how do you say "next year"?
NNS2:	el próximo
	next
NNS1:	el próximo año
	next year
(OM)	

10 Similar observations are made by Kinginger (1994), who analysed repair in terms of self- versus other-initiation and completion, and found that the intermediate foreign language learners of French of her study often avoided interactional risk in favour of L1 use.

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11

NNS1: "yeah" uh mi familia uh es uh ¿**cómo se dice "very close**"?
"yeah" uh my family uh is uh how do you say "very close"?

NNS2: no sé
I do not know

NNS1: "OK"

NNS2: muy cerca
very close

NNS1: muy cerca "OK" muy cerca "and" uh "so" mi tias "and" tias "and" primas X primas "and" primos estamos cerca uh yo tiene no yo tengo muy bien "relations" con todos uh porque mi familia uh
very close OK very close and uh so my aunts and aunts and cousins (female) X cousins (female) and cousins (male) we are very close uh I has no I have very well relations with all of them uh because my family uh

(OM)

If we assume that access to and retrieval of linguistic material in the developing system are essential parts of the learning process, through the collaborative interaction in example 12 we can see the learning process at work. At the beginning of the oral conversation between NNS1 and NNS2 we found the following interchange in which the cooperation for lexical search is not successful:

12

NNS1: Y muy intre-interesante uh mañana tengo un uh reunión con un uh "advisor" en uh "business"
And very interesting uh tomorrow I have a uh meeting with an uh advisor in uh business

NNS2: oh sí
oh yes

NNS1: pero no sé uh tengo siete creditos
but I don't know uh I have seven credits

NNS2: ¿de español? Oh de
of Spanish? Oh of

NNS1: oh no de uh
Oh no of uh

NNS2: ¿**cómo se dice 'business'**?
How do you say business?

NNS1: **uh no recuerdo**
Uh I do not remember

NNS2: **me olvidé**
I forgot

(OM)

Nevertheless, excerpt 13 shows that the same participant that requested the Spanish equivalent of the word 'business' in the oral task was able to retrieve it in the middle of the written task.

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13

NNS1: Tu estas yendo a "Spring Break"?
You are going to Spring Break?

NNS2: **yo descubri la palabre para bussiness…negocios**
I discovered the word for business…negocios

NNS1: Yo nunca visite mi casa
I have never visited my house

NNS1: **ahh, negocios. Yo tengo que recordar seta palabra. Es muy importante. Gracias.**
Ah, negocios. I have to remember this word. It's very important. Thank you.

(WM)

Excerpts 12 and 13 reveal that collaborative interaction allows learners to focus their attention to those items that are difficult to retrieve. The same could be said of the interaction illustrated by excerpt 14. NNS1 uses the expression "echar de menos" followed by its translation in the oral task. After 45 turns, the NNS2 asks for the same Spanish expression, which he now wants to use in his own output. This type of interactions shows how learners can provide support to each other in the process of developing their interlanguage.

14

NNS1: yo uh tenía un un perro hace uh tres años uh pero se murió y uh **la echo de menos uh mucho uh "I miss her"**
I uh had a a dog three uh years ago uh but it died and uh I miss her uh a lot uh "I miss her"

NNS2: uh sí
Ah yes

(After 45 turns)

NNS2: no uh ¿**Cómo se dice "to miss"**?
No ah how do you say "to miss"?

NNS1: uh pienso que es echar de menos
uh I think that it is "echar de menos"

NNS2: ¿echar de menos? Echo echo echo de menos uh restaurantes uh Detroit no mi uh no mi uh cocinero cocina de mi madre.
to miss? I miss I miss uh restaurants uh Detroit no my no my uh the cook cooking of my mother.

(OM)

The second strategy we will consider is "completion". It is a type of scaffolding in which one interlocutor either expresses hesitation or states that s/he does not know a linguistic item. Then, the other interlocutor offers the item that completes the utterance (García-Mayo & Pica, 2000). In our data completion could be mediated by the L1, as in 15 or not mediated by the L1, as in 16.

15

NNS1: uh de "club" es un clubo por uh "great" mar-
uh of club it is a club for uh great mar-

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NNS2: marques
marks
NNS1: marques
marks
NNS2: uh notas
uh marks
NNS1: sí notas
yes marks
(OM)

16
NNS1: si muchas turistas y uh en las veranas tenemos una festival de de uh no sé
yes many tourists and uh in the summer we have a festival of of uh I don't know
NNS2: de cerezas
of cherries
NNS1: sí . sí y muchas turistas uh vienen a Traverse City.
Yes . and many tourists uh come to Traverse City
(OM)

In addition to these learning strategies, we found instances of self-correction in the written and oral discourse of the learners. The majority of them aimed at correcting verb morphology, always resulting in a target-like form. In 17, the clitic pronoun in the verb 'casarse' to get married is changed to make it agree with the subject.

17
NNS1: Quieres casarse en el futuro?
Do you want to get married in the future?
NNS2: yo también…no se me hace feliz…
me too…I don't know it makes me happy…
NNS1: casarte
(you) to get marry
NNS2: que quiere decir casar?
what does casar mean?
NNS1: to marry
to marry
(WM)

All of these strategies, except for completion, were used both in the oral and written mediums, although they were more frequent in the oral mode. Completion could not emerge in the electronic medium because participants cannot read the interlocutor's turn as it is being produced, and therefore intervene before s/he is finished.

