

4 The output hypothesis and beyond: Mediating acquisition through collaborative dialogue¹

Merrill Swain

*The Ontario Institute for Studies in Education of
The University of Toronto*

Introduction

This chapter is about 'the output hypothesis and beyond'. In this chapter, 'the beyond' is collaborative dialogue. And what is 'collaborative dialogue'? It is knowledge-building dialogue. In the case of our interests in second language learning, it is dialogue that constructs linguistic knowledge. It is what allows performance to outstrip competence. It is where language use and language learning can co-occur. It is language use mediating language learning. It is cognitive activity and it is social activity.

But those are the claims I would like to end this chapter with. To get there, I will take the following steps. First, in order to locate collaborative dialogue in theoretical and empirical claims about second language learning, I will examine very briefly current views on the role of interaction—and its components of input and output—in second language learning. Second, I would like to shift the frame of reference somewhat by considering interaction from the perspective of a sociocultural theory of mind. Third, I will consider several recent studies from this perspective. These studies suggest that at least some actual language learning can be seen to be occurring in the dialogues of participants, and that, as well as the separate consideration of input and output, a profitable focus of analysis of language learning and its associated processes may be dialogue.

Background

I begin with a brief overview of recent views of the role of interaction in second language learning. To a considerable extent, contemporary thinking and research about interaction have emphasized its role as a 'provider of input' to learners (cf. Gass 1997). This focus has its origins in Krashen's

comprehensible input hypothesis—the hypothesis that the cause of second language acquisition is input that is understood by the learner. Input, it is argued, can be made comprehensible in a number of ways. Long, in the early 1980s (for example, 1981, 1983b), proposed that one way input is made comprehensible is through ‘interactional modification’, that is, through modifications to learners’ input as a consequence of their having signaled a lack of comprehension.

As Pica (1994) points out, this ‘modification and restructuring of interaction that occurs when learners and their interlocutors anticipate, perceive, or experience difficulties in message comprehensibility’ has been referred to as *negotiation*. Through negotiation, comprehensibility is achieved as interlocutors repeat and rephrase for their conversational partners. Pica points out that negotiation is not the only type of interaction that might lead to learning. ‘But’, she states, ‘negotiation, with its emphasis on achieving comprehensibility of message meaning ... has sparked and sustained considerably more interest in the field of SLA’ (*ibid.*: 495). As I will try to show later in this chapter, a form of interaction which, for the present, I am calling collaborative dialogue, also deserves to be examined for its contribution to second language learning.

In research on negotiation, then, the focus has been on input, and how to make it comprehensible. Because of the theoretical framework in which this research has been embodied, it has been seen as enough to demonstrate that negotiation leads to greater comprehensibility of input. Virtually no research has demonstrated that the greater comprehensibility achieved through negotiation leads to second language learning. Indeed, it has only been recently (Ellis, Tanaka, and Yamazaki 1994) that evidence has been provided suggesting a causal link between comprehensible input and second language acquisition, and that evidence was concerned only with the acquisition of the meaning of concrete nouns.¹ Clearly there is scope for more research exploring the relationship between comprehensible input and second language learning.

However, if we are to understand more fully the language learning that occurs through interaction, the focus of our research needs to be broadened. We need to look beyond the comprehension of input to other aspects of interaction that may be implicated in second language learning. For example, Lightbown and Spada (1990), Lyster and Ranta (1997), Dougherty and Williams (1998), and others have explored how interaction provides opportunities for learners not only to negotiate the message of the input, but, in doing so, to focus on its form as well. Other researchers, for example, Aljaafreh and Lantolf (1994) and Nassaji and Swain (2000), have explored the nature and type of feedback that will be most helpful to learners during interaction at different stages of their acquisition of a language form. Van Lier (present volume) has moved beyond the concept of ‘input’ to ‘affordance’, examining social interaction from an ecological perspective.

As van Lier's perspective implies, interaction is more than a source of comprehensible input, or input as feedback. Interaction also provides learners with the opportunity to use the target language, that is, to 'output'. Van Lier, along with others (for example, Krashen 1995a), would not approve of the continued use of the term 'output', claiming that it limits our understanding of second language learning to an information-processing perspective rather than permitting us to broaden the perspective to one in which all social activity forms a part of the learning environment. But in this chapter I will continue to use the term 'output' in ways it has already been considered in the published literature. However, later in this chapter I will alter my use of terminology to signal a broadening of the scope of output as communicative activity, to understanding it also as cognitive activity.

Output and SLA

Output might theoretically play several roles in second language learning. Relative to the potential roles of input in second language learning, those of output have been relatively underexplored.

The basis for my initial claim that perhaps output plays a role in second language learning (Swain 1985) was our research with French immersion students which showed that in spite of six or seven years of comprehensible input—some might say, 'acquisition-rich input'—in French, the written and spoken French of these students included numerous grammatical and syntactic deviations from native-speaker usage. Furthermore, our observations in grades 3 and 6 immersion classes suggested that although students used French in class, little of it included extended discourse, and, generally speaking, teachers did not 'push' their students beyond their current level of interlanguage as the teachers interacted with them.

