Negative Feedback as Regulation and Second Language Learning in the Zone of Proximal Development

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SINCE THE LATE SIXTIES AND EARLY SEVenties, with the ground breaking publications of Pit Corder, Burt and Kiparsky, George, and Richards (14), one of the central themes of second language research has been the study of learner errors as a reflection of hypothesis testing on the part of second language learners (8; 15; 20; 23;).[1] Eventually, the attention of those working on learner errors has moved away from the analysis of errors in their own right as indications of hypothesis testing and interlanguage development to concern with questions relating to the potential effects of corrective procedures on language learning. The fundamental question is: does error correction lead to learning, or are corrective moves by teachers or other caretakers ineffective? In addition, some corollary questions have also been addressed, including how and when errors should be corrected (7: p. 135).

Research aimed at answering these questions has been carried out in either an ethnographic or an experimental framework.[2] Those working within the ethnographic approach have conducted careful observational studies of corrective behaviors both in the classroom and natural settings involving teachers, learners, peers, native and non-native speakers (7; 8; 17; 22; 24; 36). This research has shown, among other things, that corrective feedback may be message-focused or code-focused; that it may be self- or other-initiated and self- or other-completed; that corrective feedback may occur implicitly in the form of comprehension and confirmation checks, recastings and the like, or explicitly in the form of provision of the correct form by teacher, peer, or native interlocutor; that it may be accompanied by an explanation, especially in the classroom setting; and, that in the classroom setting more attention is apparently given to discourse and content errors than to either lexical, grammatical, or phonological errors (7: p. 141).

Despite the informative findings that have emerged from the ethnographic tradition, this research has not established a strong empirical link between corrective feedback and interlanguage development. Some authors, such as van Lier (p. 182), argue that correction is "an important variable in language learning" and further *assume* it to be a necessary, though not a sufficient, condition for learning a second language. Others, like Chaudron, are less sanguine, pointing out that research on error correction both in and out of the classroom setting has uncovered inconsistencies, ambiguities, and a general ineffectiveness in terms of its effects on language learning (7: p. 145). Chaudron then calls for "longitudinal research . . . to determine the extent of learning possible from feedback" (7: p. 152).

The experimental approach to the study of error correction, deriving much of its impetus from the L2 research informed by Universal Grammar (UG), has squarely confronted the most fundamental of the above questions: Does negative feedback lead to L2 learning? Research on this question has been spurred, in part, by the claim that error correction is apparently neither a necessary nor a sufficient condition for L1 learning in children (e.g., 2; 44; 45). The controversy that has arisen in the experimental L2 literature is whether we can assume

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the same situation to hold for adult L2 learning as seems to be the case for child L1 acquisition with regard to error correction, or whether adults require corrective feedback (as van Lier assumes) in order to successfully project a grammar of their L2.

The experimental research on error correction, unlike its ethnographic counterpart, has generated some positive findings on the interrelationship between negative feedback and learning. A series of recent studies (5; 6; 21; 23; 32; 34; 35), for example, has demonstrated that L2 learners provided with corrective feedback do indeed outperform control groups given minimal or no negative input. DeKeyser somewhat pessimistically concludes, however, that although error correction results in some performance improvement for some learners, it fails to achieve much in the way of across-the-board impact on learning (p. 504 and p. 510). In his study of high school L1 speakers of Dutch learning French, DeKeyser (p. 511) uncovered no main effects for error correction but did find interaction effects between such factors as previous experience, aptitude, motivation and anxiety, and feedback.

DeKeyser is hardly alone in recognizing that corrective feedback, if it is to have any impact on learning, has to in some way be attuned to the individual learner. Birdsong (p. 150), for example, in reviewing the research on error correction in L2 learning, concludes that negative evidence might be a question of "individual and/or situational variation." Day, et al (p. 143) suggest that learner personality may have something to do with "the amount and type of correction supplied" by the teacher (p. 43). Sharwood Smith (30; 31) and Schachter argue that learners' internal strategies and linguistic development may play an important role in determining the effectiveness of negative feedback and recommend that these should be investigated in greater depth than they have to the present time. Finally, Spada and Lightbown (p. 219) wonder "whether different types of error correction strategies are more effective at different times in learners' development . . . and whether teachers go through different phases in their error correction behaviors depending on their perceptions of learners' development."

As we will argue on the basis of the evidence to be considered below, while error correction ultimately comes down to adjusting feedback to the individual learner, adjustments cannot be determined a priori; rather, they must be collaboratively negotiated on-line with the learner. How the negotiation process unfolds and how it leads, or fails to lead, to L2 development forms the principal aim of the present paper. Although the findings of both ethnographic and experimental research on corrective feedback have been informative, we are still a long way from a full understanding of how feedback interacts with the L2 learning process. From the experimental studies we have some evidence, DeKeyser's doubts notwithstanding, that corrective feedback appears to enhance learning. We must bear in mind, however, that controlled experimentation, as informative as it may be, really tells us little about how individuals react to and use, or fail to use, feedback to change their interlanguage. The ethnographic research, on the other hand, has provided fairly rich information about the nature of the feedback processes at the local level, but it has not provided us with much evidence of if, and how, these processes result in learning. What is missing is a way of linking learning outcomes with specific feedback procedures. We hope the research to be discussed below will serve as an initial step in this direction.

As for the corollary questions, Chaudron (7: p. 152), for one, points to the need to determine "the types of feedback that would best succeed in promoting progress in the target language." In this regard, Carroll and Swain (p. 361), report that learners who received explicit correction procedures, defined as any feedback that "overtly states that a learner's output was not part of the language-to-be-learned," generally performed better on their experimental tasks than those learners given implicit feedback, construed as any instance of feedback from which learners have to infer that their linguistic performance was inaccurate (e. g., confirmation checks, failures to understand, and requests for clarification). Carroll and Swain reason that explicit feedback might have been more beneficial because it identifies the precise location and nature of erroneous performance, while implicit negative correction, requires the learners to engage in a good deal of mental guesswork.[3]

As encouraging as the results of such research are, it would be premature to conclude, and we are not implying that Carroll and Swain do, that explicit feedback will always and everywhere have the upper hand over implicit correction. Our claim, to be fleshed out below, is that both kinds of feedback are relevant for linguistic development, but their relevance must be negotiated between the novice learner and

the expert knower of the language. In other words, in some cases implicit correction is sufficient to promote learning, while in others, it is not, and in such cases, explicit feedback is the only type of correction that will elicit a reactive response from the learner. As we will argue, the relevance of the type of feedback offered (as marked by a learner's reactive response to the feedback) is as important an index of development in a second language as are the actual linguistic forms produced by the learner.

THE ZONE OF PROXIMAL DEVELOPMENT AND MICROGENESIS IN L2 LEARNING

The data to be considered in this paper are taken from a larger study on the interaction of error correction and learning which itself is the first study we are aware of that attempts to investigate the correction/learning interface longitudinally from within a theoretical, rather than from a phenomenological, stance. The framework to which we refer is that developed by Lev S. Vygotsky (37), his colleagues, and followers that has come to be known as the sociocultural theory of mind. In particular, we rely on Vygotsky's notion of *zone of proximal development* (ZPD) to analyze the interaction between error correction and the learning process as it unfolds during the dialogic activity collaboratively constructed by learner and tutor.

