

Peer Interaction: A Compromise or a Necessity?

Katherine I. Kang¹

ABSTRACT

In both research and practice, interaction with teachers or native speakers (NSs) has often been believed to play a facilitative role in second language (L2) development. However, as many learners in the classroom interact most frequently with other learners, there is a need to understand how peer interaction may differ from other types of interaction, such as learner-NS interaction, and how it may shape L2 development. Based on a review of studies on task-based peer interaction, this paper seeks to investigate its effect on L2 learning. The results indicate that peer interaction can benefit learners in various ways by creating opportunities to produce and modify output, receive feedback, and engage in collaborative dialogue. However, studies also found that having learners work together in itself does not automatically promote learning, and suggestions for creating more learning opportunities in peer interaction are discussed.

INTRODUCTION

Among the many types of interaction that learners engage in, peer interaction is perhaps the most common in a classroom environment. Although it has been believed that learners' second language (L2) development could be pushed forward through their interactions with a teacher, native speaker (NS), or more proficient interlocutor who possesses the L2 resources required to satisfy learning needs, various constraints such as class size, time, and environment often limit such opportunities. Therefore, peers may even be a learner's primary source for L2 interaction in settings where there are few opportunities to encounter the language outside the classroom. With this in mind, many L2 and foreign language classrooms implement peer interaction as a way to "[complement] teacher-fronted interaction by providing a context for practice and meaningful use of the target language and greater opportunity for individual production" (Philp, Walter, & Basturkmen, 2010, p. 261). Despite this need, some have questioned the extent to which peer interaction could benefit L2 learners and studies exploring its effectiveness for L2 learning have also produced varying results (e.g., Adams, 2007; Kim, 2008; Kuiken & Vedder, 2002; Nassaji & Tian, 2010). Thus, some may view peer interaction merely as a compromise for more "desirable" types of interaction. However, as peer interaction serves a different purpose than teacher-learner interaction and continues to be a prominent part of many L2 classrooms, it is crucial to understand where its merits and limitations lie so that it may be used most effectively (Philp, Adams, & Iwashita, 2014).

¹ Katherine Kang received her M.A. in Applied Linguistics from Teachers College, Columbia University and is currently pursuing her Ph.D. in Educational Linguistics at the University of Pennsylvania. Her research interests include second language acquisition, pedagogy, and classroom interaction. She can be reached at kathkang@gse.upenn.edu.

In light of these circumstances, this literature review seeks to investigate the effect of peer interaction on L2 learning by addressing the following questions: How does peer interaction shape L2 development? What are the potential benefits of peer interaction? What are the potential limitations of peer interaction? Based on the answers to these questions, teachers may be provided with insights on how to structure peer interaction to maximize the benefits while overcoming its limitations.

THEORETICAL BACKGROUND

The interest in interaction and its relation to L2 learning initially came about from the idea that non-native speakers (NNSs) may be able to develop L2 knowledge through interaction (Hatch, 1978). The idea was shaped into the interaction hypothesis by Long (1981, 1983, 1996). In the early version of the interaction hypothesis, Long (1983) emphasized the role of comprehensible input by arguing that input made comprehensible through interaction leads to learning. This version was closely linked to Krashen's (1985) seminal input hypothesis, which claimed that comprehensible input is both a necessary and sufficient condition for acquisition.

However, the early interaction hypothesis (along with the input hypothesis) faced several criticisms due to its limitations. A notable concern was that it maintained a somewhat narrow point of view, assuming that the benefits of interaction came essentially from the input which learners were exposed to. The assumption that L2 acquisition could occur from mere exposure to the target language was challenged by some scholars (e.g., Schmidt, 1983; Swain, 1985). It was later posed that there were additional ways in which interaction could contribute to development such as giving learners the opportunity to produce output and providing them with negative evidence. Furthermore, researchers began to argue that in order to develop, learners must notice a gap between their own knowledge and the target form (Schmidt & Frota, 1986). To address these arguments, Long (1996) adjusted his initial hypothesis and presented a revised version:

Negotiation for 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)

Realizing that interaction is a dynamic process involving multiple factors simultaneously affecting the learner, the revised interaction hypothesis broadens its scope to include not just input, but other aspects of language learning as well. It draws on several key concepts from the study of second language acquisition such as Schmidt's (1990) noticing hypothesis, which states that learners must first notice forms to acquire them, and Swain's (1995) output hypothesis, which states that learners may reflect on the language and notice what is lacking in their linguistic knowledge by producing output. Thus, it seeks to explain how interaction leads to acquisition through various pathways such as comprehensible input, feedback, and output.

The interaction hypothesis primarily focuses on how different interactional processes can aid individual learning. Although it acknowledges that interaction takes place in social settings, it is more concerned with the individual learner than the social aspects of the process (Lightbown & Spada, 2006; Philp et al., 2014). An alternative approach that is more interested in interaction as a social phenomenon can be found in Vygotsky's (1978) sociocultural theory. Sociocultural

theorists maintain that cognitive development emerges from social interactions and that learners learn by co-constructing knowledge (Lantolf & Thorne, 2007). While the interaction hypothesis and sociocultural theory both attempt to explain how learning occurs through interaction, they differ in how interaction is perceived. As Ellis (1999) notes, the interaction hypothesis “views interaction as assisting acquisition by helping to meet learners’ data needs,” whereas sociocultural theory “treats interaction as a social practice that shapes and constructs learning” (p. 21).