As I have argued elsewhere (Swain 1995), it seems to me that the importance of output to learning could be that output pushes learners to process language more deeply—with more mental effort—than does input. With output, the learner is in control. In speaking or writing, learners can 'stretch' their interlanguage to meet communicative goals. To produce, learners need to do something. They need to create linguistic form and meaning, and in so doing, discover what they can and cannot do. Output may stimulate learners to move from the semantic, open-ended, strategic processing prevalent in comprehension to the complete grammatical processing needed for accurate production. Students' meaningful production of language—output—would thus seem to have a potentially significant role in language development. These characteristics of output provide a justification for its separate consideration, both theoretically and empirically, in an examination of the value of interaction for second language learning.

One role for output in second language learning is that it may promote 'noticing'. This is important if there is a basis to the claim that noticing a

language form must occur for it to be acquired (Ellis 1994). There are several levels of noticing, for example, noticing something in the target language because it is salient or frequent. Or, as proposed by Schmidt and Frota (1986), in their 'notice the gap principle', learners may not only notice the target language form, but notice that it is different from their own interlanguage. Or, as I have suggested, learners may notice that they do not know how to express precisely the meaning they wish to convey at *the very moment of attempting to produce it*—they notice, so to speak, a 'hole' in their interlanguage.

Certainly, for many of the learners we have recorded as they interacted while working together on tasks (for example, Swain and Lapkin 1995; Kowal and Swain 1997), we have observed that those learners noticed 'holes' in their linguistic knowledge and they worked to fill them by turning to a dictionary or grammar book, by asking their peers or teacher; or by noting to themselves to pay attention to future relevant input. Our data showed that these actions generated linguistic knowledge that was new for the learner, or consolidated their existing knowledge. In line with van Lier, one might hypothesize that learners seek solutions to their linguistic difficulties when the social activity they are engaged in offers them an incentive to do so, and the means to do so. The important point, however, in this context, is that it was the act of attempting to produce language which focused the learner's attention on what he or she did not know, or knew imperfectly.

Another way in which producing language may serve the language learning process is through hypothesis testing. It has been argued that some errors which appear in learners' written and spoken production reveal hypotheses held by them about how the target language works. To test a hypothesis, learners need to *do something*, and one way of doing this is to say or write something.

For example, in doing a task that required students to recreate in writing a text they had just heard (a difficult text consisting of five sentences), Rachel and Sophie (pseudonyms), two grade 8 French immersion students working together, wrote the sentence: '*Même les solutions écologiques causent quelquefois des nouvelles menaces*' (*Even ecological solutions sometimes cause new threats*.) In their written text, *des* was crossed out and replaced by *de*. On the basis of this written work, we might have concluded that this modified output—reflected in the change from *des* to *de*—represents the students' current hypothesis about the form a partitive should take in front of an adjective. We might further have argued that this process of modification represents second language acquisition (Pica *et al.* 1989; Swain 1993). However, our understanding of what Rachel and Sophie produced is immensely enriched by our being privy to their dialogue as they constructed the phrase *des nouvelles menaces*.

Example 1:

- 1 Rachel: Cher[chez] nou...des nouveaux menaces.
(Look up new [as in] new threats.)
- 2 Sophie: Good one!
- 3 Rachel: Yeah, nouveaux, des nouveaux, de nouveaux. Is it des nouveaux or de nouveaux?
- 4 Sophie: Des nouveaux or des nouvelles?
- 5 Rachel: Nou[veaux], des nou[veaux], de nou[veaux].
- 6 Sophie: It's menace, un menace, une menace, un menace, menace ay ay ay! [exasperated].
- 7 Rachel: Je vais le pauser.
(I'm going to put it on pause [ie the tape-recorder].)
[They look up 'menace' in the dictionary.]
- 8 Sophie: C'est des nouvelles! [triumphantly].
- 9 Rachel: C'est féminin ... des nouvelles menaces.

(Kowal and Swain 1997)

In the text the students had heard, the phrase was actually *de nouveaux problèmes*, but Sophie and Rachel made rephrasing the text a main feature of their work. For them, two comparatively proficient students, this was a self-chosen means of making the activity more challenging; here we see them 'stretching' their interlanguage. In turn 1, Rachel has used the noun *menaces* as a synonym for *problèmes*, and Sophie, in turn 2, congratulates her on this. But the phrase *des nouveaux menaces* is not well-formed. To be well-formed, the partitive *des* needs to be changed to *de* because it precedes an adjective, and *nouveaux* should be *nouvelles*, because *menaces* is a feminine noun. In other words, by producing *des nouveaux menaces*, Sophie and Rachel have created for themselves a phrase that they can now reflect on. In effect, it has given them the opportunity to notice gaps in their linguistic knowledge. And this opportunity has arisen directly from having produced a phrase new to them.

Often, as researchers or teachers examining such a phrase, we can only hypothesize that Rachel's output in turn 1 represents a hypothesis about the target language. However, in this case, we are able to conclude that what Rachel said, did indeed, represent a hypothesis, as we then see Rachel and her friend Sophie put the phrase through a set of tests.

