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9. PEER-PEER DIALOGUE AS A MEANS OF SECOND LANGUAGE LEARNING[1]

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From the theoretical perspective of a sociocultural theory of mind, cognition and knowledge are dialogically constructed. Embedded in this theoretical framework, this chapter reviews research studies in which peer-peer dialogue is linked to second language learning as students engage in writing, speaking, listening and reading activities. The review takes the stance that the type of dialogue of particular significance in the language learning process is collaborative dialogue, or that which occurs when learners encounter linguistic problems and attempt to solve them together. In such conditions language is used both as a communicative and cognitive tool. From the studies reviewed, we conclude that peer-peer collaborative dialogue mediates second language learning. We also conclude that although the studies reported few adverse effects of peer collaboration, teaching learners how and why to collaborate may be important to enhance peer-mediated learning. The chapter calls for more research which provides clear evidence of the connections between peer-peer dialogue and second language learning and more studies which investigate longer term learning. Such studies linking peer-peer dialogue to language learning can be instructive for teachers, researchers, and learners, and make us all more aware of the process of learning a second language.

This review article considers recent research in which peer-peer dialogue has been examined with the purpose of understanding its impact on second language (L2) learning. The dialogue may occur while the learners are involved in writing, speaking, listening and reading activities. We review the research from the perspective of a sociocultural theory of mind which claims that cognition and knowledge are dialogically constructed (e.g., Vygotsky, 1997; Wertsch, 1980; 1985). For this reason we have limited our review to those studies in which one can link peer-peer dialogue to a particular aspect of L2 learning.

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Theoretical Orientation

The main premise of a sociocultural theory of mind is that cognitive functions such as attention, problem solving and voluntary memory are mediated mental activities (Vygotsky, 1978). The sources of these cognitive functions are social. That is, activities which are external to the learner but in which he or she participates (interpsychological) are transformed into mental ones (intrapsychological). "Psychological processes emerge first in collective behaviour, in co-operation with other people, and only subsequently become internalized as the individual's own 'possessions'" (Stetsenko & Arievitch, 1997, p. 161). The process of internalization is mediated by semiotic tools, language being one of the most important. Applying this premise to the learning of an L2 means that language that has been learned serves to mediate further language learning (Swain, 2000). This is accomplished interpsychologically through dialogic interaction (Donato & Lantolf, 1990; Lantolf, 2000), and intrapsychologically through private speech (Lantolf, 2001). In this paper we focus on the former.

The type of dialogic interaction explored in the studies we review can be regarded as collaborative dialogue (Swain, 1997). In collaborative dialogue, learners work together to solve linguistic problems and/or co-construct language or knowledge about language. Language mediates this process—as a cognitive tool to process and manage meaning making; as a social tool to communicate with others. This means, as Wells (2000) has suggested, that an utterance can be looked at simultaneously as process and product: as "saying" and as "what was said." In the example provided in the next section, the speakers are engaged in the cognitive act of making meaning; yet, once they have spoken, "what they said" becomes an object. As an object, it can be explored further by the speaker or others present. Through such exploration, content and linguistic knowledge are co-constructed, and may serve later as a resource for use by participating individuals.

Vygotsky (1987) argued that what was needed for learning to occur was the presence of a more knowledgeable person who would help the learner to move from being able do something only with the help of that expert to being able to do it independently. This "space," in which support is provided contingent upon the learner's developmental level, Vygotsky called the "zone of proximal development" (ZPD). Because Vygotsky's ideas have mostly been applied within developmental psychology, the more knowledgeable other—the expert in an expert/novice pair—has typically been conceived of as an adult (e.g., parent, teacher) (e.g., Wertsch, 1985). However in recent years, the idea that peer-peer interaction may also foster learning has been advanced (e.g., Tudge, 1990; Wells, 1999). This idea has been extended within sociocultural SLA by suggesting that in peer-peer interaction, peers can be concurrently experts and novices (Brooks & Swain, 2001; Kowal & Swain, 1997). Furthermore, peers working within the

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ZPD of each other can support learning through, for example, questioning, proposing possible solutions, disagreeing, repeating, and managing activities and behaviors (social and cognitive) (e.g. DiCamilla & Anton, 1997; Donato, 1994; Ohta, 2001; Swain & Lapkin, 1998; Tocalli-Beller, 2001). A detailed (micro-genetic) analysis of the way new linguistic forms and meanings evolve leads to an understanding of what occurs in the ZPD—how acquisition occurs *in* interaction, not *as a result of* interaction (Swain, 2000). In the following sections, we review the research according to the main skill focus of the activity students were asked to do: writing, speaking, listening, or reading.