As the theoretical bases of these two frameworks differ, their approaches to analysis are also different. Studies working within the interaction hypothesis have treated the different components of interaction as opportunities for learning and examined them in order to determine how learners’ needs were met (e.g., Pica, Lincoln-Porter, Paninos, & Linnell, 1996). Studies from a sociocultural theory perspective meanwhile have been mainly concerned with investigating collaborative dialogue which they argue facilitates learning. Language-related episodes (LREs) are a common tool that can be used by either theoretical orientation, although they may be used for different purposes. Defined as “any part of a dialogue where the students talk about the language they are producing, question their language use, or correct themselves or others” (Swain & Lapkin, 1998, p. 326), LREs have been used by interactionists as a way to identify specific interactional processes while, by sociocultural theorists, they were often used as a measure of collaborative dialogue.

The interactionist and sociocultural approaches are evidently different and they have sometimes been viewed as conflicting. However, considering both approaches allows for a richer perspective on interaction as the language learning process is ultimately affected by both cognitive and social factors. Among the numerous factors, one that has received considerable attention is the interlocutor. Depending on who learners are interacting with, the process of interaction and subsequent learning is shaped differently. Then, one critical question in understanding the effects of interaction is how the presence of a particular type of interlocutor may influence learners’ L2 development. Initially, the primary focus of the interaction hypothesis was on learner-NS interaction and Long (1996) even emphasized the benefits of “interactional adjustments by the NS or more competent interlocutor” (p. 451). However, an increasing number of studies have since investigated how learners could also provide each other with the needed learning opportunities. In addition, proponents of sociocultural theory have long recognized the potential of having peers interact with each other and an extensive body of research from this perspective exists. Through a review of studies on peer interaction, this paper seeks to explore how interaction with another learner—as opposed to an NS, teacher, or even no interlocutor—may affect L2 learning.

REVIEW OF STUDIES ON PEER INTERACTION

Collaborative vs. Individual

In order to investigate the role of a peer in shaping L2 development, a multitude of studies have compared the effects of collaborative task performance and individual task performance. Among these studies, some have addressed the connection between interaction and the learning of forms. Storch (1999) set out to investigate the effects of pair work by examining learners’ discussion of linguistic choices and whether it led to more grammatically accurate

decisions. In her study, eight ESL students at an Australian university were asked to complete three different types of tasks: a cloze task, a text reconstruction task, and a short composition. The grammatical items to be studied were chosen based on students' essays from the placement tests and included articles, verb tense/aspect choice and formation, derivational morphology, and nominal morphology. Each participant completed two isomorphic versions of the tasks, once individually and once in pairs. The results revealed that overall, pair work led to more grammatical accuracy on all three tasks. The average total score of cloze exercises completed in pairs (77%) was greater than the score of those completed individually (58%). On the text reconstruction task, the proportion of ungrammatical items noticed and correctly amended was 72% in pairs compared to 63% individually. Also, fewer items were undetected collaboratively (10%) than individually (17%) and the proportion of correct decisions was higher for pairs (74%) than individual students (65%). The composition task called for a more complex analysis because there were a variety of aspects of the text to take into account. For instance, Storch discovered that while individually produced texts were longer and more syntactically complex, in terms of accuracy, collaboratively produced texts had a lower average number of errors (7.75) than individually produced texts (13.6). These findings suggest that collaboration may have a positive effect on students' grammatical accuracy. However, in an additional component of the study investigating whether there were differing effects of pair work for different grammatical items, Storch found that there was indeed a varying effect. Whereas accuracy on derivational morphology increased with collaboration across all tasks, accuracy on articles decreased with collaboration on the cloze task. This suggested that "perhaps not all grammatical items and structures benefit from the same kind of classroom treatment" (Storch, 1999, p. 371).

In another study examining the relationship between peer interaction and learners' development of accuracy, Adams (2007) investigated whether feedback in learner-learner interactions promoted L2 learning. The study used tasks that targeted three linguistic forms: a syntactic structure, a morphosyntactic structure, and a lexical/morphological structure. Twenty-five ESL learners from intact classes at an adult community education center engaged in three interaction sessions with other learners, each session containing three tasks. Although the tasks were designed to prompt learners to use the target structures, communication of meaning was also required in order to successfully complete the tasks. Five days after the last session, tailor-made posttests were administered based on the feedback episodes of each learner. Adams used learners' answers to these posttests, which included acceptability judgment items and picture labeling items, as evidence for learning. The results indicated that feedback in learner-learner interactions may lead to the learning of L2 forms, as 59% of the feedback episodes included in the posttests evidenced learning. While no comparison groups were included in this study, it may nevertheless demonstrate how peer interaction can be more beneficial for learning than no interaction at all, since without interaction learners would not be provided with such feedback.

