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10. TEACHER-STUDENT INTERACTION AND LANGUAGE LEARNING

Joan Kelly Hall and Meghan Walsh

This chapter reviews literature on recent developments in teacher-student interaction and language learning. Based on a sociocultural perspective of language and learning, the studies are drawn from three types of classrooms: *first* language classrooms; *second* language classrooms, which include contexts in which the language being learned in the classroom is also the language of the community; and *foreign* language classrooms. Foreign language learning contexts are those in which exposure to and opportunities for target language interaction are restricted for the most part to the language classroom. Across these three areas, attention is given to studies that investigate the specific means used in teacher-student interaction to promote language learning.

Recent theoretical insights and research on classroom interaction have broadened, and in many ways transformed, our understanding of its link to language learning. Current understandings are based on the premise that much of our linguistic, social, and cognitive knowledge is intimately tied to our extended participation and active apprenticeship in sociocultural events and activities considered significant to our everyday worlds. Because schools are important sociocultural contexts, their classrooms, and more specifically, their discursively-formed instructional environments created through teacher-student interaction, are consequential in the creation of effectual learning environments and ultimately in the shaping of individual learners' language development.

The purpose of this review is to examine recent developments in research on classroom interaction and language learning that draws on this perspective. Due to space and topic constraints, we limit the main review to studies on teacher–whole-group face-to-face interaction in language classrooms. Before discussing current research, we provide a brief overview of some of the major premises of a sociocultural perspective on language learning and the significance of classroom interaction. We conclude with a brief discussion of recommendations for future research.

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Sociocultural Perspective on Language Learning

A sociocultural perspective on language learning is based on theoretical considerations and empirical investigations of learning drawn from a variety of disciplines including human development (e.g., Berman & Slobin, 1994; Ninio & Snow, 1996; Reed, 1996), cultural psychology (e.g., Cole, 1996; Tomasello, 1999; Vygotsky, 1986; Wertsch, 1991, 1994), linguistic anthropology (Ochs, 1988; Schieffelin & Ochs, 1986), and social theory (e.g., Gergen, 1994; Shotter, 1996, 1997). According to this perspective, language development begins in our social worlds, constituted by a varied mix of regularly occurring goal-directed intellectual and practical activities. Through our repeated participation in these activities with others who are more knowledgeable or expert, we transform the specific means for realizing them into individual knowledge and abilities. That is, we learn not only the structural components of our language; we also acquire the communicative intentions and specific perspectives on the world that are embedded in them, and thus learn how to take actions with our words (Tomasello, 1999). It is our eventual internalization or self-regulation of the specific means for realizing our activities, including the particular world views embodied in them, that characterizes psychological growth.

From this perspective, learning is considered not the internal assimilation of structural components of language systems. Rather, it is a process of "changing patterns of participation in specific social practices within communities of practice" (Gee & Green, 1998, p. 147). Because schools are important social institutions, the activities constituting their classrooms are considered fundamental sites of learning. Because most learning opportunities are accomplished through face-to-face interaction, its role is considered especially consequential in the creation of effectual learning environments and ultimately in the shaping of individual learners' development. The next section provides a brief overview of the nature of classroom interaction and its links to learning. Because the review is concerned solely with teacher-student interaction, the discussion will address only that facet of classroom talk.

Classroom Interaction

Classroom interaction is one of the primary means by which learning is accomplished in classrooms. In language classrooms, it takes on an especially significant role in that it is both the medium through which learning is realized and an object of pedagogical attention. Through their interactions with each other, teachers and students construct a common body of knowledge. They also create mutual understandings of their roles and relationships, and the norms and expectations of their involvement as members in their classrooms. That is to say, through interactions with their teachers, students are socialized into particular understandings of what counts as the official curriculum and of themselves as

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learners of that subject matter. The patterns of interaction also help define the norms by which individual student achievement is assessed. Students draw upon these patterns and norms to participate in subsequent classroom activities and thus they are consequential in terms of not only what students ultimately learn, but also, more broadly, their participation in future educational events and the roles and group memberships that they hold within these events.