A fundamental tenet of sociocultural theory is its thesis that human mental activity is essentially a mediated process in which symbolic, and socioculturally constructed, artifacts, the most pervasive of which is language, play an essential role in the mental life of the individual. Hence, linguistic activity, including speaking and writing, is an indispensable component of such mental operations as voluntary memory, voluntary attention, planning, monitoring, the formation of intentions, rational thought, and learning. Furthermore, these processes are inherently social in origin and their development in children proceeds from the social, or intermental domain, to the individual, or intramental domain, as a consequence of the linguistically mediated interaction which arises between children and other, often more experienced, members of their sociocultural world, including parents, teachers, siblings, older peers, etc. According to Vygotsky, the ontogenesis of mental functions is captured in the *genetic law of cultural development* as follows: "every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first between people (interpsychological), and then inside the child (intrapsychological)" (39: p. 57).

Central to the evolution of external, or social, functions into internal, or mental, functions is the process of *internalization,* or more properly for sociocultural theory, *appropriation* (26: p. 64). Zinchenko (p. 106) refers to this process as "the bridge between external and internal activity." Critically, appropriation does not simply reproduce the mental activity of another individual; rather, it "transforms the process itself and changes its structure and functions" (38: p. 163). Sociocultural theory, then, insists that internal and external functions are related, while at the same time rejecting any presumption that one is simply a copy of the other (46). The study of development, then, for sociocultural theory, is the study of how mediational means are appropriated by the individual as a result of dialogic interaction with other individuals.

Importantly, the appropriation process is not only observable during ontogenesis of children into adults, but also during microgenesis in which processes undergo change "right before one's eyes" in the space of a few days or week, or even a few seconds, or fractions of seconds (39: p. 61). Research that overlooks microgenetic growth often fails to detect what is often the most interesting and informative data on learning and mental activity (41: p. 55). It is in microgenesis that we will search for evidence on the interaction between error correction and L2 learning.

The transition from inter- to intramental functioning, whether in ontogenesis or microgenesis, is a dynamic process of reconstruction and qualitative change in which the novice and the expert collaborate in constructing a mutual activity frame. This activity frame, or ZPD, represents a crucial move by Vygotsky to link his theoretical concepts with practical psychological and educational problems. In formulating the concept of the ZPD, Vygotsky was critical of psychological and educational practices which assess development and guide educational intervention solely on the basis of the level of individual, independent functioning. Instead, he insisted that two developmental levels of the individual must be taken into account: the actual developmental level, "established as a result of certain already *completed* developmental cycles" (39: p. 85), and the level of potential development, the level at which the individual functions with assistance from, or in collaboration with, more experienced members of society.

According to Vygotsky, the potential level of development varies independently from actual development and is more indicative of mental growth than actual development. Thus, for instance, two individuals who achieve the same score on a given test, language or otherwise, may not both be able to make use of the help offered by a tutor (e.g., teacher or other student) to generalize their learning to novel circumstances (4). In Vygotsky's view, the learner who is able to respond to such help must be considered to be at a more advanced developmental level than the one who fails to do so, because the learner who responds to help can be expected to show a more rapid rate of actual development. Specifically, then, the ZPD is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (39: p. 86). The actual level of development defines development "retrospectively" (39: p. 87), while the ZPD defines development "prospectively" (ibid).[4]

The ZPD is the framework, par excellence, which brings all of the pieces of the learning setting together—the teacher, the learner, their social and cultural history, their goals and motives, as well as the resources available to them, including those that are dialogically constructed together. Indeed, Vygotsky draws attention to the utility of the ZPD as a tool for the researcher to explore and come to an understanding of the internal course of development when he states: "By using this method we can take account of not only the cycles and maturation processes that have already been completed but also those that are currently in the state of formation, that are just beginning to mature and develop" (39: p. 87).

Mechanisms of Effective Help in the ZPD. On the basis of Vygotsky's statements and the empirical and theoretical work of contemporary sociocultural researchers (9; 42), specific mechanisms of effective intervention within the ZPD can be identified. First, intervention should be *graduated.* Help provided by a more experienced member in a joint activity is designed to discover the novice's ZPD in order to offer the appropriate level of assistance and to encourage the learner to function at his or her potential level of ability. The purpose here is to estimate the minimum level of guidance required by the novice to successfully perform a given task. Help, therefore, normally starts at a highly strategic, or implicit, level and progressively becomes more specific, more concrete, until the appropriate level is reached as determined by the novices response patterns to the help.[5] Second, help should be *contingent,* meaning that it should be offered only when it is needed, and withdrawn as soon as the novice shows signs of self-control and ability to function independently. Research by Wertsch and his colleagues (41–43), for example, has shown that children often overtly reject help offered by parents once the children realize that they are capable of carrying out a task alone.

Graduation and contingency work in tandem in such a way that the expert, together with the novice, tries to discover the ZPD of the novice in order to determine if help is required and if it is, to jointly work out the appropriate level at which to provide it. The process is thus one of continuous *assessment* of the novice's needs and abilities and the *tailoring* of help to those conditions. This process can be accomplished only through the collaborative interaction of the expert and the novice, which brings us to the third mechanism of help in the ZPD. Discovering the potential developmental level of the novice and providing appropriate help accordingly is at its core—a *dialogic* activity that unfolds between more capable and less capable individuals. Dialogue is an essential component of Vygotskyan theory (40; 41), and hence of the ZPD. Without dialogic negotiation, it is virtually impossible to discover the novice's ZPD (42).

THE STUDY

We now consider some of the findings of a study designed to investigate the effects of negative feedback, or more appropriately within sociocultural theory, other-regulation, on the microgenetic development of a second language among adults. Since the full study from which this paper is drawn is quite extensive in the scope of its findings (1), we will have to limit our analysis here to only some of the data that illustrate how the negotiation of corrective feedback, or other-regulation, in the ZPD promotes learning.[6]

Subjects. As an initial endeavor to investigate second language learning in the ZPD, we decided to rely on written texts rather than oral production, not only because we felt written performance would expedite data collection, but also because we thought it would facilitate the interaction between the expert (researcher) and the learners. Consequently, the project in-

volved students enrolled in an eight-week second level (the most advanced level being 6) ESL writing and reading course offered by the English Language Institute of the University of Delaware. Although a total of nine students participated in the full study, only the three who were in the ZPD group are considered here. Since it was necessary for this group to take part in one extra tutorial per week with one of the researchers outside of their five weekly classroom meetings, the course instructor asked for volunteers, informing the students that they would receive one free tutoring session per week and would be helping the tutor/researcher in a study of how language teachers can help learners. They were given no additional information relevant to the nature of the research project. Since all of the students volunteered, the teacher randomly selected three individuals for the ZPD group—one Japanese (Y in the protocols), one Spanish (N in the protocols), and one Portuguese (F in the protocols) speaker. Two of the students (Y and F) had been in the US for two months and one (N) had resided in the country for six months at the time of the study. All were female.[7]

Procedures. As part of the course syllabus, students were expected to write one in-class essay per week on a topic of their choice for a total of eight compositions. The learners in the ZPD group were informed that they would receive corrective feedback during their tutorials with the researcher and not from their instructor. The tutorials were conducted in a one-on-one format in the tutor's office. Each session lasted thirty to forty-five minutes. All sessions were audiotaped in their entirety for later analysis.