Unlike Storch (1999) and Adams (2007) who looked at multiple types of forms, Baleghizadeh (2010) focused on learners' knowledge of one type of form by testing their knowledge of derivational morphology. He examined 40 Iranian adult EFL students' performance on a word-building task. The control group completed the task individually while the experimental group completed it collaboratively in self-selected dyads. Rather than have them work in pairs without any knowledge of collaborative strategies, the researcher briefly introduced participants in the experimental group to the Think-Pair-Share technique. This informed them to "think about each item individually," "pair up with their partner, explain their answer," "listen to their partner's comments carefully," and "share their ideas and come up with

a joint answer for each item” (Baleghizadeh, 2010, p. 409). Participants were also familiarized with “basic collaborative skills such as asking for clarification, listening attentively, [and] giving reasons” (Baleghizadeh, 2010, p. 409). Through this process, the researcher attempted to get the participants to collaborate more effectively. The results revealed that students who worked in pairs had better scores than those who worked individually (mean score of 12.30 compared to 7.57). Baleghizadeh attributed this to the fact that students’ use of collaborative techniques had improved the quality of their interactions, which led them to effectively pool their morphological knowledge when working together. These findings suggest that structured collaboration may allow learners to develop their word-building ability.

Similar support for peer interaction could be found in a study focusing on the acquisition of L2 vocabulary. Kim (2008) compared the occurrence and resolution of lexical LREs in individual and collaborative tasks as well as learners’ vocabulary retention on a posttest and delayed posttest following the tasks. Over a 3-week period, she examined the acquisition of vocabulary by 32 Korean as a second language (KSL) learners who were randomly assigned to either a collaborative or individual group to perform a dictogloss task. Of the 20 target vocabulary words initially selected for the study, 15 were included in the analysis. During the treatment, learners listened to the text three times, after which those in the individual group reconstructed the text individually while using a think-aloud protocol and those in the collaborative group reconstructed the text in pairs. The posttest was administered immediately after the task and the delayed posttest was administered 2 weeks after the task. Although the number of lexical LREs did not differ significantly between the two groups (51 by the collaborative group and 50 by the individual group), Kim noted that learners in the collaborative group had a chance to participate in their partner’s LREs as well, meaning that they were engaged in nearly twice as many LREs as those in the individual group. Also, 53% of the lexical LREs were correctly resolved in the collaborative group while only 39% were correctly resolved in the individual group. The percentage of incorrectly resolved and unresolved LREs was also lower for the collaborative group (17% and 20% respectively) than the individual group (22% and 39% respectively). In terms of vocabulary acquisition, the collaborative group performed better than the individual group on both the immediate and delayed posttest. Overall, these findings indicate that peer interaction and collaborative dialogue may aid learners’ development of vocabulary knowledge. As interaction prompted learners to utilize their mental resources and co-construct knowledge with their partner, they were more likely to resolve the lexical problems they encountered and were also able to better retain their knowledge.

Despite many studies establishing a positive relationship between peer interaction and L2 learning, not all studies yielded exclusively favorable results. Kuiken and Vedder (2002) attempted to find whether collaboration had an effect on the acquisition of the passive form in 34 Dutch high school students. After the researchers had established participants’ prior knowledge of passive forms through a detection pretest, the 20 students in the experimental group worked in groups of three or four to perform two dictogloss tasks while the 14 students in the control group worked on the same tasks individually. Once the groups completed the dictogloss tasks, the researchers administered a posttest and delayed posttest similar to the pretest to find whether interaction had allowed participants to better recognize passive forms. They also looked at the reconstructed text itself to examine whether the experimental group more frequently used passive forms. The posttest and delayed posttest revealed no significant differences between the two groups nor did the experimental group use more passive forms in their reconstructed texts. Thus, Kuiken and Vedder claimed that peer interaction may not necessarily lead to better recognition

or more frequent use of target forms. However, a qualitative analysis of the interactions did reveal that they often led to noticing. Therefore, although the results based solely on the quantitative analysis would suggest that there were no evident benefits of collaboration over individual work, the qualitative analysis suggests that interaction may provide learning opportunities such as stimulation of noticing.

Similar to Kuiken and Vedder (2002), Nassaji and Tian (2010) found that learners engaging in collaborative and individual tasks did not differ significantly in knowledge gains. In their study, they compared the effectiveness of collaboration and individual work through a reconstruction cloze task and a reconstruction editing task. They also investigated whether task type would affect learning. Two classes (n=12, n=14) taught by the same instructor were examined over a period of 13 weeks, and learners' knowledge of 16 English phrasal verbs was tested. During the treatment phase, learners were each given two cloze tasks and two editing tasks so that they could complete both types of tasks once individually and once collaboratively. To ensure that the order in which learners completed the tasks would not affect the results, the order of the task types and conditions (collaborative or individual) was counterbalanced. The students were given a posttest four days after the treatment. While the results showed that learners were more successful at completing both tasks collaboratively than individually, there was no statistically significant difference between the collaborative and individual conditions in terms of learners' increase in knowledge measured by the pretest and posttest scores. Thus, it seemed that working collaboratively did not actually lead to greater improvements in vocabulary knowledge. However, the findings did indicate that there was a significant effect for task type, as the editing task was more likely to lead to learning than the cloze task. Also, the researchers found that the editing tasks generated more metatalk and form-focused feedback than the cloze tasks. Thus, learners' acquisition of phrasal verbs seemed to be affected by task type more than condition. These findings demonstrate that peer interaction may be beneficial when tasks are designed to elicit more learning opportunities for learners.