Initiation-Response-Evaluation (IRE)

Earlier research on teacher-student interaction focused on describing the patterns typical of interaction found in classrooms (Barnes, 1992; Cazden, 1988; Mehan, 1979). Findings from these studies revealed that although student populations may vary from classroom to classroom and school to school, one particular pattern of interaction, the teacher-led three-part sequence of Initiation-Response-Evaluation (IRE), typifies the discourse of western schooling, from kindergarten to the university. Commonly referred to as the recitation script, or triadic dialogue (Lemke, 1990), the pattern involves the teacher posing a question to a student to which he or she usually already knows the answer. Students are expected to provide a brief but correct response to the question, which is then evaluated by the teacher with such phrases as "Good," "That's right," or "No, that's not right." Each round of interaction typically involves one student at a time with the teacher moving on to ask a question of another student once he or she has evaluated the prior student's response.

In the IRE pattern of interaction, the teacher plays the role of expert, whose primary instructional task is to elicit information from the students in order to ascertain whether they know the material. He or she also serves as gatekeeper to learning opportunities. It is the teacher who decides who will participate, when students can take a turn, how much they can contribute, and whether their contributions are worthy and appropriate. It has been argued that extended use of the recitation script severely limits students' opportunities to talk through their understandings and try out their ideas in relation to the topic-at-hand, and, more generally, to become more proficient in use of intellectually and practically complex language.

Using data from her own and others' classrooms, Cazden (1988), for example, revealed how the use of this pattern more often facilitated teacher control of the interaction rather than student learning of the content of the lesson. Similarly, in his examination of teacher-student interaction from several classrooms, Barnes (1992) found that the frequent use of the IRE sequence did not allow for complex ways of communicating between the teacher and students. As a final example, in her study of 'journal sharing' in language arts classrooms, Gutierrez (1994) found that in classrooms in which the activity was based on a strict use of the IRE, the teacher did most of the talking, commenting or

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elaborating on individual student's journal entries, while the students were limited to brief responses to the teacher's questions.

While many of the earlier studies on classroom interaction have argued that prolonged participation in the recitation script provides limited learning opportunities, few have actually documented links between long-term participation and achievement. One recent investigation is a notable exception. In one of the most comprehensive studies of teacher-student interaction, Nystrand and his colleagues (Nystrand, 1997) examined 112 eighth and ninth grade language arts and English classrooms. He found that the overwhelming majority of teachers used the recitation script almost exclusively in their classrooms and that its use was negatively correlated with learning. More specifically, it was found that students in classrooms whose interaction was limited primarily to the IRE script were less able to recall and understand the topical content than were students who were involved in more topically-related, participatory discussions. Because the use of the recitation script was more prevalent in lower-track classes, Nystrand argued that such teacher-student interaction was a significant factor in creating inequalities in student opportunities to develop intellectually complex language knowledge and skills.

Although most of the studies on classroom interaction have occurred in first language classrooms, a few recent studies have confirmed the ubiquity of the IRE pattern of interaction in second and foreign language classrooms as well. In her recent examination of junior form (comparable to junior high school in the U.S.) English language classrooms in Hong Kong, for example, Lin (1999a, 1999b, 2000) found that with one exception the recitation script was the common pattern of interaction. And, like Nystrand, she found that it most often occurred in classrooms comprised primarily of students from socioeconomically disadvantaged backgrounds. Lin extended her examination to looking at how students acted to resist what she argued was a stifling, alienating form of learning. In one classroom, for example, Lin reveals how one student attempted to provide a linguistically playful rendition of the expected contribution in response to a teacher question. However, rather than respond to this playfulness, the teacher kept to the narrow confines of the IRE, and reiterated his demand for a response based on factual information drawn from the story they were reading together. Lin argues that while such play can reveal students' language creativity, it also serves to alienate them even further from the official instructional purpose, if such contributions are constructed as unruly or uncooperative. By holding to the strict IRE pattern of interaction, the teacher in this classroom, Lin argued, pushed students "further away from any possibility of developing an interest in English as a language and culture that they can appropriate for their own communicative and sociocultural purposes" (2000, p. 75).

