

Corrective Feedback, Negotiation of Meaning and Grammar Development: Learner-Learner and Learner-Native Speaker Interaction in ESL

Satomi Kawaguchi, Yuan Ma

Humanities and Communication Arts, University of Western Sydney, Sydney, Australia
Email: {s.kawaguchi, Ningyue.Ma}@uws.edu.au

Received February 24th, 2012; revised March 24th, 2012; accepted April 2nd, 2012

This study aims to investigate the role of corrective feedback and negotiation of meaning within an Interactionist Approach (Long, 1996) in native speaker-Second Language learner and L2 learner-L2 learner interactions. While negotiation of meaning (NoM) and corrective feedback (CF) between native and non-native speakers has been shown to be helpful for the nonnatives, it remains unclear whether CF and NoM between learners of equivalent or different proficiency produce greater negotiation of meaning and successful uptake of corrective feedback compared to the more traditional native-nonnative interaction. The key issue in this study is whether CF and NoM in different interactional combinations of interlocutors make a difference, in quantitative and qualitative terms. The study adopts a pretest-treatment-posttest design with six participants: two native English speakers, two Chinese L1 NNSs of high English proficiency level (NNS High) and two Chinese L1 NNSs of low English proficiency level (NNS Low). These informants generated 14 different dyads and produced 2377 turns while engaging in task-based interaction. By introducing the notions of group (i.e., NS-NNS versus NNS-NNS groups), combinations (e.g., NS-NNS High versus NNS High-NNS Low), and dyads, it is possible to compare results across groups, combinations and individuals. Results confirm that CF and NoM happen in NNS-NNS interaction yet they differ, qualitatively and quantitatively, according to the type of combination. Significantly, the best rate of success was obtained in the combination of learners with different proficiency levels i.e., the NNS High-NNS Low combination. In addition, error rates decreased from pre-test to post-test in all learners, especially NNS Low, which lends support to the notion that CF and NoM promote second language development also in interaction between learners.

Keywords: Corrective Feedback; Negotiation of Meaning; Grammar Learning; ESL; Interaction

Introduction

This study investigates corrective feedback (CF) and negotiation of meaning (NoM) occurring in the interaction in English between: 1) native speaker (NS) and second language (L2) learner; 2) two L2 learners of the same proficiency level and; 3) two L2 learners of different proficiency levels. The current study is conducted within the interaction approach (Long 1996, Gass & Mackey, 2007) and it aims to examine whether there are qualitative and/or quantitative differences among interactions involving speakers with different language proficiency. The study further investigates whether negotiated interactions promote grammatical development in L2 learners. For the last two decades in the field of second language learning and teaching, the role of interaction in language acquisition has been researched extensively (e.g., Gass, 1997; Long, 1996). Many studies that analyzed L2 learner's interaction with native speakers found that: CF that L2 learner receives and NoM that L2 learner participates in help the learner improve his/her L2 language skills (Oliver, 1995; Pica, 1994; Sheen, 2004). Fewer research works examined interactions between nonnative speakers (NNS) (Chiba, 2010; Mackey, Oliver, & Leeman, 2003; Varonis & Gass, 1985) while no previous studies investigated the effects of negotiation of meaning between L2 learners of different proficiency levels. Also, many studies have

reported that the majority of CF/NoM in L2 learners' interaction relates to meaning consultation, rather than L2 learners' errors, (e.g. Iwasaki & Oliver, 2003). This poses the question as to whether CF promotes L2 learner's grammar learning. Only a handful of studies (e.g., Mackey, 1999) broached this issue and the answer to this question remains unclear.

Communicative language teaching, which creates ample opportunities for a learner-centered interaction, is the most widely used teaching method since the 1980s (Richards & Rodgers, 2001). This method has the advantage of providing ranging opportunities for L2 learners to interact with their peers and their teachers by using communicative language tasks and consequently, promoting effective language acquisition (Finocchiaro & Brumfit, 1983). It is important to explore the potential for learning and development among learners themselves, particularly since most class time in communicative teaching/learning environments is devoted to learner-learner activities such as role play, pair work, simulation, language games and interactional conversation (Harmer, 2007).

In this study, a total of six adult informants were recruited: two NSs of English and four ESL learners of Chinese first language background. Among the four ESL learners, two are at high proficiency level (International English Language Testing System (IELTS) 7.0) and the other two are at low level (IELTS

4.5). These participants form 14 interaction dyads. CF and NoM will be examined in detail for learner-learner interaction focusing on selected grammatical items, and then their learning effect will be compared with learner-NS interaction. In order to examine the effectiveness of CF and NoM, four English grammatical phenomena are examined in this study. They are: 1) verb past tense, 2) noun plural form, 3) subject-verb agreement and 4) question constructions. Unlike other studies which tend to present aggregated results as a group (such as NS, NNS), detailed analysis of both group-wise and as an individual results will be shown. The research questions motivating this study are:

1) Does CF and NoM occur in learner-learner interaction? If so, are they comparable to native speaker (NS)-learner interaction?

2) Does CF and NoM differ qualitatively and quantitatively in different combination of interactions involving NS and different levels of ESL learners?

3) Can negotiated interaction promote grammar development in ESL learners?

The remainder of this paper is organized as follows. In the next section, we present the theoretical background and literature review followed by the methodology in this study. Next, results and discussion are presented. The last section presents our conclusion.

Theoretical Background

Input, Interaction and Output

In second language acquisition (SLA), input, interaction and output are regarded as the three important elements of successful L2 learning (Long, 1996; Gass, 2003; Swain, 1995). In the following, we will address these key notions which are most relevant to our study.

Input. Input plays an important and necessary role in language acquisition because it provides language-specific information for learners to interact. Many researchers investigate input from different point of views. For instance, Ellis (2002) emphasises the importance of frequency in SLA. Gass (2003), on the other hand, believes that input provides positive evidence of what is possible within a language. Positive evidence attained from input is able to help L2 learners with their language acquisition. In addition, the negative evidence obtained through interaction, a type of information given to L2 learners about their incorrect use of an utterance either in explicit form or in implicit form, is also believed to be conducive to L2 learning. On the other hand, universal grammar (UG) approach looks at input from yet a different perspective. Schwartz (1993), for example, argues that input, as a secondary role, interacts with an innate system affecting acquisition. We adopt Gass' (2003) view in this study. Input can be regarded as the first step to learn a second language. It provides positive evidence for learners to notice and interact. Positive evidence, which happens in the input process, consists of a set of well-formed sentences that learners are exposed to. It further provides opportunities for learners to monitor their own utterances or written words and consequently modify their input information.

Interaction. Long's (1996) updated interaction hypothesis suggests that "negotiation of meaning, and especially negotiation work that triggers interactional adjustments by the NS or

more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways (pp. 451-452)." Thus, negotiated interaction directs learners' attention to their non-target like production or problematic expressions. They may notice the types and amount of differences between the languages they used and the language a native speaker used. They may also notice their gap between their intended content of the speech and their ability in expressing it, due to their lack of language knowledge. The interaction could also draw learners' attention to something new, such as a new vocabulary, grammatical item, or syntax.

Now we look at CF which helps language learner to acquire the language they are learning through interaction. CF is a form-focused instruction that gives to the SL learners on their non-target like form either in speech or in writing (Li, 2010). The purpose of providing such corrective instruction is to draw L2 learners' attention to their non-target like production and assist their L2 learning. Long (1996) defines that CF is composed of two categories. One category is explicit CF: an overt correction and metalinguistic explanation given to the learner about his/her wrong output. The other category is implicit CF, which can be divided into two components, recast and NoM. Recast refers to the target-like reformulations provided to a learner's incorrect utterance. For instance, from our data, NNS's ungrammatical utterance, "...two floors is enough" received recast, "two floors are enough".

NoM is the strategy that language users employ for communication until successful comprehension is achieved. The strategies for NoM include clarification requests, confirmation checks, comprehension checks, and repetition (Oliver, 1995). Clarification requests are the expressions used to ask L2 learners to clarify their preceding utterances by asking a question such as, "what does it mean?". Confirmation checks refer to the expressions used by the listener to make sure that an utterance he/she heard or understood is correct. For example, a speaker might ask "do you mean ...?" to confirm his/her correct understanding of the interlocutor's utterance. Comprehension checks are utterances used to check whether an interlocutor has understood. "Do you understand?" is an expression used for comprehension check. Repetitions include both the speaker and the interlocutor's exact repetitions of lexical items from their own preceding utterances within five speaking turns and they also include repetition of the other's wrong utterances (Pica & Doughty, 1985). **Figure 1** summarises each type of CF and also gives a clear view of the relationship between CF and NoM.