The students' first composition was not corrected. It was used to develop an initial profile of the learners' grammatical competence and to determine, to some extent at least, likely problem areas. Although learners were given help during the tutorials on a variety of errors, for purposes of analysis, those structures that had a high probability of recurrence in subsequence essays were selected. Four grammatical features met our—admittedly less than rigid—criteria: articles, tense marking, use of prepositions, and modal verbs. Since this was a writing and reading course, the particular instructor did not believe it necessary to provide much in the way of explicit formal instruction on the grammatical properties of English. On occasion, however, he did answer grammatical questions posed by the students on a wide array of topics.[8]

Prior to each tutorial, the tutor read each essay in order to detect problems, but it is important to note that at this point he made no attempt to prepare a specific set of corrective procedures to be followed with the student. Corrective procedures in the ZPD must be negotiated between the novice and the expert. The idea is to offer just enough assistance to encourage and guide the learner to participate in the activity and to assume increased responsibility for arriving at the appropriate performance. One simply cannot determine this beforehand, without compromising the potential that joint activity in the ZPD has to promote learning. The expert, however, must try to be sensitive to the learners' actual level of competence, and in Wertsch's (41: p. 176) terminology, "lure" them into functioning in an appropriate way without making the task frustrating. Before beginning the collaborative phase of each tutorial, in each case the learner was asked to read her essay, underline whatever errors she could find, and correct whatever she could. During this time, the tutor was present, but was busying himself with other tasks. When the learner indicated that she had completed the reading and error correction process, the tutor joined her and collaborative correction began. In the following paragraph we outline a generalized schemata of a prototypical tutorial; however, as the protocols taken from the actual tutorials show, things did not usually proceed quite so smoothly and the interactions were often quite complex.

At the outset, the tutor asks the learner if she encountered any errors during her private reading of the essay. If the learner identifies any mistakes but fails to correct them, or does so erroneously, they are dealt with as the pair considers each sentence of the essay. Whenever a target error is discovered or whenever the learner asks a question about some aspect of the composition, the reading process halts and the correction process begins. The tutor directs the learner's attention to a particular sentence containing an error and asks a general question of the type: "Do you notice any problem, or is there anything wrong in this sentence?" If this strategy fails to produce a response, the learner's attention is then narrowed to the line or phrase in which the error appears, using an utterance such as: "Is there anything wrong in this line or segment?" If this also fails to prompt a response, a more explicit strategy is adopted. Thus, help is increasingly elaborated until the learner shows signs of responsiveness toward the error at hand. If the narrowing strategy also fails, a spe-

cific clue is offered which indicates the nature of the error, for example: "Pay attention to the tense of the verb." If the subject is still unable to recognize the error, the tutor identifies it and the learner is asked to correct it. If the learner fails here, the tutor moves to even more direct forms of regulation, such as "Use the past participle of the verb." If this also produces no response, clues about the correct answer are given. Finally, if this produces no responsive action from the learner, the tutor provides the correct answer. This is accompanied by a brief grammatical explanation when the tutor feels it to be helpful.

Developmental Criteria. Two criteria were used to determine the microgenetic growth of the learners' interlanguage. The first, a more traditional product-oriented criterion, was to search for signs of improvement in the subjects' use of the relevant linguistic features in subsequent essays. Here concern focused on a reduction in frequency or complete eradication of those errors as well as on the generalization of learning beyond the specific cases for which the learner had received help.[9]

The second criterion is, we believe, quite distinct from anything reported in the L2 literature to date, and this is a criterion that falls naturally out of learning in the ZPD—does the learner show signs of movement away from reliance on the tutor, or *other-regulation,* and towards reliance on the self, or *self-regulation*? This was determined by the *frequency* and *quality* of help that the learner elicited from the tutor in the correction of the same error in subsequent episodes in the same tutorial session and in subsequent tutorials dealing with new compositions. More specifically, we observed five general levels of transition from intermental to intramental functioning as the learners moved through the ZPD toward self-regulation and control over the target structures. These levels loosely parallel the transitional stages uncovered by Wertsch and his colleagues for child development (42, 43).[10] The levels are characterized by varying instantiations of three parameters, namely, need for *intervention, noticing* an error, and *correcting* the error.

Level 1. The learner is not able to notice, or correct the error, even with intervention from the tutor. At this level, the learner does not have a sufficient basis from which to interpret the tutor's moves to provide help, and probably has no awareness that there is even a problem. The tutor, therefore, must assume full responsibility for correcting the error. Thus, rather than providing corrective help, the tutor's task is to bring the target form into focus and, in so doing, begin the process of co-constructing the ZPD with the learner.

Level 2. The learner is able to notice the error, but cannot correct it, even with intervention. This indicates some degree of development, but more importantly, even though the learner must rely heavily on the tutor, in contrast to level 1, an opening is provided for the tutor and the learner to begin negotiating the feedback process and for the learner to begin to progress toward self-regulation. The help required tends to be toward the lower, explicit, end of the regulatory scale given in Figure I below.

Level 3. The learner is able to notice and correct an error, but only under other-regulation. The learner understands the tutor's intervention and is able to react to the feedback offered. The levels of help needed to correct the error move toward the strategic, implicit, end of the regulatory scale.

Level 4. The learner notices and corrects an error with minimal, or no obvious feedback from the tutor and begins to assume full responsibility for error correction. However, development has not yet become fully intramental, since the learner often produces the target form incorrectly and may still need the tutor to confirm the adequacy of the correction. The learner may even reject feedback from the tutor when it is unsolicited (e.g., "Let me see if I can do it alone").

Level 5. The learner becomes more consistent in using the target structure correctly in all contexts. In most cases, the individual's use of the correct target form is automatized. Whenever aberrant performance does arise, however, noticing and correcting of errors do not require intervention from someone else. Thus, the individual is fully self-regulated.

The five transitional levels represent, then, three general stages of development. The first stage, encompassing levels 1 through 3, represents other-regulation in which the learner must rely in some way on another individual in order to perform. Without help from someone else, the individual is not able to notice or correct his or her errors. The next stage is partial self-regulation, encompassing level 4. At this stage learners are fully capable of detecting and correcting their own mistakes without outside feedback; their performance, however, is not automatized. The third, and final developmental stage, is that in which the learners' performance, including corrective behavior, is com-

pletely self-generated and automatized and mistakes emanate from legitimate slips of the tongue, or the pen, rather than from incomplete learning.[11]

Figure I presents a listing of the levels of help, or regulation, that were identified in the analysis of the interactions that occurred during the tutorial sessions. The levels are arranged from what we consider to be the most indirect, or implicit (lower numbers), to the most direct, or explicit (the higher numbers). We point out that the levels were not determined in advance of the study. Moreover, except for level 0, they were not rigidly followed in every case. In any particular instance of corrective intervention, the collaborative work of both participants determines the level of assistance to be invoked, if one or more levels will be skipped, where to stop and allow the learner to assume responsibility, and when to withhold assistance. Thus, microgenetic development, according to our second criterion, is evidenced whenever the negotiated feedback moves from the bottom to the top of the regulatory hierarchy.[12]

FIGURE I
Regulatory Scale—Implicit (strategic) to Explicit

0. Tutor asks the learner to read, find the errors, and correct them independently, prior to the tutorial.
1. Construction of a "collaborative frame" prompted by the presence of the tutor as a potential dialogic partner.
2. Prompted or focused reading of the sentence that contains the error by the learner or the tutor.
3. Tutor indicates that something may be wrong in a segment (e.g.,sentence, clause, line)—"Is there anything wrong in this sentence ?"
4. Tutor rejects unsuccessful attempts at recognizing the error.
5. Tutor narrows down the location of the error (e.g., tutor repeats or points to the specific segment which contains the error).
6. Tutor indicates the nature of the error, but does not identify the error (e.g., "There is something wrong with the tense marking here").
7. Tutor identifies the error ("You can't use an auxiliary here").
8. Tutor rejects learner's unsuccessful attempts at correcting the error.
9. Tutor provides clues to help the learner arrive at the correct form (e.g., "It is not really past but some thing that is still going on").
10. Tutor provides the correct form.
11. Tutor provides some explanation for use of the correct form.
12. Tutor provides examples of the correct pattern when other forms of help fail to produce an appropriate responsive action.