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IRF and Dialogic Interaction

In an attempt to tease apart some of the intricacies of teacher-student interaction, some have begun to take a closer look at the IRE. In an early paper, Wells (1993) proposed a reconceptualization of the IRE pattern. His proposal came about from having spent extensive time in a number of science classrooms with teachers he considered expert. His observations revealed enthusiastic, extended student participation in class discussions, although initial analysis of transcriptions of the interactions revealed what looked to be a healthy number of IRE sequences. Upon closer inspection, however, he found subtle changes to the standard pattern, primarily in the third part. While the teachers Wells observed often asked questions of students, instead of closing down the sequence with a narrow evaluation of their responses in the third part of the three-part sequence, the teachers more often followed up on them, asking students to elaborate or clarify, and in other ways treated their responses as valuable contributions to the ongoing discussion. Wells concluded that when the third part of the IRE sequence contained a teacher evaluation (E) of a student response, it severely constrained students' learning opportunities. However, if, instead of evaluating student responses, the teacher followed up on their responses (F) by asking them to expand on their thinking, justify or clarify their opinions, or make connections to their own experiences, the teacher-directed pattern of interaction enhanced opportunities for learning. Thus, he concluded that the typical three-part interaction exchange found in classrooms is neither wholly good nor wholly bad. Instead, it can only be evaluated by looking at how it unfolds moment-to-moment on particular occasions in particular classroom contexts.

Hall (1998) confirmed these subtle differences in the ways teachers directed the classroom interaction. In her study of a high school Spanish-as-a-foreign language classroom, it was found that just a slight variation to the third part of the standard three-part IRE exchange made a subtle but significant difference in student participation in whole group interactions with the teacher. One group of students received more interactional attention from the teacher in that in addition to evaluating their responses, she often followed up with additional questions, or asked them to elaborate. The teacher also sometimes handed the interactional floor to this group of students, allowing them to initiate an exchange or take over other students' turns. In contrast, she provided subtly different opportunities for participation to students in the other group. While these students were called on by the teacher to respond to her inquires almost as often as the other group participants were, the teacher's response was most often an evaluation of the students' contributions. In some cases, student responses were completely ignored. That is, the teacher sometimes did not even acknowledge the student's response and instead moved on to ask a question of another student. Moreover, these students were not given many chances to initiate exchanges. And, when they

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tried to, their initiations were not taken up by the teacher as frequently as those of the other group were.

These subtle differences in the third part of the triadic exchange, Hall argued, resulted in the formation of two groups of students, a primary group and a secondary group, each with distinct participatory rights and responsibilities. These differences, in turn, were used by the teacher as a partial basis for her evaluation of the learners' midyear performances. When asked to discuss individual learners' performances in the class in an interview with the researcher, the students the teacher considered active, creative, and successful users of Spanish happened to be those to whom she gave more interactional attention. Like Wells (1993), Hall concluded that subtle changes to the standard pattern of interaction, primarily to the third part of the triadic dialogue, can create significantly different language learning environments.

Nassaji and Wells (2000) provide a more comprehensive discussion of various options for the follow-up move in the triadic dialogue. The data on which their discussion is based come from a six-year collaborative action research project involving nine elementary and middle school teachers and three university researchers. Their focus in the project was on teacher use of follow-up moves and the contexts in which they occurred. They were specifically interested in examining the links between the types of initiating moves and the kinds of follow-up moves they called forth. In addition to finding that follow-ups to student responses served a wide range of functions, Nassaji and Wells found that the choice of follow-up move determined to a large extent the direction of subsequent talk. Just as suspected, teacher contributions that evaluated rather than encouraged tended to suppress student participation. Conversely, teacher follow-ups that invited students to expand upon or qualify their initial responses opened the door to further discussion, and provided more opportunities for learning.

The potential value of the IRF has been confirmed in other recent studies as well. For example, in the study of language arts classrooms noted above, Nystrand (1997) found a subtly different pattern of interaction in higher-tracked classes. Here, the teacher's third part contribution to the pattern was comprised of what Nystrand regarded as high-level evaluation. In addition to ratifying the student's response, the teacher incorporated it into the discourse of the class usually in the form of either an elaboration or a follow-up question. In so doing, Nystrand argued, the teachers affirmed student participation in the process of knowledge building, challenged them to extend their thinking and engagement with the subject matter, and provided opportunities for them to take ownership of the ideas. These strategies, in turn, helped to create an inclusive classroom culture that valued participation and learning, and ultimately enhanced students' academic performances in the language arts classroom.