The studies comparing collaborative and individual work have reported varying results over the effectiveness of having peers interact with each other. While they generally demonstrate a positive relationship between collaboration and L2 learning, researchers also depicted a more complex relationship in which other variables at play led to differing implications for L2 development. There is also little mention in these studies of whether these effects of collaboration are particular to learner-learner interaction or if they are applicable to other types of interaction. Therefore, to get a better sense of how the learning opportunities provided by peers may differ from those provided by other interlocutors, it may be useful to compare learner-learner interaction to other types of interaction such as learner-NS interaction.

Learner-Learner vs. Learner-NS Interaction

Pica et al. (1996) investigated whether the interaction between learners could satisfy L2 learning needs in a similar way to learner-NS interaction. They identified L2 learning needs as comprehensible input, form-focused feedback, and production of modified output. In the study, 30 learners and 10 NSs were divided into 10 learner-learner dyads and 10 learner-NS dyads. After an initial task where learners familiarized themselves with each other, each dyad was given one of two jigsaw tasks that were designed to give participants equal control over information. One task had participants "reproduce an unseen sequence of pictures of houses by exchanging

verbal descriptions of their own uniquely held portions of the sequence”; the other had the participants “compose a single story based on individually held pictures from [a] story line” (Pica et al., 1996, p. 69). The researchers examined the negotiations between the participants, which occurred when one interlocutor signaled to the other that a particular message had not been understood. In response, the other interlocutor would repeat or modify the message in question.

The study uncovered several important findings. First of all, the ways in which learners provided modified input did not always conform to L2 morphosyntactic rules. Thus, they were not always able to satisfy the other learners’ input needs to the same extent as NS interlocutors. In terms of the production of modified output, the researchers found similar amounts of learner production in response to NS and learner feedback. Most notable differences between NS and learner interlocutors were found in the nature of the feedback they primarily provided. Learners provided more feedback that was “segmented portions of each other’s utterances” than other types of feedback such as lexical substitution or paraphrasing (Pica et al., 1996, p. 79). This type of feedback, referred to as segmentation, is a form of modification where “a word or phrase from a prior utterance” is repeated (Pica et al., 1996, p. 64). On the story task, the researchers found that 71% of the learner’s modified signals were segmentations of prior utterances compared with 22% for NSs. Segmentation occurred in higher proportions for learners in the house task as well (79% vs. 56%), though the differences were not significant. Thus, Pica et al. (1996) suggested that learner-learner interactions “can provide opportunities for feedback, albeit in a simplified form” (p. 79). However, as the instances of learners’ modified production following the feedback were limited, it seems that the feedback did not immediately affect learners’ modified output in the study.

Mackey, Oliver, and Leeman’s (2003) study involved comparisons between the feedback of NS and NNS interlocutors. Specifically, they compared the amount and nature of negative feedback as well as production of modified output in NS-NNS and NNS-NNS interaction. Of the 48 adults in the study, there were 36 NNSs and 12 NSs.² After being divided into 12 NS-NNS and 12 NNS-NNS dyads, each dyad completed two information gap tasks. The researchers first identified NNSs’ initial non-target-like utterances and examined whether interlocutors provided negative feedback in response to these utterances. Then they examined whether the feedback allowed the opportunity for modified output and also whether the NNSs actually modified their output. The results revealed that in adult dyads, NS interlocutors provided more feedback in response to non-target-like utterances than NNS interlocutors. In adult NS-NNS dyads, feedback was provided 47% of the time while in NNS-NNS dyads, feedback was provided only 32% of the time. However, the researchers found that NNS feedback was more likely to offer opportunities for modified output than NS feedback (98% vs. 89%). It should be noted, though, that learners did not always make use of these opportunities and when the actual production of modified output in NS-NNS and NNS-NNS dyads were compared, there were no statistically significant differences. Thus, adult learners’ immediate production of modified output did not seem to be affected by interlocutor type.

Similar to Mackey et al. (2003), Sato and Lyster (2007) compared learner-NS and learner-learner dyads to investigate the differences in the types of feedback provided by the interlocutors and learners’ modified output in response to the feedback. However, their findings on learners’ production of modified output differed from Pica et al. (1996) and Mackey et al.’s

² Although both adult and child participants were included in Mackey et al.’s (2003) study, in line with the focus of this review only the results of the adult participants are discussed.

results. The participants were eight Japanese EFL learners and four NSs. The study used a jigsaw task in which the participants would have to communicate effectively with each other to successfully complete the task. All eight learners had a chance to do two different versions of the task once with an NS and once with another learner. In their analysis of the data, the researchers identified LREs as instances where the participants negotiated for meaning or where ungrammatical utterances prompted interaction. Then, within the LREs, three interactional moves were identified: triggers, feedback, and responses. Triggers were caused by either incomprehensibility or inaccuracy. The feedback that an interlocutor gave in response to a trigger was coded as either an elicitation or a reformulation. Elicitation feedback “generally requests clarification or confirmation without providing correct reformulations of the erroneous utterance contained in the trigger” while reformulation feedback “provides correct target forms either through recasts or confirmation requests that modify the trigger” (Sato & Lyster, 2007, p. 130). The responses following the feedback were classified either as modified output or non-modified output.