Rachel wonders if the partitive form she has produced is correct. In turn 3, she verbalizes the possibilities out loud to see what sounds best, and then explicitly formulates her question: 'Is it *des nouveaux* or *de nouveaux*?', that is, 'Should the partitive be *des* or *de*?' She continues to test out her hypothesis in turn 5.

Sophie however is caught up with whether this new word that her friend has introduced is masculine or feminine. This is important because if *menaces* is masculine, then the form of the adjective should be *nouveaux*; if it

is feminine, then the form of the adjective should be *nouvelles*. As we can see in turn 6, Sophie, too, tests alternatives, hoping that her saying it out loud will guide her to the correct choice.

They resolve the issue by turning to a readily available tool, their dictionary, and discovering that *menaces* is feminine. Triumphant they give the implications of this discovery, that is, that the adjective should be *nouvelles*: in turn 8, Sophie provides the correct form of the adjective, and in turn 9, Rachel confirms Sophie's choice and provides the reason for that choice—that *menaces* is a feminine noun. In their delight with this discovery, the issue of the partitive is laid aside, though later they return to it and change it from *des* to *de*.

To sum up, we have seen in this example that Sophie and Rachel, in trying to produce a phrase, came to recognize what they did not know. They formed hypotheses, tested them out, and finally, turned to a tool that would provide them with a definitive answer, their dictionary. Together what Sophie and Rachel have accomplished is the construction of linguistic knowledge; they have engaged in knowledge building. Furthermore, unlike in the sort of 'negotiation' sequence discussed by Pica, Sophie and Rachel have not engaged in this knowledge building because they misunderstood each other. They have done so because they have identified a linguistic problem and sought solutions. In their dialogue, we are able to follow the (cognitive) steps which formed the basis of their written product. Here, their output, in the form of collaborative dialogue, is used to mediate their understanding and solutions.

Collaborative dialogue and SLA

Output of the sort we saw Rachel and Sophie engage in is an important part of the learning process. Wells (2000) points out that 'One of the characteristics of utterance, whether spoken or written, is that it can be looked at as simultaneously process and product: as "saying" and as "what is said"' (*ibid.*: 73). In 'saying', the speaker is cognitively engaged in making meaning; a cognitive act is taking place. 'Saying', however, produces an utterance that can now be responded to—by others or by the self. Wells suggests that it is frequently in the effort of 'saying' that a speaker 'has the feeling of reaching a fuller and clearer understanding for him or herself' (*ibid.*: 74). Furthermore, 'what was said' is now an objective product that can be explored further by the speaker or others.³

The two faces of an utterance—the cognitive activity and the product of it—are present in both output and collaborative dialogue. Collaborative dialogue is dialogue in which speakers are engaged in problem solving and knowledge building.⁴ It heightens the potential for exploration of the product. What I would like to show, through examples, is that collaborative dialogue mediates joint problem solving and knowledge building. But first I wish to

make two brief digressions: one is about terminology and one is about theoretical perspectives.

First, about terminology: the continued use of the terms 'input' and 'output' has recently come under question. Kramsch (1995a), van Lier (present volume) and others have pointed to the inhibiting effect of the 'conduit metaphor' on the development of a broader understanding of second language learning. As Steve Thorne (personal communication, February 1998) asked me: 'Is your new, expanded output worthy of a new label?' He goes on to wonder 'whether output, even given its new momentum by revisiting it through collaborative dialogue, will have the escape velocity to "move beyond" its original identity ...?' He ends by noting that he regrets not having thought up such a term yet. And so do I.⁵

I am sympathetic to the view that metaphors guide our work, in ways in which we are often unaware. In an article analyzing two metaphors for 'learning'—the 'acquisition metaphor' and the newer 'participation metaphor'—Sfard (1998) concludes that the conceptual frameworks generated by each offer 'differing perspectives rather than competing opinions' (*ibid.*: 11), incommensurability rather than incompatibility. This provides me with some hope that differing perspectives will be seen as enriching and complementary.

Having said that, I now intend to avoid using the term output for the rest of this chapter, replacing it with such labels as 'speaking', 'writing', 'utterance', 'verbalization', and 'collaborative dialogue'. This is an interim solution, one that will last until my own understanding of differing perspectives deepens enough for the appropriate terminology to emerge.

The second digression is to outline, in the briefest of forms, why the concept of dialogue might be important in considering second language learning, and how it is different from a consideration of comprehensible input and/or output. Vygotsky (1978, 1987) and others (for example, Wertsch 1985a; Cole 1996) have articulated a sociocultural theory of mind. The main premise of a sociocultural theory of mind is that cognitive functions such as voluntary memory, reasoning, or attention are mediated mental activities, the sources of which are activities external to the learner but in which he or she participates. Through a process of internalization (Gal'perin 1967; Arieievitch and van der Veer 1995), external activities are transformed into mental ones. In other words, as Stetsenko and Arieievitch (1997) state: 'psychological processes emerge first in collective behaviour, in co-operation with other people, and only subsequently become internalized as the individual's own "possessions"' (*ibid.*: 161). This process is mediated by semiotic tools. Language is one of the most important semiotic tools.