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Rex and McEachen (1999) found similar interaction patterns in their study of a high school English literature class. Earlier studies of the same class by Rex and her colleagues (Rex, 1997; Rex, Green, & Dixon, 1997) had revealed that the English teacher interacted with the students in a way that was quite similar to the teachers marked as effective in Nystrand's study. The attempt in the 1999 study was to move beyond describing the teacher-student interactions to documenting the strategies used by the teacher to build an effective community of learners. Analysis of the classroom interactions revealed that the dominant way of talking about the class texts was what the teacher referred to as 'making a case.' This involved posing hypotheses about why the students considered something they found in the text boring, odd, or confusing, and then supporting the claims, linking them to specific pieces of evidence. During the beginning weeks of the academic year, the teacher assumed most of the responsibility for helping the students make a claim by asking leading questions and directing student responses. Like Wells, the researchers found that on the surface the early exchanges appeared to be standard IREs. However, closer inspection revealed that in addition to brief affirmations of student responses, the teacher elaborated on them or further probed students' understandings by asking additional questions. Moreover, when student interpretations were considered inappropriate or unwarranted, the teacher did not overtly challenge or evaluate them with statements like "That's not right." Rather, he acknowledged the students' contributions, and then offered his own interpretation along with evidence from the text. As he did, he directed his talk to all the students, rather than to the one student who had responded, and in so doing, helped to build an inclusive community of learning.

As the academic year unfolded, the teacher handed over his role as leader in 'making a case' to the students. Not only were the students encouraged to question and probe each other's interpretations, but they were also encouraged to question the teacher's readings of specific passages. From end-of-term survey assessments, Rex and McEachen found that nearly all of the students believed they had learned a great deal from this teacher's class and identified the class discussions as "the most valuable arena of their learning" (Rex & McEachen, 1999, p. 76).

The benefits of the IRF for supporting and promoting student interaction have been confirmed in recent studies of two university English-as-a-second-language classrooms (Boxer & Cortés-Conde, 2000; Boyd & Maloof, 2000). It was found that teachers who were effective in stimulating student involvement repeated or recast student utterances in such a way as to affirm their contributions and make them available to the full class for their consideration. In this way, individual student utterances were linked together and woven into the larger classroom discourse. This, in turn, helped to maintain topical coherence by building a collective knowledge base upon which all students could draw for subsequent contributions. The authors of both studies argued that through

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students' extended participation in their classroom interactions, student appropriation of new words and ideas was facilitated.

These findings have been corroborated in studies of foreign language classrooms as well. In his examination of the interaction of nine English language classrooms in Brazil, for example, Consolo (2000) found that in classrooms characterized by ample student participation, teachers more often followed up on student responses in ways that validated student contributions and helped to create topical connections among them. Likewise, Duff's (2000) study of a high school English immersion classroom in Hungary revealed that, in interactions promoting student participation, the teacher often followed up student responses by repeating or paraphrasing their contributions, and offering them back to the class for further discussion. Such follow-ups, Duff argues, served as an important means of encouraging learners' attempts to express their own thoughts and opinions on the topics, validate the concepts and ideas initiated by students, and draw their attention to key concepts or linguistic forms.

Sullivan's (2000) examination of a university English-as-a-foreign-language classroom in Vietnam led to similar conclusions. Here Sullivan revealed how the teacher nurtured student participation in the building of a shared base of knowledge through his frequent affirmations, elaborations, and other kinds of follow-ups to student contributions. In addition to the cognitive benefits of such interaction, Sullivan argued that such building of extended networks of talk among the class members also lent a humorous, light-hearted side to learning in that both the teacher and students could use their collectively constructed knowledge to play on each other's words and ideas. This use of humor heightened the students' enjoyment of their classroom interactions and motivated them to continue participation. This, in turn, provided them with extensive opportunities not only to become more affiliated with the subject but to build on and sustain their interpersonal relationships as a community of English language learners as well. The following excerpt illustrates a round of playful, collaborative repartee engaged in by the teacher and learners in the study. According to Sullivan, the researcher unknowingly triggered the game by commenting that the question asked by the teacher is a "major" one (line 3). This is picked up by the teacher with the words "very big," and followed by students who expand it to "huge," "gigantic," "enormous," and finally, from the teacher, "titanic."