In the results, LREs were found to be primarily triggered by incomprehensibility for both learner-NS and learner-learner dyads. Also, the number of LREs that learners engaged in was similar for both dyads. However, the researchers found that learners and NSs differed in terms of the types of feedback they provided. While learners provided a higher proportion of elicitation feedback than NSs, NSs provided a higher proportion of reformulation feedback. In terms of responses, the production of modified output was not affected by the type of feedback that learners were given. However, the type of interlocutor did have an effect on the amount of modified output. Learners were more likely to modify their output when they interacted with each other than when they interacted with an NS. The researchers were able to explain these results through stimulated recall interviews. Learners felt more comfortable interacting with other learners than with NSs and thought they had more time to prepare their responses. They also believed that the NS would be able to interpret what they had said even if they did not modify their output. The dominant role that the NSs played during interaction led the learners to become more passive. These findings suggest that learners’ production of modified output may be affected by the type of interlocutor rather than the type of feedback they receive. Thus, Sato and Lyster (2007) suggest that in some aspects learners may provide each other with more learning opportunities than NSs.

Differences between learner-learner and learner-NS interaction were also found in a study focusing on L2 lexis. Fernández Dobao (2012) investigated whether the presence of an NS or learner interlocutor would affect the frequency of collaborative dialogue following a lexical problem and the likelihood of these problems being successfully resolved. The participants were 24 EFL learners (12 intermediate, 12 advanced) at a Spanish university and eight NSs. They were randomly paired into dyads of intermediate-intermediate learners, advanced-advanced learners, NS-intermediate learners, and NS-advanced learners. Each dyad was given two different versions of a picture strip story. Interaction between the participants was elicited through a meaning-oriented spot-the-difference task, as they had to compare their pictures through detailed descriptions. In her analysis, the researcher identified communication strategy (CS) episodes to code instances where participants encountered lexical difficulties. Learners used CSs when they encountered lexical holes and had difficulties coming up with the appropriate word. Thus, in CS episodes learners often focused on successful communication and did not always attempt to use target-like vocabulary. The researcher also examined whether these CS episodes evolved into LREs, which would indicate that the participants had attempted to solve

the lexical problem collaboratively. The researcher found that learner-learner dyads encountered lexical problems more frequently than learner-NS dyads, as measured by the number of CS episodes (268 vs. 213). On the other hand, LREs were more frequent in learner-NS interaction than learner-learner interaction (93 vs. 63), and these LREs were more likely to be successfully resolved in learner-NS dyads (92.47%) than in learner-learner dyads (80.95%). These results suggest that whereas NSs possessed the lexical knowledge required to help learners when problems arose, learners were not always able to assist each other as they did not always have access to the L2 lexicon. However, as the possession of lexical knowledge did not necessarily lead all NSs to provide assistance, the researcher also notes that the collaborative orientation of the dyad may be more important than the linguistic proficiency of the interlocutor.

DISCUSSION

Output and Noticing

The studies above provide valuable insights into the quantity and quality of interactional moves that occur during peer interaction. Based on the findings of these studies, several major functions as well as limitations of peer interaction could be identified. One function was that it could serve as an opportunity for learners to produce output, which often led them to reflect on the language and notice gaps in their knowledge (Swain, 1995). This advantage was especially noticeable in the studies comparing collaborative and individual task performance. The participants in Storch's (1999) study engaged in metatalk which allowed them to reflect on the language and perform more accurately on most of the tasks than those who completed them individually. Kim (2008) also found that solving linguistic problems collaboratively prompted learners to "[reflect] consciously on the language they were producing" (p. 124), which facilitated L2 acquisition. Similarly, Baleghizadeh (2010) claimed that the students in his study performed better collaboratively because they were able to "increase each other's awareness of the presented concepts and exchange more information" (p. 410). Even Kuiken and Vedder (2002), who did not find any significant differences in the test scores following individual and collaborative tasks, reported that the qualitative analysis revealed interaction to promote noticing of forms. The following is an example of noticing from their study:

Denise: 'Until now...' yes, 'it's still unclear... *who created them* and why.'

Maarten: Yes.

Denise: 'Until now... *who designed and created them* and why.'

Maarten: Yes, 'who...', 'who built...'

Tin Choi: ... *who copied*...

Denise: Yes, that's possible, I think. Yes, sounds good.

Maarten: 'Created', yes, 'created'.

Maarten: '*Pictures were created*', or... ehm... yes, '*were created*'.

Tin Choi: That's still better probably. (Kuiken & Vedder, 2002, p. 352)

In this excerpt, the learners' attention is drawn to the active form 'created'. After reflecting on the word as a result of interaction, Maarten eventually substitutes 'created' with the passive form 'were created'. The example demonstrates that interaction can raise awareness of problems,

which may lead to the use of newly learned forms (in this case, the passive form). Therefore, even though the study showed no significant difference in test scores, it revealed how learners interacting with each other can promote noticing through the production of output.

The opportunity for output and noticing in interaction was also evident in studies comparing learner-NS interaction and learner-learner interaction, as learners in both types of dyads were able to produce output through interaction. However, these studies tended to focus more on interlocutors' responses to incomprehensible or ungrammatical output. This leads to the second possible function of peer interaction: an opportunity for feedback and modification.