DATA ANALYSIS

Before considering protocols that illustrate how microgenesis arises through intervention in the ZPD, we will look at some protocols which demonstrate how feedback is negotiated in the ZPD in terms of the regulatory scale given in Figure I. Errors for which implicit strategic feedback proved to be effective are considered to be high in ZPD (e.g., level 1, 2, 3), since the learner is close to independent performance, while those that require explicit feedback are said to be low in the ZPD (levels 10, 11, 12), because the learner is further away from producing the correct form without help.

The Collaborative Frame as a Source of Feedback. Levels 1 and 0 on the scale entail the same surface behavior; that is, reading of the essay by the learner. At a more abstract level, however, they are quite different—the difference being that the reading at level 1 takes place when the tutor and the learner are in a collaborative posture, while at Level 0 the expectation is that the learner is to rely on herself. Level 1, therefore, marks the beginning of the collaborative interaction, while level 0 is outside of the collaborative frame. A shift in orientation thus brings with it a source of regulation that was not available to the learner before. The *presence* of a dialogic partner helps the learner in a subtle, though significant, way. It represents the minimal form of otherderived help available to the learner in the activity of error correction. In point of fact, however, even though Level 0 is noncollaborative, it can not legitimately be construed as nonsocial activity. It is clearly social, since, for one thing, the learner undertakes to correct her composition at the request of the tutor; thus, this activity is situated within the larger event of error correction, which begins when the student enters the tutor's office.[13] Thus, even though the tutor and student may be doing different things at Level 0, the activity of searching for errors is still social, but it need not be collaborative. We examine protocol (A), as an illustration of how this strategic form of regulation functions.

(A) *N3**
1. N: "It's a little difficult for me"
2. T(utor): uhum

3. N: Is good?
4. T: It's good
5. N: To tell you
6. T: uhum
7. N: Or tell to you said to you
8. T: To tell to tell you is fine
9. N: To tell you where or what . . .
10. T: Or ah okay to tell you
11. N: "Where or what will I do ten years later"
12. T: Okay
13. N: Okay?
14. T: That's good
15. N: "But I will try explain to you" . . . *To* is right here?
16. T: aah, yeah
17. N: Is right?
18. T: Uhum, it's right
19. N: Okay
20. T: Yeah, "I will try to . . ."
21. N: Okay, "to explain . . ."
22. T: To explain
23. N: "To explain to you something about [I prefer "about" no] *of* my
24. inquietudes, about some inquit . . . inquit . . ."
25. T: Okay, what is inquietudes?
26. N: I think this is Spanish (laughs)

* The capital letter is the learner's initial (N=Spanish L1; Y=Japanese L1; F=Portuguese L1). The number following refers to the tutorial session from which the protocol is taken. The text in quotes indicates reading of the essay.

In protocol (A), the learner, with self-initiation and self-correction, replaces the preposition *of,* which she originally used, with the more appropriate "about" in line 23. She also offers a number of clarification questions and confirmation checks in lines 3, 7, 13, 15, and 17. She had two prior opportunities to detect errors in her essay, once on reading it prior to coming to the tutor's office and once on reading it in the office before the tutorial began. When asked if she had found any errors, she replied that she had not.

The question, then, is what triggers her attempts at self-correction? To be sure, they are initiated by the learner, *but* in the presence of the expert tutor. When the learner read and searched for errors in her essay on her own, the tutor was busying himself with something else and was, therefore, ostensibly unavailable as a collaborator. When the two came together into a social configuration in which the tutor assumed the role of dialogic partner, the learner's orientation toward the task of finding errors in her essay changed. This is important, because, although it may seem as if the learner continued to act alone, she did not. We refer to the help triggered by the dialogic presence of another, more expert, individual as *the collaborative frame.* The collaborative frame seems to mark a situation as one in which correction is to occur, even prior to any overt move on the part of the tutor, and thus represents the miminal level of contingent help available to the learner in the ZPD.

The learners' utterances during the tutorial interaction provide clear signs of the effect of the collaborative frame as a source of implicit corrective feedback. In Protocol (A), for example, the learner clearly seems to recognize the potential that the tutor's presence has for testing and confirming her hypotheses. Although she correctly uses the verb *tell* with the indirect object in line 5, in line 7 she volunteers another way of using the verb as well as an alternative construction with *said.* This is significant because in earlier tutorials she had received feedback regarding her incorrect omission of the preposition *to* with the verb *said* and similar verbs before indirect objects as in "I have said you." She offers the correct form of the construction juxtaposed to the verb *tell,* where she appears to be engaged in testing and reformulating her hypothesis about the use of these verbs and the preposition. Importantly, in line (15) she is able to generalize what she has learned in the earlier interaction to the verb *explain.* She is not fully confident, however, and asks for confirmation from the tutor (lines 15 and 17). Generally, this learner shows an orientation toward joint activity that is markedly different from working alone, or even with the tutor physically present but not part of the collaborative dyad.

Some learners, in fact, openly commented on their inability to notice errors when working on their own, as protocol (B) illustrates.

(B) *Y1*

1. T: Yeah, you spent time with us. Okay "and I passed over year with
2. my family." Okay, here, is there anything wrong here ? "and"
3. passed . . . over . . . year . . . with my family."
4. Y: (very softly) passed over *a* ?
5. T: Okay, the article . . .
6. Y: uha I forget this mmm

7. T: Yeah. "pass over *a* year." Okay. It's . . .
8. Y: But I don't notice by myself

First of all, in protocol (B) the learner is able to find and correct the error on the basis of the level 3 help provided by the tutor. In line 8, importantly, she openly states that she was unable to notice the error by herself during the prereading. We believe her use of "but" is especially revealing because it may indicate a sense of frustration at not being able to detect the mistake on her own, even though she had been explicitly instructed to do so. She clearly seems to recognize the difference between the two activities—the individual working alone and the individual working jointly in the collaborative frame—and further realizes that, at this point at least, she is not able to provide corrective feedback for herself. The fact that the tutor is not just present in the room, but is acting as a collaborator in the correction process, compels the learner to orient to the activity differently, thus enabling her, with some help, to detect a feature of the L2 that she had taken in earlier but had not yet fully appropriated. Thus, in some cases-and as far as we can tell these are not predictable in advance-the simple act of establishing the collaborative frame is an effective form of other-regulation.[14]

Different ZPDs for Different Learners and Different Structures. An important dimension of the negotiation of feedback and microgenesis in the ZPD for which we have uncovered clear evidence is that different learners often have different ZPDs for the same target language form and will therefore require different levels of help. It is important to remember that all three learners under consideration in this study had been placed into the same class on the basis of a placement exam. This is an important point because, as the reader will recall from our earlier discussion of Vygotsky's formulation of the ZPD, no matter how sophisticated our assessment instruments may be, we cannot arbitrarily assume that any two learners who attain identical scores on a test are necessarily at the same stage in their interlanguage growth, if all that we assess is their actual developmental level. It is imperative to assess the learners' potential level of development as well.

The examples that follow illustrate how the same error made by different learners, more often than not, represents different problems for each learner, and consequently requires different levels of regulation from the tutor. Protocols (C) and (D) entail the same error made by two different learners regarding use of the definite article with USA.