Writing

Collaborative writing and peer feedback as an aid to revision in L2 writing have proven to be an effective means of improving L2 learners' writing skills (see Cumming, in press). For us, collaborative writing and peer revision warrant attention because the collaborative dialogue that emerges in the writing process mediates language learning. Attending to the talk generated during the co-construction or revision of a piece of writing has allowed some researchers not only to access the cognitive processes learners deploy (Lantolf, 2000) but also to keep track of the impact of that talk on language learning, as reflected in the students' writing (Swain, 1998).

Swain and Lapkin (1998) conducted a microgenetic analysis of the dialogue of two grade 8 French immersion students as they jointly wrote a story. Swain and Lapkin used "language-related episodes" (LREs) as their unit of analysis. LREs are instances of collaborative dialogue in which students talk about the language they are producing, question their language use, or other- or self-correct their language production. An example is given below.

> Rick: . . .*et brosse.*
> (...and brushes)
> Kim: *Et SE brosse les dents. . . les ch-*. No, wait a second. Isn't it *elle se brosse les dents?* And it's *SE peigne. Elle se peigne.*
> (And brushes [emphasizes the reflexive] her teeth. . . her hair. No, wait a second. Isn't it she brushes her teeth? And it's combs [again emphasizes the reflexive]. She combs her hair.)

Swain and Lapkin argued that LREs provide opportunities for language learning, and were able to demonstrate, using pre- and posttest data, that some LREs were in fact the site of learning.

In another study conducted by Swain and Lapkin (2001), two grade 7 French immersion students were involved in a multistage activity involving the joint writing of a story, noticing differences between their story and a

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reformulation of it (done by a native speaker of French), talking about what they noticed during a stimulated recall session, and revising their story. The original story the students wrote and their final revised story were considered as pre- and posttests, respectively. In this study, Swain and Lapkin traced LREs related to the same particular aspect of language (e.g., *souvenir* vs. *se souvenir*) through each stage of the activity in an attempt to understand what was learned and why. They found that the feedback inherent in the reformulation provided an important resource for the students and generated considerable talk between them. The students did not unconditionally accept a particular reformulation. Sometimes they rejected a reformulation because it changed the meaning of what they had been trying to write, and sometimes because they perceived that "it was not necessary." As the students talked their way through the stages of the activity, they came to understand why the changes were made and incorporated those that they accepted into their stories.

Spielman Davidson (2000) carried out a classroom-based study in which a grade 8 French immersion class was taught the form and meaning of the present conditional. Spielman Davidson observed, tape-recorded, and tested the learning of the conditional by four pairs of students who worked together throughout four weeks (16 hours) of an instructional intervention that focussed on planning a space colony. All activities required writing: writing a draft of the plan, editing and revising it, as well as doing and correcting a content-related dictogloss. The pre- and post-tests included a cloze test, a paragraph writing exercise and interviews. Additionally, the posttests included tailor-made test items based on the content of the peer-peer dialogues of each of the four pairs of students (see also Swain, 1998; and Swain & Lapkin, 1998, 2001). The posttests were given at the end of the four weeks and again 11 weeks later. The study group made statistically significant progress in their learning of the conditional during the intervention and maintained the gains in the written measures. Results from the tailor-made test items also indicated that gains were maintained long after the students were involved in the formal unit. This doctoral dissertation is particularly interesting for the detailed analyses provided of the LREs related to the conditional which demonstrate the immense complexity of language learning.