Feedback and Modified Output

While output is an important feature of interaction, production of output without some type of follow-up may not be as effective for language learning. If it were, learners would not necessarily need to engage in interaction, as they could simply produce output on their own. However, it seems that the circumstances in which output is produced may affect subsequent learning. This is demonstrated in Kim's (2008) study, where participants in the individual group produced output on their own through a think-aloud protocol, yet participants in the collaborative group still performed better. One explanation for this is that learners can provide each other with feedback and opportunities for modified output, which are more likely to lead to learning (Philp et al., 2014). In this respect, working collaboratively has a clear advantage over working individually because learners engaged in individual tasks do not receive feedback following their production of output. For instance, the learners in Kim's study were more likely to leave LREs unresolved when they worked individually, which may have been because they were limited to their own resources. Also, the learners in Adams' (2007) study provided each other with feedback, which in turn led to learning in nearly 60% of those instances. These results support the view that learners are capable of providing each other with feedback, which potentially leads to learning.

In terms of whether learner feedback differs from NS feedback, studies appeared to offer different findings on the amount of feedback provided by NS and learner interlocutors. Mackey et al. (2003) found that NSs provided more feedback than learner interlocutors. On the contrary, Pica et al. (1996) and Sato and Lyster (2007) found that NS interlocutors and learner interlocutors provided similar amounts of feedback. While these findings seem conflicting at first, they can be understood by a further examination of the data. Mackey et al. (2003) emphasized that their results may have differed from other studies because they had specifically looked at feedback in response to *ungrammatical* responses and not in response to incomprehension. Incomprehension can occur even if the learner provides a grammatical utterance because it may result from a problem with the interlocutor's understanding rather than a problem with the initial utterance. This indeed seemed to explain the varying results, as both Pica et al. (1996) and Sato and Lyster's (2007) studies examined feedback in response to learners' incomprehensible output as well as ungrammatical output. Thus, when considering a combination of incomprehensible and ungrammatical utterances, it may be possible that NSs and learners do not differ significantly in the amount of feedback they provide. However, as NSs seemed to offer more feedback on ungrammatical responses than learners, the implications of this finding need to be further investigated.

On the other hand, studies generally agreed that learners and NSs differed in the nature of the feedback they more frequently provided. In Pica et al.'s (1996) study, although the amount of feedback provided by NSs and learners did not differ significantly, the type of feedback they predominantly provided was different. Learners were more likely to segment than reformulate their interlocutor's utterances. In a similar manner, Sato and Lyster (2007) found that learners provided more elicitation than reformulation feedback while NSs provided more reformulation than elicitation feedback. Mackey et al. (2003) also found that feedback provided by learners allowed more opportunities for output than feedback provided by NSs. There are several possible explanations for these differences in nature. Mackey et al. (2003) hypothesized that learners "did not have access to the target forms themselves and thus had to rely on their interlocutors to reformulate their own utterances" or that learners' "uncertainty about their own L2 ability led them to elicit modified output from their interlocutors rather than to attempt to produce the forms themselves" (p. 57). Thus, learners' preference for segmentation and elicitation feedback may have been because these did not require the learners themselves to reformulate the incomprehensible or ungrammatical utterances of the other learner. This also means that learners may provide other learners with more opportunities to modify output, which can be an advantage of peer feedback.

Whether learners actually take advantage of this opportunity for modification is another question to be investigated. Mackey et al. (2003) found no differences in production of modified output between learner-NS and learner-learner dyads. This was also the case for Pica et al.'s (1996) study. However, Sato and Lyster (2007) presented contradictory results in that learners produced more modified output with other learners than with NSs. Their findings from the stimulated recall interviews suggest that social relationships may influence learning. Learners reported that they felt less pressure and became more active when interacting with each other than with NSs; they more frequently negotiated meaning, asked questions, and produced elicitation feedback and modified output with other learners. However, the reasons for the differing results among studies have not yet been fully explained. One aspect to consider is that unlike the learners in Pica et al. (1996) and Mackey et al.'s (2003) studies, the learners in Sato and Lyster's (2007) study were in an EFL setting. Sato and Lyster (2007) noted that Japanese EFL learners are not exposed to sufficient amounts of the target language and that the classroom culture of Japan differs from an ESL context, as the "socio-educational environment does not encourage students to speak up in classrooms, because of the hierarchical relationship between students and the teachers" (p. 125). This may have affected learners' comfort levels when interacting with the NSs. Since ESL learners are more likely to have opportunities outside the classroom to interact with NSs, they may be more used to learner-NS interactions than EFL learners who probably do not have such opportunities.

Input and Potential Limitations

The collaborative dialogue that learners engage in may serve as one source of L2 input. During peer interaction, learners may pool their linguistic resources and receive new L2 knowledge from each other. For instance, as described above, the feedback provided by other learners was helpful in some instances and prompted learners to correctly modify their output. However, most of the concerns about peer interaction also stemmed from issues with input. Two major issues identified in the reviewed studies were the possibility for insufficient input and the

possibility for non-target-like input. That is, learners may not receive sufficient amounts of L2 input from other learners; they may also be exposed to non-target-like input and risk picking up each other's errors.