1.	Teacher:	Uh huh? Right. Now 14. "What problems do you think a developing country may face in its social and economic development?"
2.	Students:	((*Several repeat the question in Vietnamese*)).
3.	Researcher:	A major question. h-h-h-h.
4.	Teacher:	Yes. A very big question uh
5.	Student 1:	A huge question.

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6.	Teacher:	Huge question. OK.
7.	Students:	[It's very big]
8.	Students:	[A gigantic question]
9.	Teacher:	((*laugh*)) A gigantic question. OK.
10.	Student:	( )
11.	Teacher:	OK.
12.	Student 2:	An enormous question
13.	Teacher:	A titanic question. OK.

Such play, Sullivan argued, not only helped to draw learners' attention to the language itself, but also helped to create a meaningful and motivating context for language use. This, in turn, enhanced the learners' interest in continuing to use the target language in their interactions, helping them reinforce and expand their vocabulary knowledge as they did. These findings on the value of interactional playfulness corroborate those by Wong Fillmore, Ammon, McLaughlin, and Ammon (1985) who, in their examination of successful language-learning lessons for children learning English as a second language, noted the use of such playfulness and its role in bringing learners' attention to forms. They state, "The final characteristic of the language used in successful lessons is that of richness and occasional playfulness as well . . . the teachers in successful classes tended to use language in ways that called attention to the language itself" (p. 42).

In all of the studies previously noted, a motivating learning environment was characterized by teacher contributions that encouraged students to participate by asking them to elaborate on their responses, comment on the responses of others, and propose topics for discussion. Moreover, the classroom was characterized by teacher actions that treated student responses as valuable and legitimate regardless of whether they were 'right,' and attempted to understand the learners' expressed thoughts from the learners' particular perspectives rather than impose their own views on what the students were attempting to say. In the questions they posed to students, their responses to student-posed questions and comments, and their own reflections and musing on the topics, the teachers in these different studies not only maintained a cognitively and socially rich interactional environment and provided models of appropriate academic and social discourse for the students. Importantly, regardless of the level of students' linguistic and intellectual abilities, the issue being addressed, or, as shown in Consolo's (2000) study, the native speaker status of the teacher, in all cases classroom interactions promoting student involvement in intellectually engaging ways were topically coherent, cognitively and linguistically complex, and meaningful to the learners.

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Links Between Discourse Patterns and Epistemologies

Recent efforts to probe more deeply the connections between patterns of classroom interaction and learning have turned to examining the links between interaction and teacher beliefs. Earlier research argued that the use of particular patterns of teacher-student talk reflected certain pedagogical epistemologies (e.g., Barnes, 1992; Cazden, 1988; Gutierrez, 1994; Wells, 1993). Wells (1993), for example, maintained that the choices teachers make about the kinds of interactional patterns they use in their classrooms are linked to their pedagogical beliefs. Teachers who view themselves as leaders of communities of learners, and who view students as active agents in the learning process and thus take student involvement seriously, are more likely to use follow-ups to student responses that promote intellectually challenging interactions and actively engage students in them. Conversely, teachers who perceive themselves as authorities and transmitters of knowledge, and students as passive recipients of their knowledge, are more likely to use the more constraining IRE pattern of interaction. Few studies, however, have actually provided empirical evidence linking the discursive conditions of language classrooms to teachers' epistemologies.

The recent study by Johnston, Woodside-Jiron, and Day (2000) is a notable exception in that a primary focus of the study was on tracing the empirical connections among the discourse patterns found in fourth-grade language arts classrooms and teachers' epistemological stances. The authors based their analysis on data gathered from classrooms whose teachers were considered capable by their peers and supervisors. The means used to collect data included classroom observations, field notes, audio- and video-tapings, and both teacher and student interviews. Their findings provide empirical support for earlier assertions on the links between the kinds of interactions teachers promote in their classrooms and their beliefs about teaching and learning. However, they also found that while some classrooms maintained a dominant pattern of discourse and that these discourse patterns were consistently linked to one particular stance, many more classrooms reflected a mixture of patterns and teacher beliefs. These findings raise interesting questions for future research on the developmental consequences arising from classrooms typified by an assortment of patterns and epistemologies rather than one dominant paradigm.