Vygotsky argued that just as physical tools such as a hammer and saw allow us to accomplish qualitatively different physical activities than we might without such tools, so do semiotic tools allow us to accomplish qualitatively different mental activities than those we accomplish without them. Physical and semiotic tools mediate our interaction with the physical

and social environment. Language, as a particularly powerful semiotic tool, mediates our physical and mental activities. As a cognitive tool, it regulates others and ourselves. And, as we have seen, it can be considered simultaneously as cognitive activity and its product.

How does this help us to interpret Sophie and Rachel's dialogue? First, it suggests that their 'collective behaviour' may be transformed into individual mental resources. This means that the knowledge building Sophie and Rachel have collectively accomplished may become a tool for their further individual use of their second language.⁶ Initially socially constructed, their joint resolution may serve them individually.

Second, and importantly, their knowledge building was mediated by language—by a dialogue in which they drew attention to problems and verbalized alternative solutions—'*des nouveaux, de nouveaux*', '*un menace, une menace*'. This verbalization, this 'saying', provided an object ('what is said') to reflect upon—'*Is it des nouveaux or de nouveaux?*'; '*[Is it] des nouveaux or des nouvelles?*' That is, this verbalization objectified thought and made it available for scrutiny. The use of English here is significant.⁷ They use English, their first language, to ask the question, putting in relief the object of their attention. As the dialogue continued, Rachel and Sophie conveyed the outcome of that reflection and scrutiny—'*C'est des nouvelles*', '*C'est féminin ... des nouvelles menaces*.'

The problem Sophie and Rachel addressed in this dialogue was a language-based problem—one which arose as they tried to express the meanings they had in mind. To sum up, what is occurring in their collaborative dialogue—their 'saying' and responding to 'what is said'—is language learning (knowledge building) mediated by language (as a semiotic tool).

Finally, this theoretical perspective suggests that what we, as researchers, are observing in Rachel and Sophie's dialogue, is both social and cognitive activity; it is linguistic problem-solving through social interaction. As Donato and Lantolf (1990) pointed out, developmental processes that are dialogically derived and constituted 'can be observed directly in the linguistic interactions that arise among speakers as they participate in problem-solving tasks' (*ibid.*: 85).

Language as a mediating tool

In other educational domains such as mathematics and science, language has been shown to mediate the learning of conceptual content. Newman, Griffin, and Cole (1989), for example, have studied children and teachers 'at work' in diverse content areas such as social studies, science, and arithmetic. Their research reveals learning as a process of 'joint constructive interaction' mediated by language and other cultural tools.

The Russian developmental psychologist, Nina Talyzina, demonstrated in her research the critical importance of language in the formation of basic

geometrical concepts. Talyzina's research was conducted within the theoretical framework of Gal'perin (1902–1988), himself a contemporary of Vygotsky. With Nikolayeva, Talyzina conducted a series of teaching experiments (reported in Talyzina 1981). The series of experiments dealt with the development of basic geometrical concepts such as straight lines, perpendicular lines, and angles.

Three stages were thought to be important in the transformation of material forms of activity to mental forms of activity: a material (or materialized) action stage, an external speech stage, and a final mental action stage.⁵ In the first stage, students are involved in activities with real (material) objects, spatial models, or drawings (materialized objects) associated with the concepts being developed. Speech serves primarily as a means of drawing attention to phenomena in the environment (*ibid.*: 112). In the second stage, speech 'becomes an independent embodiment of the entire process, including both the task and the action' (*ibid.*: 112). This was instructionally operationalized by having students formulate verbally what they carried out in practice (i.e. materially)—a kind of on-going think-aloud verbalization. And in the final mental action stage, speech is reduced and automated, becoming inaccessible to self-observation (*ibid.*: 113). At this stage, students are able to solve geometrical problems without the aid of material (or materialized) objects or externalized speech.

In one of the series of instructional studies conducted by Talyzina and her colleagues, the second stage—the external speech stage—was omitted. The students in the study were average-performing, grade 5 students in Russia. The performance of students for whom the external speech stage was omitted was compared to that of other students who received instruction related to all three stages. The researchers concluded that the omission of the external speech stage inhibited substantially the transformation of the material activity into a mental one. They suggest this is because verbalization helps the process of abstracting essential properties from nonessential ones, a process that is necessary for an action to be translated into a conceptual form (*ibid.*: 127). Stated otherwise, verbalization mediates the internalization of external activity.

Talyzina further noted that 'the development of mental actions and concepts is not an end in itself ... [They] are subsequently employed in solving a variety of problems' (*ibid.*: 133). Often, in confronting a new problem requiring the application of already developed mental actions and concepts, students were observed to begin to apply them at the external speech stage, or even at the material stage. In collaborative dialogue, verbalization, which mediates the internalization of meanings created and the externalization of those meanings, is naturally and spontaneously evoked.