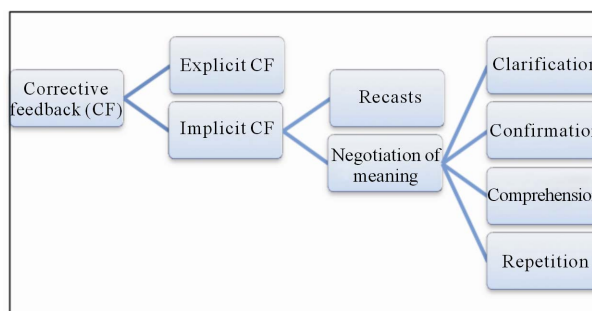


Figure 1. CF and NoM (based on Long, 1996).

Output. Output, either in speaking or writing, is claimed to push L2 learners to think about the syntactic use of language (Swain, 1995). Output, thus, has a potentially significant role in the development of syntax and morphology due to its requirement for learners to produce more comprehensible and accurate output. As a way for learners to encourage more accurate production, output forces L2 learners to contemplate with more effort on their own problematic utterances during interaction. Thus, input, interaction and output are three interrelated steps for successful L2 learning.

Previous Studies

Interactionists believe that negotiated interaction can provoke L2 learners' attention to non-target like forms, including vocabulary, morphology, or syntax, and thus promote SLA (Lyster & Ranta, 1997; Mackey, 1999). Li's (2010) meta-analysis has further confirmed the effectiveness of CF in SLA. Through the examination of 33 studies on the effects of CF, he found a "medium overall effect for corrective feedback and the effect was maintained over time (p. 309)."

In addition, many studies compare the effects of different types of CF received by learners (e.g., Ellis, Loewen, & Erlam, 2006; Panova & Lyster, 2002; Iwashita, 2003; Philp, 2003). Some studies suggest that learners could benefit more from explicit rather than implicit CF (e.g., Carroll & Swain, 1993; Ellis, Loewen, & Erlam, 2006; Kim & Mathes, 2001; Varnosfadrani & Basturkmen, 2009). Moreover, among the different types of implicit CF, Lyster (1998, 2004) mentions that recasts, occurring after grammatical errors, assist L2 learning. This claim is further supported by studies, such as Long, Inagaki, & Ortega (1998), Braid (2002), Hauser (2005), and Nassaji (2009). Besides classroom interaction, some recent studies have investigated technology-oriented interaction between native speakers and L2 learners, such as CF and NoM through eTandem interaction (Bower & Kawaguchi, 2011; Iwasaki & Oliver, 2003), CF via instant messenger (Sotillo, 2005) and NoM through synchronous text chat and videoconferencing (Zhao & Angelova, 2010). All findings support the contention that CF and NoM are crucial for L2 learners.

Moreover, many researchers have investigated the effectiveness of negotiated interaction between adult NS and non-native speakers (NNS) (e.g., Brock, Crookes, Day, & Long, 1986; Nassaji, 2007; Pica, Young, & Doughty, 1987). Oliver (1998) explores the effects of peer learning in school aged-children involving NS-NNS and NNS-NNS combinations. She found that similar to adults, children used variety of negotiation strategies during their interaction which could facilitate L2 learning, while other studies (e.g., Lyster & Ranta, 1997; Mackey & Oliver, 2002; Mackey, Oliver, & Leeman, 2003; Oliver, 2002) examine the interaction between adult NS and child NNS. Many more studies explore the interaction in learner-learner combination. For instance, Chiba (2010) investigated whether NoM differ quantitatively or qualitatively between two advanced NNSs (NNS-NNS) and a native speaker with advanced NNS (NS-NNS), interacting in Japanese. She found that NNS-NNS combination provided more opportunities of CF and NoM in comparison to NS-NNS combination. Other studies, such as Mackey, Oliver, & Leeman (2003) and Varonis & Gass (1985) show positive outcome in adult peer interaction. However, unlike our study, all adult learners recruited were from the same L2 language proficiency levels.

Furthermore, some studies explore the link between negotiated interaction and grammatical development. Mackey (1999) claims that conversational interaction facilitates L2 learners with their acquisition of English question formations. Ellis, Loewen & Erlam (2006) found that explicit feedback was more effective than implicit feedback on the acquisition of English past tense *-ed*. Yang & Lyster (2010) explore the effects of form-focused practice and feedback on acquisition of English regular and irregular past tense forms and found that prompts were effective in increasing accuracy. Iwashita (2003) examines the role of task-based interaction in Japanese L2 grammatical development. She concluded that implicit negative feedback had a beneficial effect on the short-term development of target grammatical structures but recasts had a larger impact. Despite the large number of studies in CF and NoM as reviewed above, there is no study to date that looks at qualitative and quantitative differences of interaction involving different proficiency levels of the L2 learner. Our study aims to fill this gap.

Methods

In order to address the three research questions presented above, we conduct a study involving six participants: two native speakers (NS) of English, and four nonnative speakers (NNS) of Chinese L1 background (two high and two low proficiency levels) forming 14 dyads (see below). Three communicative tasks are used to elicit interactional conversation to explore CF and NoM occurring in different dyads: a board game, interactional conversation and picture describing and drawing. The grammatical items focused on in this study are: noun plural forms, verb past tense, subject-verb agreement, and question formation. During their interaction, learners are instructed to provide feedback to their partners, especially on errors. More detailed instructions given to the learners are presented under *Tasks* below. All conversations are audio-recorded and transcribed for further analysis.

Participants. All six participants, all female, are students at the University of Western Sydney, Australia. Two participants are native speakers of English respectively undertaking Master of Social Science and Master of Teaching. The other four participants are nonnative English, Chinese L1 background so that issues of first language influences are controlled. Of the four NNSs, two of them are of high proficiency level, abbreviated as NNS (High), undertaking Master of Interpreting and Translation, which requires an IELTS score of 7.0 for UWS entry. The other two are NNS of lower proficiency level, abbreviated as NNS (Low), currently enrolled in English for Academic Preparation course level 1, which requires an IELTS score of 4.5 for enrolment. Their age range was from 18 to 28 years. The six participants in this study are represented as NS1, NS2, NNS (High)1, NNS (High)2, NNS (Low)1 and NNS (Low)2.

Groups, Combinations and Dyads

The notions of groups, combinations and dyads are used for data analysis in order to investigate performances relating to CF and NoM both as a group and individual. Most studies on CF and NoM present aggregate results as groups (such as NS, NNS, etc). By utilising the notion of groups, combinations and dyads, our study is able to show results by individuals as well as groups.

Groups. The six participants are divided into two different types of groups in terms of interaction: 1) NS-NNS and 2) NNS-NNS. The purpose of this division is to answer the first research question: whether CF and NoM occur in learner-learner group.

Interaction Combinations. The six participants form five different interaction combinations: 1) NS-NNS (Low); 2) NS-NNS (High); 3) NNS (Low)-NNS (High); 4) NNS (Low)-NNS (Low) and; 5) NNS (High)-NNS (High). The purpose of examining different combinations is to investigate the extent and the variety of CF provided, whether the participants can notice their non-target like utterance, and whether the interaction can promote grammar learning according to different combinations. Furthermore, the purpose of NNS (Low)-NNS (High) combination is to investigate how much the NNS (Low) and the NNS (High) notice their own and their partners' non-target like utterances and whether this type of combination assists their grammar learning when they are grouped with a partner with different L2 proficiency levels. The last two combinations, NNS (Low)-NNS (Low) and NNS (High)-NNS (High), have similar purpose to the NNS (Low)-NNS (High) combination, but in this case each participant is grouped with a partner from the same L2 proficiency level.

Dyads. The six participants from 14 different dyads. The purpose of using dyads is to observe participant's linguistic behaviour individually. By analysing negotiated interaction happening in each dyad, we intend to determine the range of grammatical errors participants make, and the range of negotiation strategies they would adopt for their partners. **Table 1** illustrates the relationship of groups, combinations and dyads.

Interaction Schedule. Interactions with 14 dyads are conducted over three weeks. In the first week, the learners in the same proficiency level interact with each other, i.e., NNS (Low) 1-NNS (Low)2 and NNS (High)1-NNS (High)2. Over the following two weeks, interaction sessions of remaining 12 dyads are organized. For these weeks, four learners will interact with either NS or other learners of different proficiency levels. Every learner engaged in five dyads during this period. For example, NNS (Low)1 participated in: 1) NNS (Low)1-NNS (Low)2, 2) NS1-NNS (Low)1, 3) NS2-NNS (Low)1, 4) NNS (Low)1-NNS (High)1 and 5) NNS (Low)1-NNS (High)2. The data gained

Table 1.
The relationship of groups, combinations and dyads.