De Guerrero and Villamil explored collaborative peer revision of writing as part of a series of studies with adult learners of Spanish as a L2 (de Guerrero & Villamil, 1994, 2000; Villamil & de Guerrero, 1996, 1998). Their 1998 study assessed the nature and impact of peer mediation on writers' final version of two types of rhetorical modes of writing: narration and persuasion. An analysis of the audiotaped pair interactions showed that the majority of the revisions (74%) worked on during peer-revision sessions were incorporated into the final drafts of the writers. When revising the narrative mode, the students paid almost equal attention to grammar and content (31% and 27% of the total revisions, respectively), whereas when revising the persuasive mode, the greatest percentage

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of revisions (38%) were focused on grammar. Moreover, assistance through dialogue prompted further revisions and self-revisions after the sessions, indicating that peer learning was conducive to self-regulated behavior.

De Guerrero and Villamil (2000) adopted a microgenetic approach to analyze 16 episodes of interaction between a "reader" and a "writer" of their previous data set on peer revision. The student who was "the reader" provided other-regulation by instructing or giving mini-lessons, which is a type of scaffolding mechanism by which students exteriorize their expertise and offer each other knowledge about language. The writer incorporated the majority of the changes discussed with his partner and, in some cases, further revised on his own. The "reader" also made progress in aspects of L2 writing and revising as well as in being able to provide peer assistance. As the researchers noted, the opportunity to talk and discuss language and writing issues with each other "allowed both reader and writer to consolidate and reorganize knowledge of the second language in structural and rhetorical aspects and to make this knowledge explicit for each other's benefit" (2000, p. 65).

Concerning the impact of peer feedback on students' writing and language learning, further studies are worth considering. Tang and Tithecott (1999) explored the value of peer-response groups in ESL writing classes in a university college and noted that students tended to be positive about peer feedback but had some concerns (for example, they did not feel comfortable or know how to criticize somebody else's work). However, many students improved while participating in the sessions because they engaged in socio-cognitive activities that enabled them to become aware of deficiencies in their texts and, in turn, to make revisions. Both less and more proficient students benefited from the peer response sessions and increased their language awareness and self-confidence.

In a number of papers based on her doctoral dissertation concerning the collaborative performance of tertiary ESL learners of intermediate and advanced proficiency, Storch (1999, 2000, 2001a, 2001b) compared individual work to collaborative work and studied the nature of peer assistance and its impact on students' language learning. Storch (1999) found that collaboration and the metatalk it generated had a positive effect on overall grammatical accuracy when students completed a series of grammar-focused exercises (a cloze exercise, a text reconstruction, and a short composition). There were two isomorphic versions to these exercises (i.e., they featured the same theme, the same genre and were the same length and had approximately the same number of similar grammatical items to attend to). The first version was completed individually and the other version was done in pairs (or small groups). In the cloze exercise, accuracy improved in verb tense/aspect choice (up from 58% to 78%) and particularly in morphology (up from 35% to 84%). In the text reconstruction exercise, a greater proportion of items were detected and correctly amended when working collaboratively than

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when working individually (72% vs. 63%) and fewer were left undetected (10% vs. 17%). With regard to the composition, those written in collaboration with peers demonstrated a lower average number of errors than compositions written individually (7.75 vs. 13.6) and a greater proportion of error-free clauses (61% vs. 47%). Storch indicated that pairs spent more time on task as they discussed the changes, which clearly resulted in more accurate performance.

Storch (2000, 2001a, 2001b) noted that the nature of peer assistance is an important factor to consider in terms of the impact collaborative work can have on learning. Detailed analyses distinguished two dimensions of dyadic interactions: equality (i.e., authority over the task) and mutuality (i.e., level of engagement with each other's contribution). From these, Storch (2000, 2001b) derived four distinct patterns. In the collaborative pattern, both students contribute to the task, assisting each other (i.e., the expert role is fluid) and reaching co-constructed solutions acceptable to both of them. The dominant/dominant pattern is one in which, though both students contribute to the task and thus the expert role is also fluid, assistance is often rejected as there is an attempt of control and domination on the part of both students. In the case of the dominant/passive pair there is one dominant student who appropriates the task and who directs his/her partner and allows little or no contribution. The fourth pattern, expert/novice, describes the interaction that takes place when assistance is provided predominantly by one of the participants (expert), which is generally accepted by the novice. Like the dominant/passive pattern, one participant seems to be more in control of the task but unlike the dominant/passive scenario, the expert participant acknowledges the novice and encourages participation.