In relation to the issue of insufficient input, a clear example can be found in Fernández Dobao's (2012) study. She observed that participants who engaged in learner-learner interactions sometimes ignored using target expressions when their pooled L2 resources were not enough to resolve a lexical problem. They instead focused on the successful communication of the message which could be done without knowledge of the missing lexical item. This is evident in the following exchange between two learners:

- 1 ANGELA: with: a: [. . . mm . . . I don't know . . . how do you
[rolling up her sleeve
 call this:, . . . you know? . . . he has:, . . . his
 shirt, [this way
[pointing to her rolled up sleeve
- 2 VERO: mm: heh (Fernández Dobao, 2012, p. 237)

Here, Angela struggles to convey the message 'rolled up' because she has not yet learned this L2 expression. Although both learners were unfamiliar with this lexical item, they were still able to communicate the message when Angela uses gestures instead. Fernández Dobao (2012) found that these episodes in which learners focused primarily on successful communication were more common in learner-learner interactions. Even in cases where participants did eventually discuss a lexical problem explicitly, learner-learner dyads were more likely to leave these problems unresolved. This points to a potential limitation of peer interaction for L2 learning because it indicates that learners may not necessarily gain L2 knowledge from their interactions with each other, but work around the linguistic target. However, it is also important to note that this limitation was not exclusive to peer interaction, as Fernández Dobao (2012) found that NSs in non-collaborative dyads sometimes did not provide linguistic assistance to the learner. Her comparative analysis of one collaborative learner-learner dyad and one non-collaborative learner-NS dyad revealed that the collaborative orientation and level of engagement with the task, rather than the linguistic proficiency of the interlocutor, led to a difference in the number of LREs produced by the two dyads. Thus, regardless of proficiency level, encouraging learners to adopt a collaborative pattern in their interactions may help foster L2 development.

Provision of non-target-like input has also been identified as a potential concern regarding peer interaction, particularly if it can be demonstrated that learners may pick up each other's errors. Adams (2007) found from the tailor-made posttests in her study that "learners may learn each other's errors, particularly when attention is called to them" (p. 48). She gives the following example:

- | | |
|-----------|--|
| Learner 1 | John arrive, arrove, arrove or arrive? |
| Learner 2 | arrove is in past |
| Learner 1 | arrove airport. Or arrived |
| Learner 2 | arrove, is in past |
| Learner 1 | I mean arrove or arrived |
| Learner 2 | arrove the airplane |
| Learner 1 | arrived or arrove? |

Learner 2 arrove
 Learner 1 arrove the airport at 8:30 am (Adams, 2007, pp. 48-49)

On the tailor-made posttest following this interaction, Learner 1 indicated that the sentence ‘John arrove at the airport last night’ was correct. Adams (2007) explained that Learner 1’s uncertainty concerning the target form and the explicit focus given to that form may have contributed to the learner picking up the error. A similar case in relation to output was reported by Storch (1999), who found that when learners collaborated to discuss the use of articles on a cloze task, they were often led to make inaccurate choices. She suggests that the nature of a cloze task as “a language exercise with a more overt focus on grammatical decisions” (Storch, 1999, p. 371) may have led learners to use articles inaccurately because their attention was forced on a target structure whose use is based on unclear and complex rules. This was further supported by the fact that the learners used derivational and nominal morphology more accurately across all tasks, presumably because these forms can be used based on clear-cut rules. The learners also used articles more accurately in the reconstruction and composition tasks; during these tasks, their discussions covered a wide range of grammatical items, and thus their collective attention was not solely focused on articles (Storch, 1999). These studies suggest the importance of selecting appropriate tasks for different target forms and providing teacher support for learners when needed, since explicitly focusing on an incompletely understood item may possibly lead learners to acquire ungrammatical forms.

CONCLUSION

This literature review has found peer interaction to be beneficial for L2 learning in several ways. It provides learners with the chance to produce output and as a result, their attention is drawn to gaps in their own knowledge. Also, learners are able to provide one another with feedback, which allows them to modify what is ungrammatical or incomprehensible in their production. Most studies also found that learners combine their mental resources during peer interaction, leading them to perform better on tasks collaboratively than individually. Although successfully completing a task collaboratively does not always directly translate into long-term learning (Kuiken & Vedder, 2002; Nassaji & Tian, 2010), some studies did show evidence for learning through tailor-made posttests (Adams, 2007; Kim, 2008). This demonstrates that peer interaction has the potential to lead to L2 development, and more studies should build in developmental measures to further investigate these findings. Furthermore, one study found that learners felt more comfortable and were more active when interacting with each other than with NSs, which led them to produce more modified output (Sato & Lyster, 2007). Thus, in some aspects, peer interaction can support L2 development in a way that may not be realized by other types of interaction. Considering these merits, peer interaction seems to be indeed a needed practice in the L2 classroom.

However, this does not imply that simply having learners interact with each other will automatically promote L2 learning. Issues with input suggest that peer interaction may lead to unresolved or incorrectly resolved problems if none of the involved learners have access to the necessary L2 resources. Also, some studies found variable effects for different grammatical items (Storch, 1999), task types (Nassaji & Tian, 2010), and collaborative orientations (Fernández Dobao, 2012), indicating that not all instances of peer interaction are equally

effective. Thus, when using peer interaction in the classroom, teachers should be aware of how it is implemented. Selecting appropriate tasks, introducing collaboration strategies, monitoring, and providing teacher feedback when needed are some ways that may help peer interaction successfully lead to L2 learning.