Group	Combination	Dyad
NS-NNS	NS-NNS (Low)	NS1-NNSL1, NS1-NNSL2
		NS2-NNSL1, NS2-NNSL2
	NS-NNS (High)	NS1-NNSH1, NS1-NNSH2
		NS2-NNSH1, NS2-NNSH2
NNS-NNS	NNS (Low)-NNS (High)	NNSL1-NNSH1
		NNSL1-NNSH2
	NNS (Low)-NNS (Low)	NNSL2-NNSH1
		NNSL2-NNSH2
	NNS (Low)-NNS (Low)	NNSL1-NNSL2
	NNS (High)-NNS (High)	NNSH1-NNSH2

from interaction with these 14 dyads over the three weeks will be utilised to analyse CF and NoM according to different groups/combinations.

Pre-test, Treatments and Post-test Design. In order to explore whether negotiated interaction promotes grammatical development of ESL learners, this study adopts a pre-test, treatment and post-test design. The data collected in the first week will be regarded as the baseline of the four learners and will function as a pre-test. Once all dyads complete their interactions in week 2 - 3 (these are the "treatment" sessions), a post-test will be conducted in week 4. The post-test involves learners of the same language proficiency level performing the interaction once again. Taking NNS (Low)1 as an example, she is asked to interact with NNS (Low)2 for the first time in week 1, and then she is involved in four sessions with two NNS (High)s and two NSs respectively in week 2 - 3. In week 4, she participates in the post-test with NNS (Low)2. Her grammatical error rates from both pre-test, treatment and post-test will be compared to examine whether there is any improvement.

Tasks

Three tasks are utilized to create contexts for interaction between interlocutors. They are: 1) board game; 2) an interactional conversation and; 3) describing and drawing pictures. During interaction activities, every participant is given a new topic to ask questions about and a new picture to describe. Hence, none of the participants are exposed to the same topic or picture twice. Up to 45 minutes are required for each of the dyads to complete the three tasks.

Board game. The board game (Appendix A) aims to elicit past tense marking in the verb. This game follows a common board game procedure where two participants move a counter from the "START" to the "FINISH" by throwing a dice to decide how many spaces one can move. Between the "START" and "FINISH", a past-tense question is listed in each space. Each participant is required to read out the question on which her counter landed and answers it by using past tense forms. The participant has to provide an appropriate past tense form of the verb to answer the question, as the auxiliary verb in English question carries the tense and the verb that needs to be in the infinite form (e.g. *What did you watch on TV yesterday?*). The partner's duty is to provide CF when the interlocutor fails to use the correct past tense. They continue to move forward in turns, until either one reaches the "FINISH". There are 28 questions on the board game and each participant answers approximately 10 questions.

Interactional conversation. This task aims to elicit all grammatical items focused on this study, e.g., verb past tense, noun plural forms, S-V agreement and question constructions. In this task, one participant in the pair chooses a topic from 40 options and asks questions to the other. Some of the topics are: "old school days" and "your best friend". Participants are instructed to ask at least 10 questions to each other, and discover as much information from her partner in the designated three minutes. During the conversation, participants are instructed to identify the errors that their partners made, and provide CF.

Describing and drawing pictures. The third task involves describing and drawing pictures (Appendix B provides an example). Similar tasks have been used and tested in a number of research studies (Mackey, 1999; Oliver, 1995). In this study, one of the participants in the dyad is asked to describe the pic-

ture as clearly as possible, and the partner draws it, based on the verbal information provided. During the activity, they are also instructed to identify their partners' errors, and provide feedback when necessary. This task mainly elicits the grammatical items of subject-verb agreement, noun plural forms and question formations.

Data Analysis Procedure

Analysis of NoM and CF for NS-NNS and NNS-NNS groups. In order to address the first research question, this study analyses turn takings that happened between each NS-NNS and NNS-NNS groups. The definition of a turn in this study follows that provided by Di Biase (2000): an utterance made by a speaker before the other participant in the interaction produces a response. The data analysis includes total number of turns, total number of NNS turns, total number of NNS target-like turns and non-target like turns, code-switching turns, turn counts on CF and NoM, and the number of explicit CF and recasts.

To analyse turns that involve NoM, Varonis and Gass' (1985) model of NoM is adopted, which has also been used in other studies investigating similar issues (e.g., Blake, 2000; Lee, 2006; O'Rourke, 2005). According to their model, instances of NoM consist of up to four consecutive turns as can be appreciated in **Table 2**.

NoM typically involves a sequence of trigger-signal (of communication problem)-response-reaction to response in the interaction. An example of trigger, signal, response and reaction to response from the NNS (Low)1-NNS (High)1 dyad is provided in (1). As (1) of the current data shows, a NoM often happens when the Hearer encounters communication problem. The problematic utterance is called trigger and it often involves utterances containing grammatical errors, incomprehensible or ambiguous utterances. Once the Hearer notices these triggers, he/she would use strategies to solve the communication breakdown. The strategies the Hearer uses are defined as signals. Signals usually take the form of implicit CF, including NoM and recasts. Signal then leads to a response from the Speaker. The response can be a modified output or a target-like reformulation or further explanation of an ambiguous utterance. Finally, the "reaction to response" is observed, where the Hearer indicates whether or not she has understood the "response".

1) Trigger (Speaker: NNS (High)1) *How many garages do you want?*

Signal (Hearer: NNS (Low)1) *Garage? What?*

Response (Speaker: NNS (High)1) *The room for you to put the car in.*

Reaction to response (Hearer: NNS (Low)1) *Aha.. Maybe three or four.*

Analysis of NoM and CF Concerning Different Combinations. The data are analyzed to address the second research

question asking whether there is any qualitative/quantitative difference in different combinations of interactions. In order to record the number of CF and NoM in each combination precisely, the NNS turns are divided into two categories: NNS target like turns and NNS non-target like turns. This type of division is based on the system utilized by Iwasaki & Oliver (2003). The non-target like turns can further be divided into two categories: non-target like turns related to NNS grammatical errors, and turns unrelated to NNS grammatical errors. Grammatical errors include verb tense, articles, subject-verb agreement, plural form and question formations, etc. Non-target like turns unrelated to grammatical errors mainly include pronunciation, and lexical errors. In order to find the quantitative differences according to different combinations, the number of each combination's CF and NoM is first compared. Then, analysis comparing the number of CF related to grammar among the six combinations is conducted.

As for the qualitative differences, distribution of each CF (such as explicit CF, recast and NoM) provided to the interlocutor is examined. Further, in order to analyse which combination shows a better learning result, all the negotiation instances will be classified into successful and unsuccessful negotiation instances. A successful negotiation instance indicates that a participant notices the CF provided for her, and then she produces modified output or acknowledges a correction. On the contrary, if a participant ignores the CF or fails to notice modified output then the negotiation instance is considered to be an unsuccessful one. Furthermore, if a participant produces a wrong CF, it is also regarded as an unsuccessful negotiation instance. Examples of successful and unsuccessful negotiations from our data are offered in (2) and (3) respectively. In (2), NNS (Low)1 noticed her error on the verb tense of *buy* and corrected to *bought* after NNS (High)1's signal. In contrast, NNS (Low) failed to notice her grammatical error of *there have* after she received a recast from NNS (High)1 saying *there are four trees* in (3). She continued her interaction without successfully modifying the output.

2) Trigger: NNS (Low)1 *Three. What did you buy yesterday? I buy bread. I buy ticket.*

Signal: NNS (High)1 *So you buy?*

Response: NNS (Low)1 *Err...no, I bought*

Reaction to response: NNS (High)1 *Yeah, good.*

3) Trigger: NNS (Low)1 *Hmm. In front, there have..in the north, no, in the front there have four trees.*

Signal: NNS (High)1 *There are four trees.*

Response: NNS (Low)1 *Yes. And four children and one woman sit on the floor. And there have a big cloth*

Analysis of L2 grammar development through NoM and CF. The error rate on each grammatical item in question (i.e., past tense, plural forms, S-V agreement and question construction) is calculated with pre-test, treatment and post-test for the comparison.

Results

To answer Research Questions 1 and 2, that aim to investigate differences/similarities according to the groups and combinations, all data except the data from the post-test are analysed both qualitatively and quantitatively. Meanwhile, to answer Research Question 3, data from pre-and post-tests are analysed to examine whether CF has an effect on grammar learning.

Table 2.

Varonis and Gass' (1985) model of negotiation of meaning.