6 Conclusion

The data of the study suggest that familiarity with the topics of the conversation and

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with their peers' pronunciation helped learners to understand each other's input. In addition, learners used L1-based strategies to make up for gaps in their L2 knowledge. As a result, few breakdowns in communication occurred. Those that occurred in learners' interaction with native speakers seem to have been due to problems perceiving and segmenting oral native speaker input. Fewer breakdowns occurred in the electronic medium, as the decoding of the native speaker input was facilitated by the written nature of the interaction and by the additional processing time that the medium provides.

Given the scarcity of negotiation in learner-learner interaction in the electronic and oral mediums, this study does not provide evidence to claim that learners' discourse varies with respect to opportunities to provide negotiated input across mediums. Even though input was seldom modified through negotiation, the data show that learners helped each other to convey messages by using cooperative learning strategies, especially in the oral medium.

The type of task used could account in part for the results reported here. An open task, like the one used in this study, allows participants to converse about familiar topics and situations and, therefore, breakdowns in communication are not likely to occur. Other types of tasks that require participants to exchange specific information in order to be completed may propitiate the occurrence of situations in which there is a need to negotiate (Pica, Kanagy & Falodun, 1993). Nevertheless, the study also documents the use of L1-based strategies in learner-learner interaction. Previous studies suggest that this use is frequent in the interaction of learners with low levels of proficiency, while advanced learners rely more on L2-based strategies (Bialystok, 1983; Paribakht, 1985). Thus, even though a different type of task may lead learners to negotiate messages, in a foreign language context, the use of the L1 may prevent breakdowns in communication from happening.

While L1-based strategies may emerge in low-level learners interactions, regardless the type of tasks,[11] it would be of interest to investigate whether the L1 use decreases and the use of other communication strategies increases when learners with different levels of proficiency interact with each other. In fact, it was observed in this study that the L1 was hardly used in learner interactions with native speakers. Dyads of mixed levels of proficiency are expected to make greater use of communication strategies and, therefore, to make less use of their native language.

The generalizations of this study are limited to the population and experimental conditions presented here. More empirical studies along the lines of those carried out in a second language context (Doughty & Pica, 1986; Gass & Varonis, 1985b; Pica & Doughty, 1985) are needed to determine the effect of different communication tasks on foreign language learners' interaction in the oral and electronic modes.

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11 The data from a study that we are currently conducting comparing different types of tasks show that the use of the L1 appears in both close and open tasks.

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Appendix A

The data was analyzed using the Generalized Linear Model Procedure. Several criteria were applied to assess the goodness of this model: Deviance, Scaled Deviance, Pearson Chi-Square, Scaled Pearson X2, and Log Likelihood. The ratio Value/Degrees of Freedom obtained when

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Table A1. *Means and Standard Deviations for each of the three groups in each mode. The MEANS procedure*

Group	Mode	N	Mean	Standard Deviation
1	1	9	0.4444	0.5270
1	2	9	0.4444	0.7264
2	1	4	3.2500	2.0615
2	2	4	1.0000	1.4142
3	1	14	0.8571	0.9492
3	2	14	0.6428	1.3363

Table A2. *Results for the Generalized Linear Model Procedure for Group and Mode. LR Statistics for Type 3 analysis*

Source	DF	Chi-Square	Pr > ChiSq
Group	2	9.18	0.0102
Mode	1	2.13	0.1442
Group*Mode	2	2.28	0.3198

applying these criteria was close to one, which indicated that it was appropriate to use this model.

As Table A1 shows there were few instances of negotiation in all groups and in both modes. Even though the NS-NNS Group negotiated more than the other two, the standard deviation was rather high, especially in the OM, which indicates that the behavior of dyads within this group was variable.

The results of the analysis are summarized in Table A2. The results yielded a significant main effect for Group. The value of the statistic is 9.18. Since the statistic has a chi-square distribution with degrees of freedom 2, it rendered $p < 0.0102$. No significant main effect was found for Mode; no interaction was found.

The contrast results for the comparison of groups showed that the NS-NNS Group had a

Table A3. *Results for the Generalized Linear Model Procedure for Group in the Oral mode*

LR Statistics for Type 3 Analysis

Source	DF	Chi-Square	Pr > ChiSq
Group	2	16.31	0.0003

Table A4. *Results for the Generalized Linear Model Procedure for Group in the Written mode*

LR Statistics for Type 3 Analysis

Source	DF	Chi-Square	Pr > ChiSq
Group	2	1.29	0.5250

Note: Group 1 = NS-NS; Group 2 = NS-NNS; Group 3 = NNS-NNS.
Mode 1 = OM; Mode 2 = WM

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significantly higher number of negotiations than the NS-NS Group ($p < 0.0025$); the NS-NNS Group also had a significantly higher number of negotiations than the NNS-NNS Group ($p < 0.0226$). The contrast results for the comparison of Modes in each group showed that there was a significantly higher number of negotiations in the OM than in the WM in the NS-NNS Group ($p < 0.0251$).

To ascertain whether the significant contrast observed for NS-NNS/NS-NS and for NS-NNS/NNS-NNS would be obtained in each Mode, two separate Generalized Linear Model procedures were carried out. As shown in Table A3, the analysis for the OM revealed a significant main effect for Group ($p < 0.0003$). Contrast results showed that the NS-NNS Group had a significantly higher number of negotiations than the NS-NS Group ($p < 0.0001$); the NS-NNS Group also had a significantly higher number of negotiations than the NNS-NNS Group ($p < 0.0012$). The analysis for the WM did not yield a significant effect (see Table A4).

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