Holunga (1994), one of our former Ph.D. students, conducted a study concerned with second language learning, but it has many parallels to those carried out by Talyzina and her colleagues. Holunga's research involved

adults who were advanced second language learners of English. The study was set up to investigate the effects of metacognitive strategy training on the oral accuracy of verb forms. The metacognitive strategies taught in her study were predicting, planning, monitoring, and evaluating (Brown and Palincsar 1981). What is particularly interesting in the present context is that one group of her learners was instructed, as a means of implementing the strategies, to talk them through as they carried out communicative tasks in pairs. (See Example 4, p. 107–8.) This group was labeled the metacognitive with verbalization, or MV, group. Test results of this MV group were compared to those of a second group who was also taught the same metacognitive strategies, and who carried out the same communicative tasks in pairs. However, the latter group was not instructed to talk about the metacognitive strategies as they implemented them. This group was called the metacognitive without verbalization, or M, group. A third group of students, included as a comparison group (C group), was also provided with language instruction about the same target items, i.e. verbs. Their instruction provided opportunities for oral language practice through the same communicative tasks completed by the other students, but the students in this group were not taught metacognitive strategies. Nor were they required to verbalize their problem-solving strategies.

Each group of students in Holunga's study received a total of 15 hours of instruction divided into ten lessons. Each lesson included teacher-led instruction plus communicative tasks to be done in pairs. The main activity of a lesson occurring near the end of the 15 hours of instruction was a task described as 'a linguistically unstructured communicative task; that is, there was no one overt grammatical focus' (*ibid.*: 93). In this task each student dyad was given a list of names representing applicants for a university scholarship. Based on the information provided about each applicant, they were to decide who should get the scholarship.

The success of the instructional treatments can be seen in the qualitatively distinct ways student dyads from the different groups approached this task. Example 2 is from a pair of students, T and R, who were in the M group. T and R's dialogue in general resembles those of student dyads from the C group.

Example 2

- 1 T: Who begins?
- 2 R: Me. Just a minute. Oh yeah, don't forget the teacher said to error correct. Ready ... ummm. First guy, Albert Smit, age 45. No way. He can't qualify. He's too old. He's married and he has a social life. He must to spend his time with his family. So I think he not really interesting in study because it's his wife. If he don't get scholarship, he will go back to work.

- 3 T: I agree. Basil. He is 19. It's not possible to give him the scholarship. He have no motivation to get the scholarship. Also his character does not look like a good person.
- 4 R: Yes, he has bad behaviour. He probably will spend more time with his girlfriend. Okay. No for people one and two. Next person.

(Holunga 1994: 108)

The strategy training relating to error correction of the verb system that T and R had received prior to doing this task is not much in evidence in their dialogue. Although in turn 2 R reminds T that the teacher has just told them to correct their errors, they pay no further attention to that externally-imposed objective. Their dialogue is conversational: they focus on meaning and not on form.

As we see in Example 3, evaluation took the form of praise. As R says in turn 1, '... our discussion is good. We talked very well.' T, in turn 2, understands this to refer to content, not form: 'Yes. It's very interesting.' And in spite of being told to focus on verb errors, T's 'I can't' in turn 4 is accepted and responded to by R's empathetic comment in turn 5, 'It's too difficult.'

Example 3

- 1 R: So far our discussion is good. We talked very well.
- 2 T: Yes. It's very interesting.
- 3 R: We didn't correct. Remember what the teacher said?
- 4 T: Oh yeah. For me I can't.
- 5 R: It's too difficult.

(Holunga 1994: 109)

The interaction between R and T is typical of that seen in 'negotiation of meaning' tasks: meaning is focused on and error is ignored in an attempt to create an effective social interaction. Although S and G of Example 4 also maintain an effective social interaction, and attend to the meaning inherent in the task, their dialogue is strikingly different from R and T's.

In Example 4, S and G begin the task by working out what they are supposed to do. In turn 4, S explains: 'We have to speak about these people and justify our position.' But, not only do they focus on the substantive content of the task, they talk about what verb form—'a conditional'—they might need to do the task, and why—'... not just the past. We have to imagine our situation now.' We have to give our opinions now. This implementation of the strategies of planning and predicting has led them to verbalize not only the verb form needed but the function it will be serving in the current context, and to provide a concrete example (see turn 6).

Example 4

- 1 G: Let's speak about this exercise. Did you read it?
- 2 S: Yes.