Trigger		Resolution	
Trigger (Utterance involving problem(s))	Signal	Response	Reaction to response
Speaker	Hearer	Speaker	Hearer

Data Summary According to Two Groups

Our data according to two different groups, (i.e. NS-NNS and NNS-NNS groups) are first summarised. The turn count from each group are presented in **Table 3**. The average number of turns per session (i.e., per dyad) is also listed, as numbers of dyads involved in these two combinations are different. There are eight dyads in NS-NNS group (i.e., NS1-NNS (High)1, NS1-NNS (High)2, NS1-NNS (Low)1, NS1-NNS (Low)2, NS2-NNS (High)1, NS2-NNS (High)2, NS2-NNS (Low)1 and NS2-NNS (Low)2) and six dyads in NNS-NNS group (i.e., NNS (High)1-NNS (High)2, NNS (Low)1-NNS (Low)2, NNS (High)1-NNS (Low)1, NNS (High)1-NNS (Low)2, NNS (High)2-NNS (Low)1 and NNS (High)2-NNS (Low)2)). The NS-NNS group produced 1322 turns in total (165.3 turns per session) while NNS-NNS group produced 1055 turns in total (175.8 turns per session). Hence, the NNS-NNS group produced slightly more turns per session than the NS-NNS group to perform the same tasks.

Table 4 displays breakdown of NNS turns. In the NS-NNS group, the total of 661 NNS turns are divided into 595 target-like turns (90%) and 66 non-target like turns (10%). On the other hand, the total number of NNS target-like turns in NNS-NNS group is 875 (83%) and the number of non-target like turns is 136 (13%). Code-switching occurred only with NNS-NNS group, with a percentage of 4%.

Table 5 presents the frequency of CF happened during interaction by group. In the NS-NNS group, there are 21 instances of CF on grammar error (session average 2.6), 17 instances of other errors (session average 2.1) and 51 instances of

meaning consultations (session average 6.4). On the other hand, in the NNS-NNS group, CF on grammar error, on other errors and on meaning consultations are 34 (session average 5.7), 10, (session average 1.7) and 52 (session average 8.7) respectively. The NNS-NNS group interaction produced therefore more CF instances than the NS-NNS group.

In order to check whether there are any differences in interaction groups, the total number of turns devoted to explicit CF, implicit CF and unrelated to CF are quantified and displayed in **Table 6**. As for the NS-NNS group, 94 out of 1322 turns are devoted to recasts (session average 11.8 turns) and 257 turns to NoM (session average 32.1 turns). Interestingly, no turns were devoted to explicit CF. The NNS-NNS, on the other hand, devoted 3 turns to explicit CF (session average 0.5 turns), 99 turns to recasts (session average 16.5 turns) and 284 turns to NoM (session average 47.3 turns). All of them are higher than those of NS-NNS group. **Table 6** also presents the turn count of CF converted to every 100 turns. This conversion is necessary for

Table 3.
Summary turn counts of each group.

	Group	NS turns	NNS turns	Total
NS-NNS	8 dyads total	661 (50%)	661 (50%)	1322 (100%)
	Session average	82.6	82.6	165.3
NNS-NNS	6 dyads total	N/A	1055 (100%)	1055 (100%)
	Session average	N/A	175.8	175.8

Table 4.
Breakdown of NNS turns.

	Group	Target like turns	Non-target like turns	Code-switching turns	Total
NS-NNS	8 dyads total	595 (90%)	66 (10%)	0 (0%)	661 (100%)
	Session average	74.4	8.3	0	82.6
NNS-NNS	6 dyads total	875 (83%)	136 (13%)	44 (4%)	1055 (100%)
	Session average	145.8	22.7	7.3	175.8

Table 5.
CF and NoM on grammar errors, other errors and meaning consultations.

	Groups	On grammar errors	On other errors	On meaning consultations	Total
NS-NNS (8 dyads)	Explicit CF	0	0	0	0
	Recast	14	10	0	24
	NoM	7	7	51	65
	Subtotal (SA)	21 (2.6)	17 (2.1)	51 (6.4)	89 (11.1)
NNS-NNS (6 dyads)	Explicit CF	1	0	0	1
	Recast	20	4	0	24
	NoM	13	6	52	71
	Subtotal (SA)	34 (5.7)	10 (1.7)	52 (8.7)	96 (16.0)
Total of 14 dyads (SA)		55 (3.9)	27 (1.9)	103 (7.4)	185 (13.2)

SA = Session Average.

Table 6.
Turns devoted to explicit and implicit CF and NoM.

Group	Explicit CF	Implicit CF		Unrelated to CF	Total Turns	
		Recasts	NoM			
8 dyads total	0	94	257	971	1322	
NS-NNS	Session average	0	11.8	32.1	121.4	165.3
	Per 100 turns	0	7.11	19.44	73.5	100
6 dyads total	3	99	284	669	1055	
NNS-NNS	Session average	0.5	16.5	47.3	111.5	175.8
	Per 100 turns	0.3	9.38	26.92	63.4	100

running a chi-square test to examine whether or not there is any statistically significant difference between the NS-NNS and the NNS-NNS groups. As there was no instance of explicit CF with NS-NNS group and only one instance with NNS-NNS group, we do not include explicit CF for the statistical analysis: we test only implicit CF. In other words, this analysis examines whether there is any statistical difference between the L2 learners' interaction with NS and their interaction with other NNS in terms of their opportunities for recast and NoM. The results from the chi-square test indicated that there was no significant difference between the two groups (Yate's p -value = 0.8357, χ^2 = 0.043, df = 1). This suggests that L2 learners experience similar opportunities for CF/NoM when they interact with other L2 learners as when they interact with NSs.

Data Summary Concerning the Five Combinations

This subsection presents quantitative and qualitative analyses of the five different combinations. For the quantitative analysis, the number of CF items recorded from each combination is first examined. Second, the number of CF related to NNS errors (both grammar errors and other errors) and the number of CF unrelated to NNS errors, i.e., meaning consultations, is compared. For the qualitative analysis, who initiated CF and NoM in different combinations is further examined. The qualitative outcomes of CF and NoM, namely whether negotiated items are successfully taken up by the interlocutor or ignored (i.e. unsuccessful) is also analysed.

Quantitative Analysis. Table 7 summarises the number of each CF item recorded for the five different combinations. Note that NNS (Low)-NNS (Low) and NNS (High)-NNS (High) involve one dyad each, while all other combinations involve four dyads, constituting 14 dyads all together. In order to compare across the combinations, number counts per dyad are also provided. When the proficiency levels of the learners in an interaction are the same, more CF and NoM are observed with NNS (Low)-NNS (Low) (16 times) than NNS (High)-NNS (High) combinations (8 times). As for the interactions involving participants of different proficiency levels, NNS (Low)-NNS (High) scored highest with both recasts (5.5) and NoM (12.3) per dyad. Also, total number of CF was highest with NNS (Low)-NNS (High) per dyad (18.0) among the five combinations. In order to address whether NNS received CF when they produced errors, CF on errors were specifically examined.

In Table 8, the number of all CF, including recast and NoM, received on errors and the total number of errors are listed. The

number in the bracket indicates the percentage of errors that received CF. The percentages enable the comparison of NNS's opportunities of receiving CF across different combinations regardless of the number of dyads involved in each combination. For example, in NNS (Low)-NNS (Low) combination, there were 58 grammatical errors but only three errors received CF (5% of total number of errors). As for NNS (High)-NNS (High) and combinations involving NS, i.e., NS-NNS (High) and NS-NNS (Low), rates of CF on NNS errors unrelated to grammar are much higher than CF related to grammar. For example in NS-NNS (High) combination, 38% of grammatical errors received CF but it was 56% with errors unrelated to grammar. In contrast, in NNS (Low)-NNS (High), NNS (High) provided very high rate of CF on NNS (Low)'s grammatical error (i.e., 64%). Among all combinations, NNS (Low)-NNS (High) is the only combination where the rate of CF on grammatical error (64%) is much higher than CF on errors unrelated to grammar (36%). However, NNS (Low) in the same combination did not provide CF at all on NNS (High)'s grammatical errors and other errors.

Table 7.
Corrective feedback: five different combinations.

Combinations	Explicit CF	Implicit CF		Total
		Recasts	NoM	
NNSL-NNSL (1 dyad)	0	2	14	16
NNSH-NNSH (1 dyad)	0	0	8	8
NS-NNSL (4 dyads)	0 (0)	16 (4.0)	35 (8.8)	51 (12.8)
NS-NNSH (4 dyads)	0 (0)	8 (2.0)	30 (7.5)	38 (9.5)
NNSL-NNSH (4 dyads)	1 (0.3)	22 (5.5)	49 (12.3)	72 (18.0)

Numbers in the bracket indicate average frequency counts per dyad.

Table 8.
NNS's errors and CF on errors.

Combinations	Grammar errors	Other errors
NNSL-NNSL	3/58 (5%)	1/14 (7%)
NNSH-NNSH	2/11 (18%)	1/8 (13%)
NS-NNSL	12/32 (38%)	12/29 (41%)
NS-NNSH	6/16 (38%)	5/9 (56%)
NNSL-NNSH		
(NNSL's errors corrected by NNSH)	29/45 (64%)	8/22 (36%)
(NNSH's errors corrected by NNSL)	0/13 (0%)	0/3 (0%)

Number of CF/number of errors (rate of CF on errors).