(C) *N1*

1. T: okay in this, okay, "Although I was preparing my travel to
2. USA, with some time almost always we have some thing to do
3. in the last." Do you . . . is there . . . do you see any thing
4. wrong here in this line here ? "Although I was preparing
5. myself"
6. N: I don't know !
7. T: Okay, "Although I was preparing my . . . travel to USA" okay aah
8. N: long travel
9. T: Okay, you say "preparing my . . ." instead of travel . . . what's
10. a better word to use ?
11. N: Trip
12. T: Okay
13. N: Is better trip ?
14. T: Okay. Yeah "preparing my trip," okay. There is also something
15. wrong with the article here. Do you know articles ?
16. N: Articles, yes
17. T: Yeah so what's . . .
18. N: eeh on my trip to . . .
19. T: What is the correct article to use here ?
20. N: Isn't *to* is . . . no . . . eeh . . . article ?
21. T: What is the article that we should . . .
22. N: *It*
23. T: No. Article . . . you know the articles like *the* or *a* or *an*
24. N: The trip . . . my, is not my ? no . . . the trip ?
25. T: My . . . yeah it's okay, you say my trip
26. N: My trip
27. T: Okay
28. N: To United States
29. T: Yeah USA, what article we need to use with USA ?
30. N: *a, an, the*
31. T: *the,* which one ?
32. N: but *the* ?
33. T: Okay, do we use *the* . . . ah preparing my trip to . . . *the* USA?
34. N: aaah ah (utters something in Spanish) ah okay when I use when I use USA use with article
35. T: Okay
36. N: The

(D) *F1*

1. T: "In the same day I mailed them . . . to . . ." okay alright. What
2. about also . . . is there some thing else still in this
3. sentence ?
4. F: To the
5. T: hum ?
6. F: The
7. T: Okay, "to the" . . . yeah, "to the US."

On the face of it, both N and F produced the same error in their respective compositions: omission of the article with US. When we examine the interaction that transpired in the two protocols, however, a more informative picture emerges. While in (C) a wide range of help is necessary before the learner even begins to realize what the problem is, in (D) simply reading the sentence containing the error (line 1) and suggesting that something is wrong (lines 2 to 3) is sufficient for the learner to notice and correct the mistake.

In terms of the regulatory scale, for learner N, all levels of feedback are used, but for learner F, only levels 1 and 2 are needed. Thus, the same feature represents two different ZPDs for the two learners. In the case of F, the feature is high in the ZPD and the learner is very close to being able to control the feature by herself. In the case of (N), on the other hand, the same feature is low in the ZPD and prospects are that she will continue to need fairly explicit help. Hence, we cannot assume that the error represents the same problem for each learner, because the learners each produce it from a different location in the ZPD.

The protocols given in (E) and (F) further exemplify our point with regard to the importance of linking appropriate forms of corrective feedback to the individual learner's responsive moves.

(E) *N3*

1. N: Okay . . . "I would like spend in . . ."
2. T: Okay ?
3. N: Spend . . .
4. T: Read again
5. N: uhum " I would like to spend"
6. T: Okay, you're missing *to* here
7. N: "To spend in United States two or three years."

Upon reading her composition at the outset of the interaction (line 1), the learner does not notice her omission of the infinitive particle *to.* In this case, the collaborative frame, which was effective in triggering a responsive action from the same learner in protocol (A) for the preposition *to,* is not effective here when *to* functions as a particle. Therefore, the tutor is actively drawn into the correction process. His initial attempt at providing help is strategic, as he signals through his intonation alone (line 2), that something is amiss. The learner immediately locates the apparent source of trouble in line 3 and at the tutor's recommendation, she rereads the phrase and incorporates the correction. The tutor then confirms the correction.

Finally, we consider protocol (F), in which the tutor attempts to elicit from learner Y the missing preposition *to* in a locative clause.

(F) *Y3*

1. T: Okay. "After I will study in Boston for nine months, I'll return
2. my country." What do you mean "after" here ? Do you mean
3. after this (referring to previous paragraph) or after . . .
4. you study nine months you go back ?
5. Y: Yes, after nine months I mean
6. T: Uhum
7. Y: After nine months
8. T: After nine months you go . . .
9. Y: "I'll back my country"
10. T: You will back
11. Y: "I will be back my country . . ."
12. T: Okay, "After I will study in Boston for nine months [ah . . .
13. (softly)] nine months, I'll return my country." Okay, what
14. is . . . do you think . . . is there anything missing here ?
15. "I'll return my country . . ."
16. Y: Return *to* ?
17. T: Okay

In (F), the sentence containing the error is read a number of times. On some of these readings, the location of the error is narrowed by focusing on the phrase where the preposition is expected to appear; yet, the learner still fails to notice that something is missing. Only when the tutor explicitly points out the precise location of the problem and asks if something is missing (lines 14 and 15) is a responsive action from the learner triggered (line 16). It is evident that the subtle sources of feedback that were successful with learner N in protocol (E) are not helpful for learner Y. She clearly needs more explicit

help to correct the error, which comes in the form of a narrowing down of the location of the error and explicitly indicating that something is missing.

Microgenesis in the ZPD. Now that we have some feel for how feedback is negotiated in the ZPD, we can consider how development arises as a result of corrective help. To do this we will present some sample protocols which illustrate the impact of feedback on microgenesis within a particular tutorial, as well as across tutorials. In each case we will be looking for changes from intermental, or other-regulated performance, to intramental, or self-regulated performance, as well as for the learners' ability to generalize what they appropriate in one linguistic context to other relevant contexts. We begin with protocol (G), which elucidates the microgenetic process for the modal *can* across episodes in the same tutorial.

(G) *N3*

1. T: "To Germany." Do you see anything also wrong here ? "my future is
2. can go to Germany" . . . What about the use of the auxiliary
3. verb here ?
4. N: Is . . . is . . .
5. T: Is can go ?
6. N: Is can go
7. T: Do you see something wrong here ? How to say it ?
8. N: No, I don't know
9. N: Okay, how how to use . . .
10. N: Is will go
11. T: "One of my dreams for my future is . . ." (rising intonation)
12. N: Will go ?
13. T: No (lengthened vowel) . . .
14. N: No
15. T: Okay, is . . . what . . . ?
16. N: Is . . .
17. T: To go
18. N: To go not "can" ?
19. T: Yeah, because you have here, like . . . this is an auxiliary and
20. this is another auxiliary or modal . . .
21. N: Yeah
22. T: So you have them together . . .
23. N: Yes, because I . . . the verb form and two verbs together, yes.
24. T: Yeah, so yeah two verbs together. So . . .
25. N: I know
26. T: One of my . . . is to go to Germany
27. N: Oh my God ! (laughs)
28. T: Okay, "One of my dreams for my future is to go . . ."
29. N: To go to Germany
30. T: To Germany and . . .
31. N: One we can't do right (laughs)
32. T: No, that's fine. You're doing fine
33. N: Filine ? (laughs)
34. T: Yeah
35. N: No, please, this is very bad (laughs). No very . . .
36. T: Yeah, but I mean you have done a lot of . . .
37. N: This is . . . (laughs)
38. T: Work, you know. Other things are getting better, so . . .
39. N: And a lot of work, no, I don't like this. Why I write bull shit ?
40. I don't like it (laughs)

In protocol (G), the tutor uses several levels of implicit regulation—he reads the relevant sentence, hints at the nature of the error, specifies its location, identifies its nature, and rejects inappropriate attempts by the learner to correct it—but is still unable to trigger an adequate responsive move from the learner. In line 8 the learner overtly states that she does not know how to correct the error, at which point the tutor begins to provide more explicit help and finally, in line 17, casts the verb phrase in its correct form. The learner then finally responds to the tutor's moves and they both engage in a dialogue about the construction, which the learner turns into an opportunity to express her frustration regarding her failure to appropriate the feedback.

A short time later in the same tutorial, the same problem was encountered in the sentence "Another dream mine is can go to Japan," but this time the learner's responsive action is quite different and shows a shift toward self-regulation, as seen in protocol (H).