Analyses which linked interactions to evidence of language development in the students' writing showed that in collaborative and expert/novice dyads there were more instances suggesting evidence of a transfer of knowledge (22 and 15, respectively) than in dominant/dominant or dominant/passive pairs (six in each). Furthermore, these latter pairs produced a larger number of instances showing either no transfer or lost opportunities (due lack to involvement or challenge) than the former pairs (Storch, 2000). Adopting a collaborative orientation resulted in evidence of co-construction, more LREs, extension of knowledge, provision of scaffolded assistance, and language development (grammatical accuracy and new lexical knowledge).

Similarly, DiCamilla and Anton's (1997) analyses of the discourse of five dyads of Spanish L2 learners collaborating on a writing assignment emphasized the importance of co-constructed scaffolded support and guidance through peer dialogue. In particular, they pointed out how repetition allowed students to recognize features of the language and to provide the necessary mediation to solve certain problems (of lexis, spelling, verb form, etc.). Repetition was also used to appropriate the new forms and/or to help peers appropriate the provided forms.

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Paulus (1999) analyzed the audiotaped interactions of 11 ESL students who participated in peer review sessions to give each other feedback on their writing. She compared the student revisions to three drafts of a persuasive essay and compared them to modifications resulting from teacher feedback. The results showed that students used both the peer and teacher feedback to revise their drafts. Fourteen percent of total revisions were made as a result of the peer feedback. The majority of the revisions (52%) were influenced neither by the peer nor the teacher feedback but by some other unknown source, including the self. Nevertheless, peer and teacher feedback accounted for more meaning-level revisions than those resulting from the other sources. Notably, 32% of the changes made to the second draft of the essay, written immediately after the peer revision session, were a result of peer feedback. Furthermore, the majority of these changes (63%) were meaning changes, which points to the fact, as Paulus noted, that "not only do students take their classmates' advice seriously, but they also use it to make meaning-level changes to their writing" (p. 281). That is, students find their peers' advice useful. However, the overall result of Paulus' study indicated that teacher feedback was used more often than peer feedback (see also Nelson & Carson, 1998; Tsui & Ng, 2000). Such a result can indicate that there may be a need to help and train students in how to provide peer feedback.

As Tang and Tithecott (1999) conclude about the study we reviewed above, students should be given intensive training to enable them to participate fully in the process of collaboration. Berg (1999) compared the performance of two classes in a university-based Intensive English Program that were trained in how to provide peer response (the treatment group) to two classes in the same program that received no such training. No difference between the pretreatment writing had been found between the two groups. The training provided students with the language and rationale for using peer response in the classroom. Trained peer response then resulted in a significantly greater number of meaning changes in the revised drafts as well as in significantly higher writing scores. Berg noted that peer response can teach students about academic writing because, in discussing each other's essays, they have to apply knowledge about their thesis statements, the development of ideas and the types of text organization. Furthermore, this discussion of ideas (content) and language can help students "discover viable text alternatives to unclear aspects of their writing" (Berg, 1999, p. 232).

Sometimes writing becomes a tool to generate discussion about unclear issues of other aspects of the L2 such as discourse/pragmatics. Recently, language teachers have begun to use interactive computer networks to help students collaborate in their learning process as in the case of the students in Kinginger's (2000) study. Kinginger analyzed classroom interaction between language learners in the United States and France using email exchange and video-conferencing. Involvement and correspondence with French peers encouraged learners to appropriate forms of the language that are adequate for the expression of solidarity,

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especially the mutual use of the *tu* form of address in student-student interactions. Key-pals provided both explicit instruction and direct assistance (sometimes without being requested) to their partners to help them understand how and why the social context of solidarity is constructed in French. Students acknowledged this assistance and in later exchanges used the form *tu* correctly and appropriately. The videoconference and approximately 350 e-mails showed that these types of exchange can broaden peer-peer discourse options in the foreign language classroom. The peer-peer relationships that were nurtured in the classroom communities engendered positive emotional energy, active interest in learning, and learning itself (i.e., the appropriation of the correct form of addressivity among peers). However, as Kinginger noted, it is not technology itself that is beneficial but "the vagaries, perils and delights of making sense in the company of other human beings who interest them" (2000, p. 44).