Qualitative analysis. In order to examine qualitative differences in the combinations involving speakers of different proficiency levels, we focused on: 1) who initiated recast and NoM and; 2) outcomes of CF in five different combinations.

Figures 2(a) and (b) show clear differences as to who initiated recast and NoM depending on the proficiency level of the interlocutor. It is interesting to observe that the speaker of higher proficiency level in all combinations consistently show higher frequencies of initiating recasts than the speakers of lower level while this observation is reversed with NoM. For example, in NNS (Low)-NNS (High) interaction, each participant initiated recast 0 and 22 time respectively. In the same interactional combination, NNS (Low) and NNS (High) initiated NoM 29 and 20 times respectively. When examining the obtained data, the less proficient speaker in a combination actively asked questions to clarify the interlocutor's utterances while the more proficient speakers tried not to disturb the flow of conversation. In order to attract the less proficient speaker's attention without disrupting the conversation flow, the more proficient speaker were more likely to use recast as a strategy to

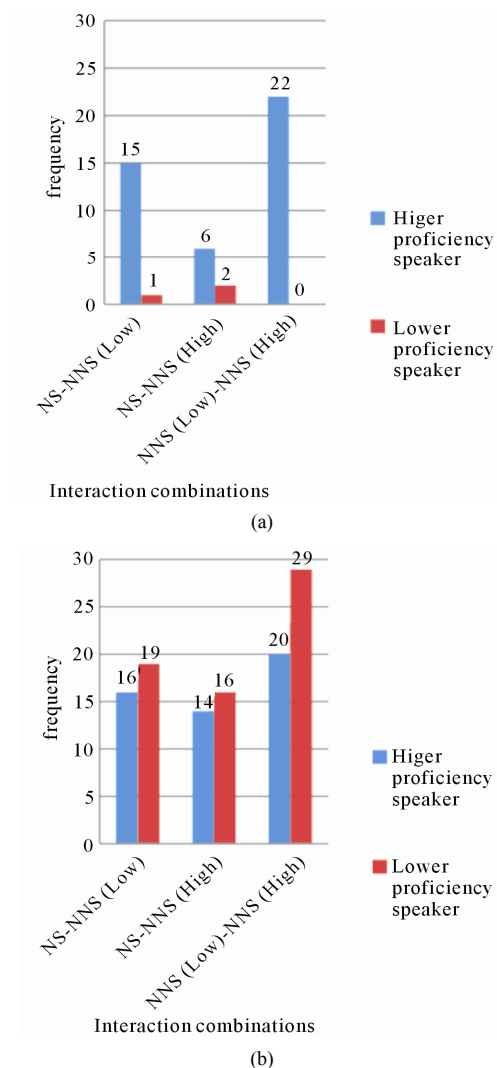


Figure 2. (a) Initiation of recast; (b) Initiation of negotiation of meaning.

correct the errors in the interlocutor's utterance. In this way, the more proficient speaker avoided imposing additional burden on the less proficient speaker to clarify her ambiguity in speech. This shows a clear qualitative difference in the initiation of CF according to the level of proficiency of the speaker.

Table 9 presents outcomes of CF in the five combinations. It is evident that NNS (Low)-NNS (High) combination has the highest success rate (74%) followed by NS-NNS (Low) combination (69%), and then NS-NNS (High) (66%), NNS (High)-NNS (High) (50%). NNS (Low)-NNS (Low) combination follows well behind (25%). This suggests that NNS (Low) NNS (Low) interaction may not provide an effective linguistic environment for language learning.

Grammatical Development through Corrective Feedback

This sub-section focuses on whether negotiated interaction on errors leads to grammar learning in L2 learners. We showed above that most CF involved in the interactional sessions were on meaning consultation rather than on errors. One might ask whether this means that CF on grammar errors plays a trivial role for L2 learners in their grammar development. First we examine L2 learners' grammatical errors and CF on their errors individually over pre-test and treatment period where all 14 dyads were activated. Note that every learner engaged in five dyads during this period. In **Table 10**, the frequency counts and percentages of all CF received on errors are summarised. We found that the two NNS (Low) learners shared a similar pattern and so did the two NNS (High) learners. Both NNS (Low)1 and NNS (Low)2 received the highest rate of CF on errors when they interacted with NNS (High) (70% and 62% respectively) followed by NS (17% and 27% respectively). In contrast, they received the lowest rate of CF from the other NNS (Low) (i.e., 1% and 7% respectively). NNS (Low)1 and NNS (Low)2 received CF at the rates of 32% and 34% respectively on errors in total through five dyads. On the other hand, the two NNS (High) learners made much smaller numbers of errors in the first place as comparison to NNS (Low) learners. Both NNS (High) learners received CF on errors by 38% respectively from NS while they received much less CF from the other NNS (High) (17% and 11% respectively). It is noteworthy that both NNS (High) received no CF from NNS (Low). Overall, the two NNS (High) learners received 24% and 18%, respectively, of CF on errors through the five dyads in which they participated. From this analysis, it has become clear that NNS (Low) benefited the most when interacting with NNS (High) while NNS (High) with NS.

Next we look at outcomes of CF on grammatical errors. According to **Table 11**, although frequency counts of CF on

Table 9. Outcomes of CF of the five combinations.

	Successful	Unsuccessful	Total
NNSL-NNSL (1 dyad)	4 (25%)	12 (75%)	16 (100%)
NNSH-NNSH (1 dyad)	4 (50%)	4 (50%)	8 (100%)
NS-NNSL (4 dyads)	35 (69%)	16 (31%)	51 (100%)
NS-NNSH (4 dyads)	25 (66%)	13 (34%)	38 (100%)
NNSL-NNSH (4 dyads)	53 (74%)	19 (26%)	72 (100%)

Table 10.
NNS's grammar errors and corrective feedback on grammar errors.

L2 Learner	Interaction Combination					Total
	NNSL-NNSL	NNSH-NNSH	NS-NNSL	NS-NNSH	NNSL-NNSH	
NNS (L)1	2/18 (1)	N/A	5/30 (17)	N/A	16/23 (70)	23/71 (32)
NNS (L)2	1/15 (7)	N/A	7/26 (27)	N/A	13/21 (62)	21/62 (34)
NNS (H)1	N/A	1/6 (17)	N/A	3/8 (38)	0/3 (0)	4/17 (24)
NNS (H)2	N/A	1/9 (11)	N/A	3/8 (38)	0/5 (0)	4/22 (18)

Number of CF/number of errors (percentages).

Table 11.
Outcomes of CF on grammar errors.

Learner	Source of CF	Successfully Uptaken	Ignored	Total CF
NNS (L)1	from same level	0	2	2
	from NS	4	1	5
	from different level	13	3	16
	Total	17 (74%)	6 (26%)	23 (100%)
NNS (L)2	from same level	0	1	1
	from NS	4	3	7
	from different level	9	4	13
	Total	13 (62%)	8 (38%)	21 (100%)
NNS (H)1	from same level	0	1	1
	from NS	2	1	3
	from different level	0	0	0
	Total	2 (50%)	2 (50%)	4 (100%)
NNS (H)2	from same level	1	0	1
	from NS	2	1	3
	from different level	0	0	0
	Total	3 (75%)	1 (25%)	4 (100%)

grammatical errors are not large, both NNS (Low)1 and NNS (Low)2 showed high successful uptaking rates of CF (74% and 62% respectively). As for NNS (High)1 and NNS (High)2, success rates of negotiated interaction were 50% and 75% respectively. However, given total counts of CF they received were only four each, it is reasonable to conclude that the role of CF on grammatical errors for advanced learners is much smaller than for less advanced learners. For advanced learners, CF on meaning consultation seems to be more significant.

In order to investigate whether negotiated interaction promotes grammatical development, as mentioned in the methods section, our study adopted a pre-test, treatment and post-test design. **Table 12** provides the frequency of each NNS's grammar errors on verb past tense, noun plural forms, S-V agreement, question constructions and other grammar errors according to pre-test and post-test. An example of "other errors" relates to the choice of definite and indefinite article. In the table

the numbers before and after the slash indicate the frequency of errors and contexts respectively. Error percentages are provided in brackets.

For example, in pre-test, NNS (Low)1 created nine contexts for the past tense but failed to provide appropriate verb forms four times, i.e., 44% error rate. In post-test, the same learner did not make any errors for the eight past tense contexts produced. Thus her error rates decreased from 44% in pre-test to 0% in post-test. Both NNS (Low) improved substantially as the decrease in their error rate from pre- to post-test shows with all four grammatical phenomena investigated in this study. Especially the error rates on past tense and plural forms decreased dramatically from pre- to post-test. For example, error rates on plural forms for NNS (Low)1 decreased from 80% to 0% and NNS (Low)2 from 43% to 10% respectively. The sole exception regards S-V agreement with NNS (Low)1 which registered a 9% error rate with pre-test and 14% error rate with post-test.