Conclusions and Implications for Future Research

Several conclusions about classroom interaction and language learning can be drawn from this review. First, we can state with certainty that at least two versions of the triadic dialogue are used with great frequency in teacher–whole group instruction and that the versions give rise to qualitatively different language learning environments. The versions are similar in that they each contain teacher initiations and student responses to these initiations. Where they vary is in follow-

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ups to student contributions. In one version, the teacher most often assesses the quality of student responses with short evaluative responses such as "Good," or "Well done." The three-part interactions usually occur between the teacher and individual students and few attempts are made to extend the sequence, unless the student response is inaccurate or in some way inappropriate. In that case, the teacher usually seeks a response to her question from another student. Consistent use of this pattern provides very limited opportunities for student participation in learning.

In the second version, the teacher follow-ups include a range of functions. Evaluations of student responses still take place, since they can provide opportunities for teachers to check students' understandings and make adjustments to the instructional activities as needed. However, they are not the sole or primary follow-up. Rather, the repertoire of teacher contributions include response affirmations, reformulations, comments, and requests for justification, clarification, or elaboration. Together these serve to promote student involvement, highlight key concepts and ideas, build a shared base of knowledge, and, more generally, evoke feelings of inclusivity. As we have seen, the use of a full range of patterns is essential to creating effective language learning communities. This is so not just in first language classrooms, but in second and foreign language classrooms as well. Moreover, these patterns signal effective teaching in a variety of grades, from elementary to university levels, and a host of national and international contexts, including the United States, Canada, Brazil, Vietnam, and Hungary. Future research can add to our understanding by continuing to look more closely at the linguistic resources effective teachers use to create stimulating learning environments. In addition to the frameworks used in many of the studies reviewed here, the analytic frameworks of Nassaji and Wells (2000), Hellerman, Cole and Zuengler (2001), and Rojas-Drummond (2000) could prove useful in future explorations of teacher-student interaction in language classrooms.

A second conclusion that can be drawn has to do with the underlying epistemologies connected to the patterns of interaction. Based on the studies reviewed here, it is reasonably clear that consistent use of each version of the triadic dialogue is tied to a particular epistemological stance. Teachers who consistently use the IRE view teaching as a process of transmission. They see themselves as institutional authorities whose primary role is to pass down information to students, whose sole responsibility is to receive and internalize the information, and, when called upon, to extract and accurately display it. On the other hand, teachers who use a fuller range of follow-up moves in their interactions with students, incorporating student contributions into the ongoing dialogue, holding students responsible for monitoring and expanding on their own and each other's contributions, and in other ways sharing the responsibility for learning, lead to higher levels of student achievement. Teachers who consistently employ such actions have more of an inquiry-based understanding of learning, which

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values the activities of exploration, hypothesis testing, and problem-solving. They see both themselves and their students as responsible partners in what is considered a fundamentally jointly constructed social process.

Given these connections between actions and beliefs, the concern becomes how to bring about awareness and change in teacher practices and beliefs. The long-term action research project on which Wells (1999; Nassaji & Wells, 2000) and his colleagues have collaborated offers one possible means for doing so. We also need to look at the larger sociocultural contexts of classrooms to see how teacher beliefs and practices serve to reinforce or undermine those larger activities, values, and beliefs embedded in them. Here, the framework for conducting a critical classroom discourse analysis offered by Kumaravadivelu (1999) may be helpful in conceptualizing future research studies.