- 3 G: Okay. What are we suppose to do?
- 4 S: We have to speak about these people and ummm justify our position ... you know our decision ... our decisions about actions in ummm the past.
- 5 G: No. I think not just the past. We have to imagine our situation now. We have to give our opinions now.
- 6 S: So, for example, I choose Smit because he need it. No ... it's a conditional. I would give Smit ... I would choose Smit because he need the money. Right. I WOULD give ...
- 7 G: Needs it.
- 8 S: Yes, because he need it.
- 9 G: Yes, but no. He needs. 's', you forgot 's'. He needs.
- 10 S: Did I? Let me listen the tape. (Listens to the tape.) Yes ... yes. He needS. I have problem with 's'. I paying so much attention to conditionals I can't remember 's'. Can you control ... your talking?
- 11 G: It's a big problem. I still must remember 'had had'. But we try.
- 12 S: Yes. We try. But I don't know.
- 13 G: We don't try ... you know we don't get better. We don't improve. We must practise to change old ways.
- 14 S: Okay. Maybe good idea to listen to tape after we each talk.⁹

(Holunga 1994: 98)

As G and S continue with the task, G in turn 7 corrects S's 'need' to 'needs it'. Interestingly, S responds to G's meaning 'Yes, because he need it', not understanding that G is responding to a grammatical error. G in turn 9 first responds 'Yes' to S's meaning, but she perseveres with her focus on form, 'but no', going on to give the correct form again and telling S how to correct it: 'He needs. "s", you forgot "s".' This focuses S's attention, and with some scepticism, she plays back the tape. She hears her error, corrects it, and in turn 10 provides an explanation for her error 'I paying so much attention to conditionals I can't remember "s".' Having agreed that 'It's a big problem', G in turn 13 comments on the importance of practice: 'We must practise to change old ways'. S suggests in turn 14, based perhaps on what she has just experienced, a way that they can effectively monitor their language use for errors: 'Maybe good idea to listen to tape after we each talk'.¹⁰

S and G's verbalization as seen in Example 4 serves several functions. For both speaker and hearer, it focuses attention; it externalizes hypotheses, tests them, and supplies possible solutions, and it mediates their implementation of such strategic behavior as planning and evaluating. Through their collaborative effort, they produce the appropriate verb form accurately, and propose a concrete plan to monitor its accuracy in future use. Speech comes to serve as 'an independent embodiment of the entire process, including both the task and the action' (Talyzina 1981: 112).

The students in this study were tested individually, first by being asked a series of discrete-item questions in an interview-like format, and second by being asked three open-ended questions in which learners would give their opinions, tell a story, and imagine a situation. The questions were designed to elicit specific verb forms concerning tense, aspect, conditionals, and modals, and were scored for the accuracy of their use. A pre-test, post-test, and delayed post-test were given. The delayed post-test was administered four weeks after the post-test.

The data were analyzed statistically as four separate tests: the first 40 discrete-item questions as one test, and each of the open-ended questions as three separate tests. Initial analyses were conducted to determine if there were significant gains in the accurate use of verb forms as a result of the instructional treatment, and if post-test scores were maintained. The analyses revealed that the MV group made significant gains from pre- to post-tests in all four tests; the M group made significant gains in only the discrete-item questions. And the C group showed no improvement on any of the four tests. Furthermore, both the MV and M groups' level of performance at the post-test level was maintained through to the delayed post-tests four weeks later.

A second set of analyses was conducted to determine if there were statistically significant differences among the groups (using an analysis of covariance with pre-test scores as the covariate). The results indicate that both experimental groups performed better than the comparison group on all four tests. Furthermore, the MV group's performance was superior to that of the M group on both the discrete-item questions and the third open-ended question which required the use of conditionals.

In summary, although those students who were taught metacognitive strategies improved the accuracy of their verb use relative to a comparison group that received no such instruction, students who were taught to verbalize those strategies were considerably more successful in using verbs accurately.¹¹

Interpreting these findings through the lens of Talyzina's theoretical account suggests that for the MV group, external speech mediated their language learning. Verbalization helped them to become aware of their problems, predict their linguistic needs, set goals for themselves, monitor their own language use, and evaluate their overall success. Their verbalization of strategic behavior served to guide them through communicative tasks allowing them to focus not only on 'saying', but on 'what they said'. In so doing, relevant content was provided that could be further explored and considered. Test results suggest that their collaborative efforts, mediated by dialogue, supported their internalization of correct grammatical forms.

Verbalization was initiated through social interaction. The basis of their task solution was dialogue. Dialogue mediated their co-construction of strategic processes and of linguistic knowledge. Through such collaborative dialogue, the students engaged in knowledge building.

The role of dialogue in mediating the learning of such substantive areas as mathematics, science, and history is generally accepted. Yet, when it comes to the learning of language, the mediating role of dialogue seems less well understood. Perhaps this is because the notion of 'language mediating language' is more difficult to conceptualize and it is more difficult to be certain of what one is observing empirically.

Dialogue as a mediator of second language learning has found support in our current research (for example, Swain 1997; Swain and Lapkin 1998). The students we have been studying are grade 8 French immersion students who, although fluent, have a distance to go in their production of grammatically accurate French. We are interested in finding ways to move these students beyond their current interlanguage.

We have had students engage collaboratively in a variety of tasks (Kowal and Swain 1997; Swain and Lapkin 1998) which, through task design, we anticipated would encourage them to focus on form in the French they were producing. Spontaneously, in carrying out the task, students engaged in dialogue. Given the theoretical framework I have already outlined, our focus has been to examine closely the content of the students' dialogue. We have noted instances in the dialogue of language-related episodes (Swain and Lapkin 1995; 1998) in which language is a focus of attention. In these episodes, the students' dialogue mediated their learning. Language-related episodes may be thought of as serving the functions of external speech in the external speech stage outlined by Gal'perin and Talyzina. As with the other examples in this chapter, Example 5 is illustrative.