While studies on peer interaction to date have greatly enhanced our understanding of the process, research findings should be applied to the classroom only after careful consideration of the specific context. Just as each learner and each dyad is different, peer interaction in one context is different from that in another. For instance, as indicated in Sato and Lyster's (2007) study, the linguistic environment of Japanese EFL learners was significantly different from that of ESL learners, and they note that "it is interesting in such a context to explore the feasibility of implementing communication tasks and the extent to which they provide learners with opportunities to practice their oral skills" (p. 125). Future research may want to explore different contexts to see how interaction unfolds in various sociocultural settings. The expectations set by the context in which the classroom is situated affect the learning environment and may also influence the effectiveness of peer interaction. Thus, the particularity of the setting must be taken into account before the more general findings concerning peer interaction are accepted.

REFERENCES

- Adams, R. (2007). Do second language learners benefit from interacting with each other? In A. Mackey (Ed.), *Conversational interaction in second language acquisition* (pp. 29-51). Oxford, UK: Oxford University Press.
- Baleghizadeh, S. (2010). The effect of pair work on a word-building task. *ELT Journal*, 64(4), 405-413.
- Ellis, R. (1999). *Learning a second language through interaction*. Amsterdam, The Netherlands: John Benjamins Publishing Company.
- Fernández Dobao, A. (2012). Collaborative dialogue in learner-learner and learner-native speaker interaction. *Applied Linguistics*, 33(3), 229-256.
- Hatch, E. M. (1978). Discourse analysis and second language acquisition. In E. M. Hatch (Ed.), *Second language acquisition: A book of readings* (pp. 401-435). Rowley, MA: Newbury House.
- Kim, Y. (2008). The contribution of collaborative and individual tasks to the acquisition of L2 vocabulary. *The Modern Language Journal*, 92(1), 114-130.
- Krashen, S. (1985). *The Input Hypothesis: Issues and Implications*. London, UK: Longman.
- Kuiken, F., & Vedder, I. (2002). The effect of interaction in acquiring the grammar of a second language. *International Journal of Educational Research*, 37, 343-358.
- Lantolf, J. P., & Thorne, S. L. (2007). Sociocultural theory and second language learning. In B. VanPatten & J. Williams (Eds.), *Theories in second language acquisition* (pp. 201-224). Mahwah, NJ: Lawrence Erlbaum.
- Lightbown, P., & Spada, N. (2006). *How languages are learned* (3rd ed.). Oxford, UK: Oxford University Press.
- Long, M. H. (1981). Input, interaction, and second language acquisition. *Annals of the New York Academy of Sciences*, 379, 259-278.
- Long, M. H. (1983). Native speaker/non-native speaker conversation and the negotiation of comprehensible input. *Applied Linguistics*, 4, 126-141.

- 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, NY: Academic Press.
- Mackey, A., Oliver, R., & Leeman, J. (2003). Interactional input and the incorporation of feedback: An exploration of NS-NNS and NNS-NNS adult and child dyads. *Language Learning*, 53(1), 35-66.
- Nassaji, H., & Tian, J. (2010). Collaborative and individual output tasks and their effects on learning English phrasal verbs. *Language Teaching Research*, 14(4), 397-419.
- Philp, J., Adams, R., & Iwashita, N. (2014). *Peer interaction and second language learning*. New York, NY: Routledge.
- Philp, J., Walter, S., & Basturkmen, H. (2010). Peer interaction in the foreign language classroom: What factors foster a focus on form? *Language Awareness*, 19(4), 261-279.
- Pica, T., Lincoln-Porter, F., Paninos, D., & Linnell, J. (1996). Language learners' interaction: How does it address the input, output, and feedback needs of L2 learners? *TESOL Quarterly*, 30(1), 59-84.
- Sato, M., & Lyster, R. (2007). Modified output of Japanese EFL learners: Variable effects of interlocutor versus feedback types. In A. Mackey (Ed.), *Conversational interaction I second language acquisition* (pp. 123-142). Oxford, UK: Oxford University Press.
- Schmidt, R. (1983). Interaction, acculturation, and the acquisition of communicative competence: A case study of an adult. In N. Wolfson & E. Judd (Eds.), *Sociolinguistics and language acquisition* (pp. 137-174). Rowley, MA: Newbury House.
- Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics*, 11, 129-158.
- Schmidt, R., & Frota, S. (1986). Developing basic conversational ability in a second language: A case study of an adult learner of Portuguese. In R. Day (Ed.), *Talking to learn: Conversation in second language acquisition* (pp. 237-326). Rowley, MA: Newbury House.
- Storch, N. (1999). Are two heads better than one? Pair work and grammatical accuracy. *System*, 27, 363-374.
- Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235-253). Rowley, MA: Newbury House.
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principles and practice in applied linguistics: Studies in honor of H.G. Widdowson* (pp. 125-144). Oxford, UK: Oxford University Press.
- Swain, M., & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion students working together. *Modern Language Journal*, 82(3), 320- 337.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.