Table 12.

NNS's errors on past tense, plural forms, S-V agreement and Question forms in pre-test and post-test.

NNS	Past tense		Plural forms		S-V agreement		Question forms		Other errors	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Low 1	4/9 (44)	0/8 (0)	4/5 (80)	0/8 (0)	1/11 (9)	2/14 (14)	3/13 (23)	1/13 (8)	6/9 (67)	4/8 (50)
Low 2	2/8 (25)	0/9 (0)	3/7 (43)	1/10 (10)	3/9 (33)	2/17 (12)	4/11 (36)	1/15 (7)	3/5 (60)	2/10 (20)
High 1	0/16 (0)	0/15 (0)	1/15 (7)	1/12 (8)	2/24 (4)	0/22 (0)	1/18 (6)	0/21 (0)	2/16 (13)	1/17 (6)
High 2	2/18 (11)	1/19 (5)	2/16 (13)	0/15 (0)	3/27 (11)	0/23 (0)	1/22 (5)	0/23 (0)	1/20 (5)	1/14 (7)

Number of errors/number of contexts (percentage error), PRE = Pre-test, POST = Post-test.

As for the two NNS (High), their error rates were already very low at pre-test, nevertheless it also decreased across the board at post-test to reach, mostly 0%. Again there was one exception, this time with plural forms produced by NNS (High)1, which went from 7% at pre-test to 8% at post-test. Hardly a significant change.

Table 13 summarises each learner's number of errors, number of contexts and error percentages for each of the all grammatical phenomena in pre-test, treatment and post-test sessions. The changes in NNS's error rates in this table are graphically represented in **Figure 3**. It is evident that the two NNS (Low) made a dramatic decrease in their error rates as they progressed through the sessions.

Discussion

We organize the discussion section around our research questions.

Research question 1. Whether CF and NoM happen in learner-learner combination. According to **Table 6**, total turns of the two groups, NS-NNS and NNS-NNS groups, are 1322

Table 13.

NNS's total grammar errors and number of contexts.

Learner	Pre-test	Treatments	Post-test
NNS (Low)1	18/47 (38%)	53/205 (26%)	7/51 (14%)
NNS (Low)2	15/40 (38%)	47/183 (26%)	6/61 (10%)
NNS (High)1	6/89 (7%)	11/306 (4%)	2/87 (2%)
NNS (High)2	9/103 (9%)	13/317 (4%)	2/94 (2%)

Number of errors/number of contexts (percentage error).

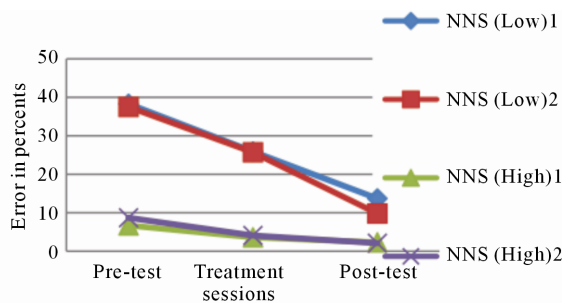


Figure 3.

Error rates in pre-test, treatment sessions and post-test.

(session average 165.3) and 1055 (session average 175.8) respectively while turns devoted to CF, which is the sum of explicit and implicit CF in **Table 6**, are 351 (27%) for NS-NNS group and 386 (37%) for the NNS-NNS group. Therefore, NNS-NNS group produced more opportunities for CF. This confirms that CF and NoM occur in learner-learner combination. The chi-square test of turn frequencies devoted to recast and NoM suggests that NS-NNS group and NNS-NNS group were not significantly different, suggesting that ESL learner's interaction with another learner provides an interactional environment comparable to interaction with a NS. This result is in line with other studies (Lyster & Ranta, 1997; Mackey & Oliver, 2002; Nassaji, 2007; Oliver, 1995, 1998).

Concerning the NNS-NNS groups in particular, it was found that NNS (Low) received CF more frequently when she was paired with a more competent interlocutor rather than when she interacted with NS or another learner of the same proficiency level. In the example (4), following NNS (Low)2's usage of the non-targeted utterance *there have*, NNS (High)2 immediately produced a reformulation *there is*, allowing the NNS (Low)2 to notice and correct her error. This shows that a more competent L2 speaker facilitates language acquisition for a less competent L2 speaker.

4)

NNS (Low)2: *and above the stove, there have a picture.*

NNS (High)2: *There is a picture. There is.*

NNS (Low)2: *There is.*

Occasionally, the NNS-NNS group may also use their native language to resolve communication problems, as observed in (5). NNS (Low)1 intended to express the word *branch*, however, she appears to have confused the two words *branch* and *breach*. She produced a wrong utterance, triggering NNS (Low)2 to double check the information. NNS (Low)1 then used their mutual L1, Chinese, to explain the meaning of the word. NNS (Low)2 subsequently understood the meaning of the words and continued with her drawing task. The fact NNSs can negotiate the meaning in their native language to solve communication breakdown appears to be one of the reasons why NNS(H)-NNS(L) group has a higher success rate for CF than NS-NNS(H/L).

5)

(NNS (Low)1 is describing a picture to her partner)

NNS (Low)1: *He catches a breach. Catch..*

NNS (Low)2: *breach?*

NNS (Low)1: *what I mean is a branch*

Research question 2. Whether CF and NoM differ qualitatively and quantitatively in different combination of interac-

tion. First, the number of CF in each combination and their outcomes was analysed. Our data shows that NNS (Low)-NNS (High) combination has a higher numbers of recast and NoM than any other combinations (see **Table 7**). Further, the only explicit CF instance was also found to occur in this combination. In addition, NNS (High) produced more recasts than NSs. For example, NNS (High) produced recasts 22 times in NNS (Low)-NNS (High) combination while NS produced recasts 15 times in NS-NNS (Low) combination (see **Figure 2(a)**).

Analysis of NoM also revealed interesting qualitative differences in the outcome among different interactional combinations (see **Table 9**). The current study shows that NNS (Low)-NNS (High) combination outperformed any other combinations, with a success rate of 74%. NS-NNS (High) (66%) and NS-NNS (Low) (69%) groups followed shortly behind, while NNS (Low)-NNS (Low) (25%) group fell considerably behind. Varonis and Gass (1985) found that more NoM occurs in NNS-NNS interaction than in NS-NS or NS-NNS interactions. The current study further suggests that NNS (High)-NNS (Low) provides the best opportunities for NoM. Further, it shows that more competent speakers were more likely to initiate recasts while less competent speakers tend to initiate NoMs.

Long (1996) claims that “negotiation of meaning, and especially negotiation work that triggers interactional adjustments by the NS or more competent interlocutor, facilitates acquisition (pp. 451-452)”. However, no studies have investigated NoM between the NNS of different proficiency levels. Hence, the current study throws further light on the precise meaning of Long’s statement since it finds that NNS benefits best when interacting with NNS of higher proficiency level rather than with NS or learners of similar proficiency level. Several reasons may provide an explanation for this finding. First, NSs tend to dismiss NNS’ grammatical errors or ambiguous utterances. They appear to focus more on conveying meaning. This seems to parallel first language acquisition studies where caretakers were found to correct children when the choice of vocabulary or sentence meaning was wrong but not when making grammatical errors (e.g., Brown & Hanlon, 1970). The following excerpt in (6) exemplifies this point in L2:

6) (performing “describing a picture” task)

NNS (Low)2: *Next to the lamp stand, there has a sofa, three-seated sofa.*

NS2: *What kind of sofa? Three-seated sofa?*

NNS (Low)2: *Yes, three-seated sofa. And the sofa with the two little arm, two arm, yeah.*

NS2: *Yeah.*

NNS (Low)2 in the above example made a number of grammatical errors (as underlined), however, NS did not call attention to these errors. NSs tend to ignore grammatical errors as long as the content of the message is understood. On the contrary, NNS (High) are shown to be more grammatically sensitive than NS. NNS (High)s pay more attention to their partners’ grammatical errors (See the example in (4) above). NNS (High)2 immediately highlighted her partner’s incorrect output *there have*, which the NS2 failed to do.

NSs, on the other hand, attend more to their partners’ errors on word choice. They provide more feedback on their incorrect word choice, incorrect word form and collocation errors. In example (7), non-target word choice of *very big* was used by NNS(L)2 to describe the Chinese culture. NS2 immediately corrected this by uttering the word *very rich*.