(H) *N3*

1. N: "Another dream mine is" . . . ah ah amm . . . what? I can change
2. now.
3. T: Okay
4. N: Okay. "Another dream mine is . . . is to go" again
5. T: Okay "is to go . . ."
6. N: "Is to go
7. T: Okay, "Another dream of mine is:" . . . instead of *can,* "to go is to
8. go"
9. N: "is to go to Japan. I think Japan is an interesting country in

10. culture, metho . . . methodology"
methodologia

In (H) the learner displays evidence of appropriation of the help given in the earlier episode presented in (G). We notice a marked reduction in the amount of help needed by the learner to take over and complete the correction. The tutor, in fact, does not have to provide any help for the learner, who is able to self-initiate (line 1) and self-correct the error (line 4), simply on the basis of reading the sentence in the tutor's presence. The learner's metacomments, in our view, provide additional evidence of movement toward self-regulation. In line (1), for instance, she asks herself a question about what she has written ("What?"), which she then proceeds to immediately answer ("I can change now"), indicating that she knows the correct form. She also appears to indicate, by her utterance "again" at the end of line (4), recognition that her error here is the same as her earlier mistake discussed in (G). These utterances, in fact, appear to be *private speech*—speech whose function is not to communicate with someone else but to assist the self in problem-solving situations (37; 40; 41). In terms of our criterion, learner N shows signs of microgenetic development from Level 1 to Level 3, or perhaps even Level 4.

To observe the effects of help on microgenesis across tutorials, we will consider protocols (I) through (K) as the same learner struggles with articles and mass nouns.

(I) *N5*

1. T: Okay, "when we read and think we
2. can write day after day [okay,
3. right] day after day better. [Okay]
4. is we have a good
5. comprehension." Do you see anything here ? "If we have . . .
6. a good comprehension" . . .
7. N: A good comp . . . rehension
8. T: uhum, "if we have . . ." Do you see
9. anything with the article ?
10. N: "If if we have . . . good comprehension"
11. T: Okay, "good comprehension." You
12. know why ? Why we are not using
13. a ?
14. N: When we read . . . when we . . . if we have . . .
15. T: "If we have good comprehension"
16. N: aah because . . . wh why don't we . . .
17. T: yeah, why don't we use *a* ? Why it's wrong to use *a* ?
18. N: Because is . . . if we have good . . . because is no is no only one.
19. T: Okay
20. N: Is general . . .
21. T: Okay
22. N: idea . . .
23. T: Yeah
24. N: general good comprehension
25. T: Yeah, so it's not also count
26. N: Yeah
27. T: It's mass
28. N: It's mass
29. T: Comprehension. You can't say one comprehension, two comprehensions
30. N: Okay

In (I) the learner uses the indefinite article *a* inappropriately with the mass noun *comprehension.* She relies on the tutor's feedback to generate the correct form of the construction. The tutor does this without having to resort to explicit levels of help, indicating that the general location of the error is sufficient (line 6). At this point, the learner's responsive action is triggered and she is able to assume responsibility for correcting the error. It seems clear, however, that without the tutor's implicit level of intervention the learner would not have noticed the error. Again, in terms of our criterion for development, we can say that the learner is probably at Level 3, since she does notice and correct her error, but only as a result of the tutor's intervention.

Be that as it may, even though N is able to locate and correct her error with implicit help, the tutor apparently feels the need to move to an explicit level of help beginning in line (8) and extending throughout the remainder of the protocol. It could be argued that the tutor engages in such a move in order to determine if the learner understood the generalization at issue and was not just operating locally. Of course, there are other ways of making this determination, such as waiting until the pattern recurs in future performance and observing if it is correctly rendered or if the learner is able to rectify any erroneous patterns that may arise. On the other hand, the tutor's move could simply have been a waste of time, or even worse, it might have resulted in confusion and the jettisoning of a perfectly appropriate hypothesis on article use.

We now consider the protocol given in (J), taken from a later episode during the same tutorial session.

(J) *N5*

1. T: aah and then you can say what ? . . . "the most import . . . is . . .
2. N: (softly) thing
3. T: is to think in the foreign language," right ? "But but [what?]
4. make compositions is difficult because [let me see] . . .
5. because you need to have a good . . ."
6. N: (N crosses out the article *a*)
7. T: Okay, no *a*
8. N: (laughs)
9. T: "because you need to have good grammar, punctuation and . . .
10. perfectly . . ." perfectly ?

In the above episode, the tutor reads the portion of text containing a target error and then pauses just before externalizing the noun. The reading and the pause are sufficient corrective help to elicit the appropriate responsive action from the learner, who immediately proceeds to cross out the indefinite article. Actually, the tutor's pause and N's responsive action in line 6 occur almost simultaneously. Given that the tutor's regulation is situated at the upper end of the Regulatory Scale, it appears that the learner is close to being able to provide corrective feedback for herself and is, thus, developing toward greater independence, or self-regulation. The learner's laughter in line 8 suggests that she is conscious of the error, and that she is consciously providing the correct answer. This level of self-awareness in the process of feedback and error correction is characteristic of the transition from other- to self-regulated performance (16; 33).

Furthermore, it seems that N is able to generalize with regard to the nonuse of articles with mass nouns, on the basis of the feedback given at the outset of the tutorial, protocol (I), to a later point in the same tutorial, protocol (J). Hence, she correctly extends the help given in the case of *comprehension* to *good grammar.* Further extension is observed in the protocol given in (K) taken from the final tutorial for N, which was conducted one week later.

(K) *N6*

1. T: "We can see a grey big layers in the sky with a dense smog" What is . . . do you
2. see anything wrong here ?
3. N: Dense smog with ah heavy or . . .
4. T: That's fine, yeah this is good
5. N: This is good ?
6. T: But what do you see wrong in these two sentences . . .
7. N: Ah just a moment. "We can . . . see we can . . . we can . . . see"
8. T: Uhum
9. N: It . . . grey
10. T: Okay
11. N: Big
12. T: Okay, grey big
13. N: Layers
14. T: Layers
15. N: Layers in the sky
16. T: Uhum
17. N: Because is no one only, is all the . . .
18. T: Layers, it is not singular. Right, that's good
19. N: Grey big layers . . . yes (laughs)
20. T: In the sky
21. N: With . . . dense
22. T: Okay
23. N: (Laughs)
24. T: Dense, that's good
25. N: Dense smoke
26. T: With dense smog
27. N: "Produced by carbon monoxide of the the vehicle."

The learner is immediately able to correct her misuse of the indefinite article with the mass noun *smog* in line 1, thus providing evidence of generalization of feedback across tutorials. Of even more interest is what we observe in lines 6 and 7, where the learner overtly interrupts the tutor's utterance and subsequently inhibits his attempt to offer assistance. In so doing, she assumes fuller responsibility for finding and correcting the error in "a grey big layers."[15] She does this by externalizing her own corrective feedback process beginning in line 7 and ending in line 9 with the correct form, "grey." Finally, in line 17 she externalizes her understanding that the article cannot be used, in this case because the noun with which it co-occurs, *layers,* is singular. Here then we see evidence of psychological, as well as linguistic, development and N shows that she has formed a generalization with regard to nonuse of indefinite articles with mass nouns and with plural count nouns. Moreover, she curbs the offer of help from the tutor and resolves the problem with only minimal evaluative feedback from the tutor.

We will consider three final protocols, in which we observe interaction between the feedback provided by the tutor and the learner's attempt to generalize across episodes as well as

tutorials. While the learner, in essence, has difficulties fully appropriating the help, and thus ultimately fails to generalize across contexts, the interaction between the tutor and the learner stimulated by the failure is quite informative with regard to how generalization occurs. As Vygotsky (39) points out, we often learn more about how a cognitive system operates when we observe it under conditions of failure and breakdown than when we observe the system functioning smoothly. In the protocols, taken from different episodes of the same tutorial and from different tutorials, the tutor and learner attempt to work out the correct tense markings for modal + main verb constructions.