In Example 5, Kathy and Doug (pseudonyms) are in the process of writing out a story based on a set of pictures they have been given (see Swain and Lapkin 1998 for details of the task). In the part of their dialogue provided below, they are working out how to write the second half of a sentence which begins with *Yvonne se regarde dans le miroir ...* (Yvonne looks at herself in the mirror...).

Example 5

- 1 Kathy: Et brosse les cheveux.
(and brushes her hair.)
- 2 Doug: Et les dents.
(and her teeth.)
- 3 Kathy: Non, non, pendant qu'elle brosse les dents et ...
(No, no, while she brushes her teeth and ...)
- 4 Doug: Elle se brosse...elle SE brosse.
(She brushes ... she brushes [emphasizes the reflexive pronoun].)
- 5 Kathy: Pendant qu'elle se brosse les dents et peigne les cheveux.
(While she brushes her teeth and combs her hair.)
- 6 Doug: Ya!

- 7 Kathy: Pendant qu'elle ... se brosse ... les cheveux, I mean, no, pendant qu'elle se PEIGNE les cheveux.
(While she ... brushes ... her hair, I mean, no, while she COMBS her hair.)
- 8 Doug: Ya.
- 9 Kathy: Et se brosse...
(And brushes ...)
- 10 Doug: Les dents.
(Her teeth.)
- 11 Kathy: Pendant qu'elle SE peigne les cheveux et SE brosse les dents.
(While she combs her hair and brushes her teeth [emphasizes the reflexive pronouns].)

(Swain and Lapkin 1998)

In Example 5, we see Kathy and Doug co-constructing the second half of the sentence that Kathy is writing down. They end up with the correct, *pendant qu'elle se peigne les cheveux et se brosse les dents* (while she combs her hair and brushes her teeth), but not without struggling with which verb goes with which noun, and the reflexive nature of the particular verbs they are using. Kathy starts off with *brosse les cheveux*, a phrase that translates well from the English *brushes her hair*. But Doug's offer of *et les dents* (and her teeth) in turn 2 seems to suggest to Kathy that *brosse* should be used with *les dents*, while *peigne* should be used with *les cheveux* (see turns 3 and 5). Doug quickly reacts to Kathy's use of *brosse* in turn 3 by pointing out through emphasis that *brosse* is a reflexive verb: *elle SE brosse*. Kathy incorporates this information in turn 5 for *brosse* and for *peigne* in turn 7 even though her emphasis in turn 7 is on using the verb that best accompanies *les cheveux*. In turn 11, Kathy turns her focus to the form of the verbs as reflexives, thus fully incorporating Doug's contributions to this conversation.

This dialogue between Doug and Kathy serves to focus attention and to offer alternatives. Through dialogue they regulate each other's activity, and their own. Their dialogue provides them both with opportunities to use language, and opportunities to reflect on their own language use. Together their jointly constructed performance outstrips their individual competencies. Their dialogue represents 'collective cognitive activity which serves as a transitional mechanism from the social to internal planes of psychological functioning' (Donato 1988: 8).

In our research we are beginning to tackle the issue of how to demonstrate that these language-related episodes (LREs) are occasions for second language learning. In one study (LaPierre 1994; see also Swain 1998), dyad-specific post-test items were developed based on recordings of the dialogues of each pair of students as they worked through a dictogloss task. Students' responses on the post-test showed a 70 to 80 per cent correspondence with the solutions—right or wrong—that they arrived at in their dialogues. The post-

test was administered a week to ten days after task-completion. We interpret these test results as a strong indicator that their dialogue mediated, in these cases, the construction of linguistic knowledge.

In another study (Swain and Lapkin 1998, 2001) students were given pre- and post-tests. As a research methodology, this did not work very well because, as it turns out, it is impossible to predict what pairs of students will talk about. We tried to predict what they would talk about by giving the 'same' task to another group of students and building a pre-test based on the language-related episodes of those students. Even though we gave the students the very same task, and even though the students were French immersion students from the same grade level and even the same school, as we examined what our student dyads chose to discuss, it was obvious that 'the same task' is not 'the same task' for different pairs of students (cf. Coughlan and Duff 1994). Each pair focused on different aspects of language, and did so in different ways—an important message to researchers and teachers alike (Kowal and Swain 1994, 1997; Swain 1995; Swain and Lapkin 1998). For researchers, this principle makes problematic the use of a pre/post-test design if one is attempting to trace language learning specific to the dialogue of individual student pairs. In a relatively small number of instances where a language-related episode happened to relate to a pre- and post-test item, we were able to demonstrate that the LRE was an occasion for second language learning (Swain and Lapkin 1998). For teachers, this finding serves yet again as a reminder that what one intends to teach may only indirectly, if at all, be related to what is learned. Students set their own agendas.

Conclusion

In this chapter, the concept of output has been extended to include its operation as a socially-constructed cognitive tool. As a tool, dialogue serves second language learning by mediating its own construction, and the construction of knowledge about itself. Internalization of process and knowledge is facilitated by their initial appearance in external speech.