7)

NS2: *What is your favourite topic or subject in school?*

NNS (Low)2: *Hmm. I like Chinese. Because you know, Chinese culture is very big.*

NS2: *Very rich.*

NNS (Low)2: *Yes. We enjoyed it a lot.*

Second, NNSs would use their native language when communication problems arise. Notice that code switching occurred in their negotiated interactions: 44 turns (4% of total turns) in NNS-NNS and 0 (zero) in NS-NNS (see **Table 4**) interactions. Code switching may be an effective strategy to assist NNS to overcome language difficulties as can be seen from the excerpt in (8).

8)

NNS (Low)1: *She...she was in China?*

NNS (High)1: *Yes, she is in China.*

NNS (Low)1: *Do you think it is right to use “was”?*

NNS (High)1: *Is. She is still in China now.*

NNS (Low)1: *Oh, she is in China.*

During their conversation task, NNS (Low)1 asked NNS (High)1 about where her high school teacher is. NNS (Low)1 became confused when she heard NNS (High)1 use *is*, and asked NNS (High)1 in Chinese whether it was right for her to use *was* here. After NNS (High)1 told NNS (Low)1 in Chinese that her teacher is still in China, NNS (Low)1 noticed that she should use *is* instead of *was*. Resorting to code switching assisted NNS (Low)1 to revise her grammar knowledge, which allowed her to notice the difference between *is* and *was*. As Poole (2005) suggests, code switching assists less competent interlocutor to learn and respond quickly.

The above two reasons provide some clues as to why NNS (Low)-NNS (High) combination performed better in CF related to grammatical errors. To sum up, CF and NoM do differ qualitatively and quantitatively in different combinations of interactions. It was observed in this study that the NNS (Low)-NNS (High) combination outperforms other combinations in CF and NoM, especially in relation to successful outcomes of CF and NoM.

Research question 3. Whether negotiated interaction promotes grammar learning. Mackey (1999) claims that there is a link between interaction and L2 grammatical development. This leads to the prediction that grammatical errors would decrease after the treatment. Indeed, we find that this is the case but we also found, that the learner’s proficiency level is inversely proportional to the level of improvement that can be obtained through CF and NoM. This means, roughly, that the lower level learners achieve the greatest benefit from such interaction as **Table 13** and **Figure 3** show. An obvious reason for the smaller decrease in error rates for NNS (High) is due to the “ceiling effect”: their error rates at pre-test were already very low, i.e., 7% with NNS (High)1 and 9% with NNS (High)2, and decreased to 2% for both (approaching native speaker rates). On the other hand, error rates decreased from 38% (18 errors out of 47 contexts) to 14% (7 errors out of 51 contexts) for NNS (Low)1, and from 38% (15 errors out of 40 contexts) to 10% (6 errors out of 61 contexts) for NNS (Low)2.

Conclusion

This study presented an in-depth analysis of Corrective Feedback (CF) and Negotiation of Meaning (NoM) in NS-NNS and NNS-NNS interactions. The 14 dyads contain interactions:

1) between L2 learners from the same language proficiency level; 2) between a native speaker and a L2 learner and; 3) between learners of different proficiency. This type of design has never been tried in any previous studies.

We posited three research questions. The first asked whether there is a difference between NS-NNS and NNS-NNS groups in terms of CF and NoM. Our data suggest that NNS-NNS interaction provides, at least, a comparable linguistic environment to NS-NNS. Indeed, the outcome of CF in NNS (Low)-NNS (High) combination provided more opportunities for CF and NoM than learner-native speaker combination. Thus, peer learning provides excellent opportunities for second language learning and teaching. The second question asked whether the CF and NoM differ qualitatively and quantitatively in different combinations of interaction. Results revealed that the best CF and NoM outcomes for NNS (Low) were obtained in interaction with NNS (High) rather than with natives. On the other hand, for NNS (High), the best outcomes were obtained in interaction with native speakers. As for quality, different strategies were employed by the lower/higher proficiency level speakers: the lower proficiency level learners resorted to NoM to solve communication problems while the higher proficiency learners used recast to focus interlocutor's attention on errors. This suggests that the difference in levels of proficiency contribute to successful communication in different ways. The last research question queried the relationship between negotiated interaction and grammar learning. Results show that there is a positive relationship: in the post-test all learners made fewer grammatical errors across the various structures investigated in comparison with the pre-test.

This study has practical implications. Given the transition in pedagogy from individual to collaborative learning, L2 learners are now encouraged to work either in groups or in pairs (Richards & Rodgers, 2001). This study supports the effectiveness of collaborative learning. Some scholars assert that L2 learning through communicative classes do not gain high level of L2 proficiency or complex form (Ellis, 1996; Higgs & Clifford, 1982; Van, 1988). They base their argument on the use of choppy interlanguage and pidginized language by less proficient L2 learners, and their use of CF and NoM to convey meaning rather than error correction. However, combinations such as NNS (Low) and NNS (High), are shown here to be effective in grammar learning. In fact, in the current study NNS (Low) received more CF from NNS (High) than from NS. NNS (High) are more experienced in L2 learning and possibly more sensitive to grammatical issues than natives: NNS (High) are able to notice and correct their partners' grammatical errors through negotiated interaction. In contrast, combinations involving NS may result in greater learning effect in pronunciation and vocabulary acquisition, rather than grammar learning.

There are some limitations with this study. Firstly, the number of participants was small, restricting broad generalisability and extensive statistical treatment. Second, this study only examined NNS participants of high and low language proficiency without including intermediate proficiency. Thus, the performance of intermediate level learners when they are grouped with learners of other levels/native speakers and their results on CF and NoM remains an open question. Lastly, a broader investigation relating accuracy and specific items learned by different dyadic combinations would require a more explicit grammatical development framework such as, for instance, Processability Theory (Pienemann, Di Biase, & Kawaguchi, 2005).

Acknowledgements

We would like to thank Dr Bruno Di Biase and Dr Kenny Wang for their comments for earlier version of this paper. We also thank Rio Yamaguchi for her editorial help. Remaining errors are our responsibility.

REFERENCES

- Blake, R. (2000). Computer mediated communication: A window on L2 Spanish interlanguage. *Language Learning Technology*, 4, 120-136.
- Bower, J., & Kawaguchi, S. (2011). Negotiation of meaning and corrective feedback in Japanese/English eTandem. *Language Learning & Technology*, 15, 41-71.
- Braidi, S. M. (2002). Reexamining the role of recasts in native speaker/nonnative-speaker interactions. *Language Learning*, 52, 1-42. doi:10.1111/1467-9922.00176
- Brock, C., Crookes, G., Day, R., & Long, M. (1986). The differential effects of corrective feedback in native speaker-nonnative speaker conversation. In R. Day (Ed.), *Talking to learn* (pp. 229-236). Rowley, MA: Newbury House.
- Brown, R., & Hanlon, C. (1970). Derivational complexity and order of acquisition in child speech. In J. R. Hayes (Ed.), *Cognition and the development of language* (pp. 11-53). New York: Wiley.
- Carroll, S., & Swain, M. (1993). Explicit and implicit negative feedback: An empirical study of the learning of linguistic generalizations. *Studies in Second Language Acquisition*, 15, 357-366. doi:10.1017/S0272263100012158
- Chiba, C. (2010). Negotiation of meaning in the conversation between advanced learners of Japanese and native speakers of Japanese: Comparative study on conversation between nonnative speakers and native speakers. *Japanese Language Education*, 39, 138-141.
- Di Biase, B. (2000). *Second language acquisition notes and exercises*. Sydney: Language Australia.
- Ellis, N. C. (2002). Frequency effects in language processing. *Studies in Second Language Acquisition*, 24, 143-188.
- Ellis, R. (1998). Teaching and research: Grammar in teaching. *TESOL Quarterly*, 32, 39-40. doi:10.2307/3587901
- Ellis, R., Loewen, S., & Erlam, R. (2006). Implicit and explicit corrective feedback and the acquisition of L2 grammar. *Studies in Second Language Acquisition*, 28, 339-368. doi:10.1017/S0272263106060141
- Ellis, R., Tanaka, Y., & Yamazaki, A. (1994). Classroom interaction, comprehension, and the acquisition of L2 word meanings. *Language Learning*, 44, 449-491. doi:10.1111/j.1467-1770.1994.tb01114.x
- Finocchiaro, M., & Brumfit, C. (1983). *The functional-notional approach: From theory to practice*. New York: Oxford University Press.
- Gass, S. M. (1997). *Input, interaction, and the second language learner*. Hillsdale, NJ: Erlbaum.
- Gass, S. M. (2003). Input and interaction. In C. Doughty, & M. Long (Eds.), *The handbook of second language acquisition* (pp. 224-255). Oxford: Blackwell. doi:10.1002/9780470756492.ch9
- Gass, S. M., & Mackey, A. (2007). Input, interaction, and output in second language acquisition. In B. Vanpatten, & J. Williams (Eds.), *Theories in second language acquisition* (pp. 175-200). London: LEA.
- Gass, S. M., & Varonis, E. M. (1994). Input, interaction, and second language production. *Studies in Second Language Acquisition*, 16, 283-302. doi:10.1017/S0272263100013097
- Harmer, J. (2007). *The practice of English language teaching*. Harlow, England: Pearson Education.
- Hauser, E. (2005). Coding "corrective recasts": The maintenance of meaning and more fundamental problems. *Applied Linguistics*, 26, 293-316. doi:10.1093/applin/ami010
- Iwasaki, J., & Oliver, R. (2003). Chat-line interaction and negative feedback. *Occasional Thematic Issue of the Australian Review of Applied Linguistics (ARAL)*, 17, 60-73.
- Higgs, T. V., & Clifford, R. (1982). The push toward communication.