(L) *F1*

1. T: Okay, "to the . . . [yeah] to the US. [Okay] In that moment I can't
2. . . . lived in the house because I didn't have any furniture."
3. Is that . . . what what is wrong with that sentence, too ?
4. What is wrong with the sentence we just read ? . . . "In that
5. moment I can't lived in the house because I didn't have any
6. furniture" . . . Do you see ?
7. F: No
8. T: Okay . . . ah there is something wrong with the verb with the
9. verb tense in this this sentence and the modal . . . Do you know
10. modals ?
11. F: Ah yes, I know
12. T: Okay, so what's what's wrong what's wrong here ?
13. F: The tense of this live
14. T: Okay, what about the the . . . is it just in this or in this, the
15. whole thing ?
16. F: The whole this
17. T: Okay, how do you correct it ? . . . Okay, "In that moment" . . . What ?
18. . . . What is the past tense of can ? what was
19. happening . . . what . . . the past, right ? what was happening
20. . . . what . . . the event happened in the past right ? so what
21. is the past tense of this verb can ? . . . Do you know ?
22. F: No
23. T: Okay, ah could
24. F: Ah yes
25. T: Okay, "I could not . . ."
26. F: Live
27. T: Ah exactly, okay. So when you use this in the past then the second verb is the simple . . .
28. F: yes
29. T: Form, okay . . . aah "in that moment I could not . . ."
30. F: Live in the house

In (L), the learner incorrectly marks the main verb, rather than the modal, for tense. Notice, however, that she correctly marks tense in the case of auxiliary *do* + main verb in line 2. The tutor first asks if the learner can locate her error simply on the basis of his reading the sentence (lines 3 through 6), whereupon the learner responds in line 7 that she cannot. In lines 8 through 10, by explicitly referring to the modal and asking if she knows something about modals (to which he receives a positive response), the tutor subsequently narrows F's search space. He then again asks what is wrong [presumably with the tense of the modal]. The learner, however, responds by correcting the tense of the main verb. The tutor accepts the response, but then refocuses the learner's attention on the full modal + verb construction and asks a series of questions designed to elicit the correct past tense form of the modal. Finally, the learner replies that she does not know the past tense of *can,* and so as a result the tutor must provide it for her. She does appear, at least, to recognize the correct form, in line 24. The tutor presents her with an explicit rule for tense marking in modal clauses, which F seems to understand, as indicated by her interruption in line 28. In this interaction, because of a lack of responsiveness on the part of the learner, the tutor offers very explicit levels of corrective feedback. The correct tense marking is jointly constructed, but most of the responsibility here falls on the tutor. The learner, with implicit help from the tutor, recognizes that the main verb is not marked for tense (lines 13 and 30), but she is unable to do anything about generating the correct form of the modal, even with explicit help. Thus, the tutor is forced to provide the correct form. Later in the same tutorial, the same problem resurfaces, as seen in protocol (M).

(M) *F1*

1. T: Okay, "I called other friends who can't went do the party." Okay,
2. what is wrong here ?
3. F: To
4. T: "Who can't went do the party because that night they worked at

5. the hospital." Okay, from here "I called other friends who
6. can't went do the party." What's wrong in this?
7. F: To ?
8. T: Okay, what else ? . . . what about the verb and the tense ? The
9. verb and the tense . . .
10. F: Could
11. T: Okay, here
12. F: Past tense
13. T: All right, okay, "who [alright] could not." Alright ? And ? . . .
14. F: To
15. T: Here [points to the verb phrase], what's the right form ?
16. F: I . . . go
17. T: Go. Okay, "could not go to [that's right] to the party . . ."

In this episode the intervention of the tutor is considerably reduced from the episode examined in protocol (L). The level of explicitness required to elicit an appropriate responsive action from the learner is also reduced. Nevertheless, the learner still has some problems focusing on the error indexed by the tutor. She initially assumes the problem to be related to her apparent slip of the pen, and she indicates that *do* should be rewritten as *to* (line 3). However, once the tutor manages to get her to focus on tense marking, in lines 8 and 9, she is immediately able to correct the modal, in line 10. In addition, she is also able to provide the correct form of the main verb, in line 16, although with some regulation from the tutor. Above all, however, the learner accepts more of the responsibility for correcting her error in protocol (M) than is the case in (L). A significant transition appears to have occurred between the first and second episodes. The learner has appropriated the feedback provided in (L) and shows signs of microgenetic development, given that in (M) she elicits feedback that is less explicit and less extensive.

We can now compare the same learner's performance on the same structure one week later.

(N) *F2*

1. T: Is there anything wrong here in this sentence ? "I took only Ani
2. because I couldn't took both" . . . Do you see anything
3. wrong ? . . . Particularly here "because I couldn't took both"
4. F: Or Maki ?
5. T: What the verb verb . . . something wrong with the verb . . .
6. F: Ah, yes . . .
7. T: That you used. Okay, where ? Do you see it ?
8. F: (Points to the verb)
9. T: Took ? Okay
10. F: Take
11. T: Alright, take
12. F: (Laughs)

The learner continues to experience difficulty with the modal + verb construction. This, in itself, is not too surprising, since when the structure first appeared, it was low in F's ZPD, as indicated by the need for the tutor to provide feedback from the explicit levels of the scale. As we pointed out earlier, control over features of the second language does not move from a stage where explicit feedback is required to full appropriation; rather learning evolves through stages of decreasing reliance on the other person toward increasing reliance on the self.

In protocol (N) we see evidence of microgenesis both in production of the modal + verb construction and the extent of responsibility assumed by the learner for its production. In the earlier tutorials, the learner was unable to mark the modal for tense correctly without the tutor's intervention. In (N), however, we observe that the correct form was produced in the composition, written several days after the first tutorial. F still does not have full mastery over the structure, since she incorrectly marks the main verb for tense. The tutor focuses her attention on this problem (line 5) through a question, at which point she interrupts him (line 6) and indicates her recognition of the error and points to its location (line 8). She then proceeds to provide the correction in line 10. Her laughter in line 12, as in our earlier discussion, is a clue that the form may not yet be fully automatized and that the error was not the result of inadvertent performance. All of this suggests that the learner has appropriated the feedback offered in the first tutorial and that she now has greater control over the construction.

Tracing the same modal + main verb construction in subsequent compositions for the same learner reveals evidence of full appropriation. The learner used the construction independently and correctly, for example, in composition three: "The wolf wanted to eat the goat but he *could not ask* his friend . . . the wolf drank a lot but he *could not get* to eat the goat." Later in the same composition, we observe: "I saw peo-

ple who people who *could live* with a few money." Finally in composition seven we note: "Another thing I *could see* is there are lot of interest to take money from poor people." Most importantly, in the final composition, we see that she not only extended the pattern to other verbs but to another modal, as well: "If I have money, I *would try* hard to help poor people." The problem was a complex one in which the learner appears to have focused first on the modal (protocol L) and then on the main verb (protocols M and N), even though the tutor offered corrective feedback on both parts of the complex verb phrase at the same time.

CONCLUSIONS

Effective error correction and language learning depend crucially on mediation provided by other individuals, who in consort with the learner dialogically co-construct a zone of proximal development in which feedback as regulation becomes relevant and can therefore be appropriated by learners to modify their interlanguage systems. From this stance, learning is not something an individual does alone, but is a collaborative endeavor necessarily involving other individuals.[16] Here we encounter what, on the face of it at least, looks like a potential problem.