Speaking

Face-to-face interaction in speaking activities also can assist learners along the interlanguage continuum. Lynch and Maclean (2001) explored the effects on learners' performance of successive cycles of a "poster carousel" (see also Lynch & Maclean, 1994). Pairs of learners within a specialist group of 14 oncologists and radiation therapists in an English for Special Purposes (ESP) course each prepared a poster based on a research article. One member of the pair ("the host") then interacted with six other learners who visited their posters in different cycles. Rather than give a mini-lecture, the host at each poster responded to questions posed by "the visitors" so that each performance was unique but may have been shaped by previous cycles. What Lynch and Maclean explored was whether this task "recycling," or the learners' drawing on responses given in previous cycles, resulted in gains in their language development. While the higher proficiency students did not incorporate any language from their interlocutors, their language use did improve over successive cycles as a result of the opportunity to repeat or recycle their performance in front of different listeners. The less proficient learners, however, showed improvements in phonology, syntax, and lexis as a result of the interaction over the six cycles of the poster carousel. These changes were linked directly to the co-constructed performances between the hosts and the visitors. Although Lynch and Maclean could not conclude from the data whether these changes represented long-term acquisition, what is clear is that the peer-peer dialogue resulted in improved language performance.

In another study of peer-peer interaction, Lynch (2001) asked four pairs of students to transcribe a 90–120 second recorded extract of a role play they had performed in front of the class. After initially transcribing the role play verbatim, the learners could make changes to their original scripts. At this stage, through peer-peer negotiation, 81 out of 112 of the changes the learners made were improvements on the original oral performance (11 changes were for the worse,

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and 20 changes were neither better nor worse). The teacher then reformulated the revised scripts, correcting grammar and lexis, editing out redundancies, and making changes to improve precision and clarify meaning. As a final step in this multistage activity, the learners compared their own revised scripts with the reformulated version and discussed the differences between the two transcripts with each other and with the teacher. Feedback in the form of self-correction, teacher intervention, and peer correction all supported students' language learning. Currently Lynch is studying whether the transcribing and the resulting discussion in such activities result in long-term acquisition and whether they would be feasible in a classroom setting.

In a classroom corpus of seven adult students learning Japanese, Ohta (2001) also investigated peer-peer interaction and, in particular, demonstrated how the social interaction occurring "during second language interactive language learning tasks constitutes learning" (p. 125). The corpus was collected over an academic year as the learners participated in their Japanese classes and thus represents a longitudinal study of classroom language learning. Working within a socio-cognitive framework, Ohta examined the corpus for examples of how peers working within their ZPD can assist each other's performance in the classroom and thereby promote language development through scaffolding. Her findings support previous findings (e.g., Kowal & Swain, 1997) that even less proficient peers are able to provide assistance to more proficient peers. Through dialogue, learners can construct utterances that are beyond what each could produce individually. Ohta's analysis of the corpus revealed that the assisted performance comes in the form of peers' waiting for each other to finish their utterances, prompting, or through co-constructions. Peers also provided assistance in the form of recasts which are incorporated in later utterances. Not all of the peer interaction was error-free, but Ohta found, contrary to a previous study by Mackey, McDonough and Kim (1999, cited in Ohta, 2001), that incorporation rates of incorrect utterances were very low. According to Ohta, the benefits of peer interaction outweigh any negative effects, as through scaffolding, learners build "bridges to proficiency" (2001, p. 125). This scaffolding, together with the internalization of the language occurring in social interaction, supports L2 development.