- In T. V. Higgs (Ed.), *Curriculum, competence, and the foreign language teacher* (pp. 57-136). Lincolnwood, IL: National Textbook Co.
- Iwashita, N. (2003). Negative feedback and positive evidence in task-based interaction: Differential effects on L2 development. *Studies in Second Language Acquisition*, 25, 1-36. doi:10.1017/S0272263103000019
- Kim, H., & Mathes, G. (2001). Explicit vs. implicit corrective feedback. *The Korea TESOL Journal*, 4, 1-15.
- Lee, L. (2006). A study of native and nonnative speakers' feedback and responses in Spanish-American networked collaborative interaction. In J. Belz, & S. Thorne, (Eds.), *Internet-mediated intercultural foreign language education* (pp. 147-176). Boston: Thomson Heinle.
- Li, S. F. (2010). The effectiveness of corrective feedback in SLA: A meta-analysis. *Language Learning*, 60, 309-365. doi:10.1111/j.1467-9922.2010.00561.x
- Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie, & T. K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413-468). New York: Academic Press.
- Long, M. H., Inagaki, S., & Ortega, L. (1998). The role of implicit negative feedback in SLA: Models and recasts in Japanese and Spanish. *Modern Language Journal*, 82, 357-371. doi:10.1111/j.1540-4781.1998.tb01213.x
- Lyster, R. (1998). Recasts, repetition, and ambiguity in L2 classroom discourse. *Studies in Second Language Acquisition*, 20, 51-81. doi:10.1017/S027226319800103X
- Lyster, R. (2004). Differential effects of prompts and recasts in form-focused instruction. *Studies in Second Language Acquisition*, 26, 399-432. doi:10.1017/S0272263104263021
- Lyster, R., & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition*, 20, 37-66.
- Mackey, A. (1999). Input, interaction, and second language development: An empirical study of question formation in ESL. *SSLA*, 21, 557-587.
- Mackey, A., & Oliver, R. (2002). Interactional feedback and children's L2 development. *System*, 30, 459-477. doi:10.1016/S0346-251X(02)00049-0
- Mackey, A., Oliver, R., & Leeman, J. (2003). Interaction input and the incorporation of feedback: An exploration of NS-NNS and NNS-NNS adult and child dyads. *Language Learning*, 53, 35-66. doi:10.1111/1467-9922.00210
- Nassaji, H. (2007). Elicitation and reformulation and their relationship with learner repair in dyadic interaction. *Language Learning*, 57, 511-548. doi:10.1111/j.1467-9922.2007.00427.x
- Nassaji, H. (2009). Effects of recasts and elicitations in dyadic interaction and the role of feedback explicitness. *Language Learning*, 59, 411-452. doi:10.1111/j.1467-9922.2009.00511.x
- Oliver, R. (1995). Negative feedback in child NS-NNS conversation. *Studies in Second Language Acquisition*, 17, 459-481. doi:10.1017/S0272263100014418
- Oliver, R. (1998). Negotiation of meaning in child interactions. *The Modern Language Journal*, 82, 372-386. doi:10.1111/j.1540-4781.1998.tb01215.x
- Oliver, R. (2002). The patterns of negotiation for meaning in child interactions. *The Modern Language Journal*, 86, 97-111. doi:10.1111/1540-4781.00138
- O'Rourke, B. (2005). Form-focused Interaction in online tandem learning. *CALICO Journal*, 22, 433-466.
- Pica, T. (1994). Research on negotiation: What does it reveal about second-language learning conditions, processes, and outcomes? *Language Learning*, 44, 493-527. doi:10.1111/j.1467-1770.1994.tb01115.x
- Pica, T., & Doughty, C. (1985). Input and interaction in the communicative language classroom: A comparison of teacher-fronted and group activities. In S. M. Gass, & C. G. Madden (Eds.), *Input in second language acquisition* (pp. 115-132). Rowley, MA: Newbury House.
- Pica, T., Young, R., & Doughty, C. (1987). The impact of interaction on comprehension. *TESOL Quarterly*, 21, 737-758. doi:10.2307/3586992
- Pienemann, M., Di Biase, B., & Kawaguchi, S. (2005). Extending processability theory. In M. Pienemann (Ed.), *Cross-linguistic aspects of processability theory* (pp. 199-251). Amsterdam and Philadelphia: John Benjamins.
- Poole, A. (2005). Focus on form instruction: Foundations, applications and criticisms. *The Reading Matrix*, 5, 47-56.
- Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching* (2nd ed.). New York: Cambridge University Press. doi:10.1017/CBO9780511667305
- Schwartz, B. D. (1993). On explicit and negative data effecting and affecting competence and linguistic behavior. *Studies in Second Language Acquisition*, 15, 147-163. doi:10.1017/S0272263100011931
- Sotillo, S. (2005). Corrective feedback via instant messenger learning activities in NS-NNS and NNS-NNS dyads. *CALICO Journal*, 22, 467-496.
- Storch, N. (2002). Patterns of interaction in ESL pair work. *Language Learning*, 52, 119-158. doi:10.1111/1467-9922.00179
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook, & B. Seidlhofer (Eds.), *Principle and practice in applied linguistics: Studies in honour of H. G. Widdowson* (pp. 125-144). Oxford: Oxford University Press.
- Van Lier, L. (1988). What's wrong with the classroom talk? *Prospect*, 3, 267-283.
- Varnosfadrani, A., & Basturkmen, H. (2009). The effectiveness of implicit and explicit error correction on learners' performance. *System*, 37, 82-98. doi:10.1016/j.system.2008.04.004
- Varonis, E. M., & Gass, S. M. (1985). Non-native/non-native conversation: A model for negotiation of meaning. *Applied Linguistics*, 6, 71-90. doi:10.1093/applin/6.1.71
- Yang, Y., & Lyster, R. (2010). Effects of form-focused practice and feedback on Chinese EFL learners' acquisition of regular and irregular past-tense forms. *Studies in Second Language Acquisition*, 32, 235-263. doi:10.1017/S0272263109990519
- Zhao, Y., & Angelova, M. (2010). Negotiation of meaning between non-native speakers in text-based chat and videoconferencing. *US-China Education Review*, 7, 12-26.

Appendix

A: Board Game

This board game is downloaded from website “eslbase”, which claims that this resource could be photocopied for class use.

Start	1 <i>What time did you go to bed last night?</i>	2 WHERE DID YOU GO FOR YOUR LAST VACATION?	3 What did you eat for breakfast?	4 Miss a turn!
9 <i>Where did you go to school when you were younger?</i>	8 Go back 2 spaces	7 What did you eat for lunch yesterday?	6 WHO DID YOU SEE YESTERDAY ?	5 WHAT DID YOU DO LAST SUMMER?
10 WHAT DID YOU DO FOR YOUR LAST BIRTHDAY?	11 <i>Where did you live when you were five years old?</i>	12 What sports did you do when you were younger?	13 WHEN DID YOU LAST SWIM?	14 Move forward 2 spaces
19 WHAT DID YOU WEAR YESTERDAY ?	18 Miss a turn!	17 <i>What did you do last night?</i>	16 WHAT DID YOU WATCH ON TV YESTERDAY ?	15 WHAT DID YOU BUY YESTERDAY ?
20 <i>What did you eat for dinner last night?</i>	21 <i>How many phone calls did you make yesterday?</i>	22 When did you last buy a newspaper?	23 <i>Where did you spend New Year's Eve last year?</i>	24 Move forward 3 spaces!
Finish	28 Go back 2 spaces!	27 <i>When did you last play a game like this?</i>	26 <i>Who did you kiss yesterday?</i>	25 WHAT FOOD DID YOU HATE WHEN YOU WERE YOUNGER?

B: A Sample Pictures for Description