Van Lier (p. 211) worries—correctly we believe—that too much guidance, or in his words, "other-repair," might inhibit, or at least retard, the development of self-repair, which he views as an "important learning activity." The very goal of interaction in the ZPD, as formalized in Vygotsky's law of cultural development, is for novices to appropriate the responsibility for their own linguistic performance. This is what it means to move through the regulatory hierarchy. As implicit forms of feedback become more relevant, and explicit forms become less relevant in regulating the novice's corrective behavior, by implication, novices assume increased control over their linguistic activity in the L2. This is why we argue that feedback as other-regulation in the ZPD is not only graduated but is also contingent. At first, responsibility for the novice's linguistic performance is distributed between the novice and the expert, with the expert having more control over this performance than the novice. Under the expert's guidance, control is gradually appropriated by the novice. Eventually, the novice moves away from reliance on the expert (other-repair, in van Lier's terms) toward reliance on the self. For this to happen, however, the expert must be willing to relinquish control (itself dialogically negotiated) to the novice at the appropriate time. There can be no real development otherwise.

From this perspective, the types of error correction (i.e., implicit or explicit) that promote learning cannot be determined independently of individual learners interacting with other individuals. Moreover, all types of feedback are potentially relevant for learning, but their relevance depends on where in the learner's ZPD a particular property of the L2 is situated. The hierarchy of regulation is an attempt to capture this dynamic character of feedback. Development in a second language is therefore not only reflected in the learner's ability to generalize what had been appropriated, but is also revealed through the kind of help that is jointly negotiated between experts and novices. Thus, a learner who is able to produce a particular structure as a consequence of more strategic (i.e., implicit) forms of regulation (e.g., the collaborative frame) is developmentally more advanced than one who needs direct and explicit feedback for the same property. This means that linguistic forms alone do not provide us with the full picture of a learner's developmental level. It is essential to know the degree to which other-regulation, or mediation, impacts on the learner's production of the particular forms.

We are, of course, not uncritical of the research laid out in this paper. For one thing, we recognize that one of the shortcomings of this initial attempt to investigate feedback and L2 learning in the ZPD is that the linguistic features considered are "surfacy" and language specific. Schwartz and her colleagues (28; 29) contend that correction may only stimulate the development of those properties of a second language system, such as verb morphology and lexis, which do not arise from abstract principles specified by UG. The latter type of properties (e.g., syntactic movement), according to Schwartz (28), will be unaffected by negative feedback and can only develop if learners receive positive and contextually embedded input.[17] Carroll and Swain's study, however, suggests that corrective feedback administered under controlled conditions can impact positively on the development of more abstract syntactic properties (i.e., dative alternation). It remains to be seen if collaborative interaction in the ZPD can also enhance the acquisition of abstract properties of second languages. In this

regard we intend to extend our work on the ZPD to two specific cases—unaccusative constructions in Spanish and word order in German.

Another drawback of our study is that the data were collected exclusively in audio format, which eliminated from analysis a potentially important source of nonverbal information. Since interaction between individuals also entails a rich gestural component, future research on learning in the ZPD requires the analysis of video recordings to capture the meaning displayed by speakers on their hands (25).

Finally, it is not our intent to sanction the tutorial as the uniquely endowed framework for co-constructing the ZPD. The tutorial format represents only one means for realizing this process. It is necessary to explore the full array of possibilities available in the classroom setting for enhancing learning in the ZPD. Collaborative interaction between learners engaged in problem-posing tasks, use of portfolios, and dialogue journals are among the other avenues through which a ZPD can be co-constructed and learning can emerge. We hope that the present study will stimulate additional research in these domains.

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NOTES

[1] Prior to the interest in error analysis, the general assumption of those working from a more behavioristic slant had been that errors resulted from insufficient learning of target language rules (36: p. 181).

[2] The inspiration for the distinction we are drawing between the ethnographic and experimental approaches to corrective feedback we owe to the comments of an anonymous reviewer.

[3] Along similar lines, Sharwood Smith proposes that corrective feedback, or "negative input enhancement" serves to flag specific errors, while elaboration has to do with the manner in which the error is made salient. That is, some forms of elaboration are explicit and entail metalinguistic explanations and others are more indirect, involving only some means of marking where the error occurred but giving no specific information on its nature. Sharwood Smith suggests that the various levels of input enhancement should be examined through controlled experimentation (31: p. 177), presumably to determine the most effective level of input enhancement.

[4] Metaphorically speaking, Vygotsky characterizes actual development as the "fruits" of the maturational process and the ZPD as representing the "buds" or "flowers" of that process (39: p. 87).

[5] Actually, the kind of help provided is very much influenced by sociocultural factors. Research has shown that mothers from rural economically underdeveloped settings tend to be more directive in helping their children perform tasks when compared to middle class, educated urban mothers, who are much more indirect and strategic in regulating the mental activity of their children (42; 43).

[6] Although the full study also entailed a comparison of the performance of learners who received corrective feedback in the ZPD with those who received either explicit or implicit correction, we concern ourselves here with the ZPD group only and we will not consider the results from the other two groups. We point out, however, that even though three different treatment groups participated in the study, it was not implemented as a controlled experiment. To do so, we believe, would not have allowed us to uncover the processes at work as learning emerged in the ZPD.

[7] Even though we refer to learners who received tutorial help as the *ZPD group,* we not claiming that the only way to create a ZPD is through tutorials. There are types of interaction that can create a ZPD. For instance, research by Donato shows that learners working in collaboration can jointly construct a ZPD without intervention from a tutor. We chose the tutorial procedure, in this particular case, because it seemed to be the most expedient way of constructing the ZPD for purposes of our study.

[8] The learners' use of text-based properties, such as cohesive devices, were not considered for our purposes since we were not directly interested in their ability to write per se; rather our concern was with their grammatical competence as reflected in the written medium.

[9] The ability of learners to generalize on the basis of negative feedback is important because it provides evidence that the learner's linguistic representation has changed. Vygotsky, in fact, insisted that there can be no mastery in learning if learners cannot extend what they have learned in one context to new contexts. In a study of L2 French learners, Carroll, Swain, and Roberge report that while negative feedback helped their subjects reduce their errors in a set of morphological endings, the learners were apparently unable to construct the necessary generalizations on the basis of the corrective feedback. In their study of dative alternation in English as a second language, Carroll and Swain (5) show that learners can indeed generalize from negative input.

[10] The data to be considered in the present paper do not illustrate instances of all five transitional levels. For a full empirical account of the levels see Aljaafreh.

[11] Peter Coughlan (personal communication) proposes that we may not want to dismiss performance errors merely as slips of the tongue and suggests that there may be some unconscious intention underlying such behaviors. He raises the question of why learners make errors even after they have learned a particular feature of the L2. This question can also be extended to native speakers as well.

[12] The hierarchy of regulation given in Figure I is not intended to be exhaustive; rather, it represents the range of help offered in the specific tutorials studied here.

[13] We acknowledge Peter Coughlan for pointing this out.

[14] Of the three ZPD learners, N is the only one to have shown a responsive action at the level of *collaborative frame* with regard to the four target structures. At this point, we have no way of knowing the potential source of this difference among the learners.

[15] Wertsch, and Wertsch and Hickmann similarly show how children, through their speech, assume increased responsibility for their own problem-solving activity.

[16] What this argues for is an "informant"-based, rather than a "text" (i.e., data)-based, approach to second language learning (19), and supports the contention that language learning does not take place inside of someone's head but arises in the interaction that is co-constructed between individuals. In the latter case, only positive evidence is required, while in the former, both positive evidence and negative feedback are necessary. Space does not permit us to explore the full implications of the two positions for second language learning. Suffice it to say, that second language researchers are not in agreement as to which approach correctly characterizes nonprimary language learning in adults.

[17] To provide the details of Schwartz's interesting, if not controversial, claim would take us too far afield from our present purpose. We encourage the interested reader to examine her writings on the topic (28; 29).

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