Listening

Other studies in the literature show how peer-peer dialogue after listening activities can also result in L2 learning. He and Ellis (1999) compared the effect of teacher-controlled exchanges and peer-peer interaction following a listening activity on vocabulary acquisition. Six classes in an Intensive English Program in Japan were divided into three groups. The first two groups either involved no interaction or interaction with the teacher only. Only in the third group could the learners interact and negotiate meaning with each other in order to complete a picture labelling activity. Students in the peer-peer interaction group outperformed

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the other two groups in terms of comprehension and in posttests measuring recognition of the lexical items given one week, three weeks, and four weeks after the activity. The peer-peer interaction group also performed better on both of the production posttests given two and four weeks respectively after the initial picture labelling activity. He and Ellis attributed gains in performance to the interaction as students wrote, read and if necessary, negotiated meaning with each other. They concluded that interaction in "dialogically symmetrical discourse" (1999, p. 131) between peers was more conducive to incidental vocabulary acquisition than the controlled teacher-learner exchanges. Although the learners did benefit from the teacher-controlled exchanges, they had more opportunities for language learning with their peers.

In another study involving peer-peer interaction after a listening activity, Garcia and Asención (2001) investigated 39 first-semester Spanish students at an American university. Their research examined the effects of interaction on the participants' performance on a post-listening text reconstruction task and a comprehension test. Both the comparison group and the experimental group took notes as they listened to a mini-lecture. After the lecture, the comparison group in the study did not interact while the participants in the experimental group shared their notes for five minutes in small groups. Garcia and Asención found that while the groups did not differ in the text reconstruction task, the experimental group scored significantly higher on the listening comprehension posttest. They therefore concluded that interaction can help improve listening comprehension. Qualitative analysis of the taped interactions corroborated other research on interaction (e.g., Ohta, 1995; Swain & Lapkin, 1998, 2001) that illustrated how the students use language as a cognitive tool. The participants in the experimental group provided scaffolding for each other and through interaction with their peers, students questioned language use and repaired grammatical forms. Garcia and Asención also identified confirming and code-switching as two other features of the students' interaction in which language was used as a tool in language learning.

Reading

Peer-peer dialogue has also been shown to help students apply comprehension strategies and co-construct knowledge while reading. Klingner and Vaughn (2000) investigated how a group of Spanish-English bilingual elementary school students collaborated to build their own reading comprehension and that of their limited English proficient (LEP) peers. Through a classroom technique known as collaborative strategic reading (CSR) (see also Klingner, Vaughn, & Schumm, 1998), the 37 participants in the study were taught four reading strategies to aid their reading comprehension of a content-based text. The text was in English but students discussed the content of the text in both English and Spanish. Qualitative analysis of the students' discourse showed that through interacting in their CSR groups, the fifth-grade students assisted one another in vocabulary

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comprehension, finding the main idea and asking and answering questions about their text. Klingner and Vaughn reported that in each of the six cooperative learning groups, the students taught concepts and vocabulary to their peers. In some cases bilingual students provided translations for the LEP students. The authors concluded that in their groups, the students provided scaffolding for each other and that even the higher achieving students benefited from the group interaction. According to Klingner and Vaughn, for scaffolding to occur, the important factor is not expertise but rather whether students are instructed in how to provide assistance to their peers, as they had been in this study. Pre- and post-test measures of vocabulary indicated that the students made gains in their language learning. While the LEP students appeared to demonstrate little improvement as measured in the tests, they were able to provide closer approximations to the correct answers than they had in the pretests. However, due to the scoring criteria used, these gains were not quantified.

Conclusions

We conclude from the studies presented in this review that the collaborative dialogue in which peers engage as they work together on writing, speaking, listening and reading activities mediates second language learning. We found that many of these studies center around writing activities, perhaps because one can more directly examine the product of the dialogic process. Although not considered in this review, it is to be noted that both within and across each of these skill areas, the particular activities and tasks used will affect the nature of the dialogue and therefore the language learned. More studies which investigate the transfer of knowledge to new contexts and longer term effects are called for. We also found that few adverse effects of working collaboratively were noted. However, possible effects such as greater reliance on teacher feedback than on peer feedback, students' lack of confidence about knowing how to provide useful feedback, and conflicts amongst collaborating students were noted; these suggest that instructing students both how and why to collaborate may be important.

We believe that a thorough examination of peer-peer dialogue is instructive for teachers, researchers and the learners themselves as a means of understanding how learning is happening, and what is going right or wrong with the process. Relating this dialogue to learning outcomes is, of course, an additional but important step in enriching this understanding.

Notes

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