From a research perspective, we need to find new methodologies to unravel this layered complexity. We also need to recognize that research in which students' activity is accompanied with verbalization is not a neutral environment. Verbalization is not just a research tool; it has important consequences for learning.

From a pedagogical perspective, the position argued in this chapter offers additional reasons for engaging students in collaborative work. It suggests that tasks which encourage students to reflect on language form while still being oriented to meaning making—that is, tasks which engage students in collaborative dialogue of the sort illustrated in this chapter—might be particularly useful for learning strategic processes as well as grammatical aspects of language. In many of the research tasks used in the study of

negotiation, this reflective, problem-solving orientation is not demanded. The focus is instead on communication where 'attention is principally focused on meaning rather than form' (Nunan 1989: 10). However, it is certainly feasible for a communicative task to be one in which learners communicate about language, in the context of trying to produce something they want to say in the target language.

In sum, collaborative dialogue is problem-solving and, hence, knowledge-building dialogue. When a collaborative effort is being made by participants in an activity, their speaking (or writing) mediates this effort. As each participant speaks, their 'saying' becomes 'what they said', providing an object for reflection. Their 'saying' is cognitive activity, and 'what is said' is an outcome of that activity. Through saying and reflecting on what was said, new knowledge is constructed. (Not all dialogue is knowledge-building dialogue.) In this way, our students' performance outstripped their competence.

From a sociocultural theory of mind perspective, internal mental activity has its origins in external dialogic activity. The data presented in this chapter provide evidence that language learning occurs in collaborative dialogue, and that this external speech facilitates the appropriation of both strategic processes and linguistic knowledge. These are insights that a focus on input or output alone misses.

Notes

- 1 Alister Cumming, Rick Donato, Birgit Harley, Claire Kramsch, Jim Lantolf, Sharon Lapkin, Helen Moore, Steve Thorne, and Gordon Wells have each read earlier drafts of this chapter. I am grateful for their useful and critical comments.
- 2 Ellis, Tanaka, and Yamazaki (1994) claim that they have provided 'the first clear evidence that access to modified input promotes acquisition' (*ibid.*: 481). However, they conclude cautiously as follows: 'Although our studies support a causative relationship between negotiated interaction and acquisition, we acknowledge ... the fact that different aspects of language ... may not be acquired in the same way. Our studies examined only vocabulary acquisition, and only the acquisition of the meaning of concrete nouns. It does not follow that negotiated interaction will promote the acquisition of other aspects of the L2 or even that it is important in other aspects of vocabulary acquisition' (*ibid.*: 482). Since then, several other studies have demonstrated a relationship between negotiating meaning and the acquisition of some particular aspect of language. For example, Mackey (1995) found that negotiation was related to the acquisition of question forms.
- 3 Wertsch and Stone (1985) claimed that 'One of the mechanisms that makes possible the cognitive development and general acculturation of the child is the process of coming to recognize the significance of the

external sign forms that he or she has already been using in social interaction' (*ibid.*: 167). This would seem to be equally so for adults. Consider, for example, the first-time use of a term like 'mediation', and the fully elaborated meanings it may come to have after years of interaction within the discourse communities that use the term.

- 4 Bereiter (1994) proposed the term 'progressive discourse' for dialogue in which 'understandings are being generated that are new to the local participants and that the participants recognize as superior to their previous understandings.' (*ibid.*: 9).
- 5 Alister Cumming (personal communication, June 1998) suggested the term 'purposeful language production'.
- 6 Possibly the subsequent writing of their joint product supports the process of internalization/appropriation (Donato, personal communication, June 1998).
- 7 The use of the first language to mediate second language learning creates a situation where the use of language as a mediating tool is particularly clear. Notable examples appear in Brooks and Donato 1994; Brooks, Donato, and McGlone, 1997; Antón and DiCamilla 1998; Swain and Lapkin 1998.
- 8 Talyzina discussed a stage which occurs between the external speech stage and the final mental stage. That stage, 'an external unvoiced speech stage', appears to be a transition between the other two stages during which external speech goes 'underground'. It is the beginning of inner speech, the final mental stage.
- 9 As Helen Moore pointed out (personal communication, June 1998), a lot of teacher educators would say that the focus on form seen in this dialogue would be inhibiting. Perhaps what is key are (a) roles (may work better with peers than with teachers) and (b) goals (T and R may see the activity as an opportunity to socialize; S and G see the activity as a learning exercise, not a socializing one).
- 10 S's comment makes clear the difficulty of focusing on both 'saying' and 'what was said' simultaneously.
- 11 Birgit Harley (personal communication, April 1998) and Helen Moore (personal communication, June 1998) wondered whether the focus on language detracted somewhat from content. Perhaps it did (tests only measured the accuracy of verb use), but it is clear that it did not detract from the students' engagement with the task. Furthermore, in an informal analysis that Pauline Gibbons conducted (personal communication, April 1998), more language functions are apparent in Example 4 compared to Example 2.