A final conclusion has to do with language learning and interaction. While many studies have asserted links between them, only recently have researchers begun gathering empirical evidence for these assertions. Clearly, a more complete understanding of the developmental consequences arising from the discursive practices of a classroom requires following the paths along which the varied patterns of interaction lead. This, in turn, requires more longitudinal studies, and more studies that include a full range of data sources (see Ford, Zuengler, & Fassnacht, 1998) in addition to transcriptions of interaction and that incorporate both qualitative and quantitative methods of analysis, as, for example, Nassaji and Wells (2000), Nystrand and Gamoran (1997), and Rojas-Drummond (2000) have done in their research. Incorporating methodologies that make use of the latest technologies for data collection and analysis may also help. Using digital tools for gathering classroom discourse data, for example, can provide instant links to other data sources, and support the electronic sharing and analysis of data across space and time. The use of such tools can transform the representation of our findings. Visually representing the path of a language learner's development through representative video clips, for example, can reveal the remarkable complexity of the process of language development in a way that pages of written text cannot. Moreover, the rich empirical base of findings engendered by such electronic collaborations not only will enhance our theoretical understandings of language learning. Such endeavors will also help advance our understanding of and ability to sustain effective language learning environments.

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classroom interaction. *CELA Report Series 2.40.* Albany, NY: National Research Center on English Learning and Achievement.

This report provides a useful discussion on the benefits and potential drawbacks of the various methods such as field notes, videotapes, and audiotapes used to study classroom discourse and learning. Based on a view of language learning as a dynamic and socially grounded practice, the discussion includes descriptions of actual data collection procedures used in a study of interaction in a senior-level physics class to illustrate the advantages and disadvantages to using different methodologies. The researchers argue, for example, that using two cameras allows for the best access to the classroom's communicative events, including both verbal and nonverbal exchanges between teacher and students. Although the focus of the study used to illustrate the various points made in the report is not on language learning per se, the discussion of the different methods for collecting interaction data is useful.

Gee, J., & Green, J. (1998) Discourse analysis, learning, and social practice: A methodological study. *Review of Educational Research, 23*, 119–169.

The authors present a conceptual and methodological framework for the investigation of learning in social settings. Emphasizing the relationship between theory and method in research design, their approach is a combination of various discourse analytic and ethnographic perspectives. The first part of the article describes the socioculturally-based theoretical perspectives on language and discourse on which the framework is based. The second part is an application of the proposed framework. Samples of actual classroom discourse are provided to illustrate the need for different analytic approaches to study the dynamics of moment-to-moment interaction and to link the complex patterns of language use that build up over time to actual learning. The paper concludes with suggestions for future research on learning in social settings.

Hall, J. K., & Verplaetse, L. S. (Eds.). (2000). *Second and foreign language learning through classroom interaction.* Mahwah, NJ: Lawrence Erlbaum.

This collection of studies on classroom interaction and second and foreign language learning emphasizes particular aspects of interactive environments that promote language learning. While there is variation among the studies in terms of the learning context and issues addressed, they each share certain elements. For example, each provides evidence that supports a sociocultural perspective on language development. In addition, each breaks from traditional studies of second language acquisition in that ethnographic and discourse analytic methods are used to

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investigate the dynamic, moment-to-moment interactions characteristic of classroom talk. Findings show that certain interaction patterns used by teachers and certain interaction exchanges between classroom participants can foster the construction of a collaborative classroom community and simultaneously promote language learning. The volume concludes with a discussion of future research possibilities and suggestions for organizing instruction in order to optimize meaningful language learning opportunities in both second and foreign language classrooms.

Hellerman, J., Cole, K., & Zuengler, J. (2001). Developing thinking communities through talk: Two case studies from science class. *CELA Research Report Series 14001*. Albany, NY: National Research Center on English Learning and Achievement.

This study looks at the interaction of two linguistically and culturally diverse high school science classrooms. While not concerned specifically with language classrooms, it is included here because the researchers' analytic focus on particular linguistic means used by teachers to socialize students into particular kinds of learning communities during interaction and their attempts to connect these uses of language to the teachers' pedagogical philosophies are useful additions to research on teacher-student interaction. In their analysis of audio- and videotaped data collected from one classroom over a five-year period, the researchers found that the teacher consistently used the first-person singular pronoun 'I' when introducing conceptual information. She also used the pronouns 'you' and 'we/us' but for different purposes. The first-person plural was used when the teacher wanted to point out student deficiencies or weaknesses and change their behavior or thinking. The second-person singular and plural pronouns were used to distinguish student responsibility for learning from the teacher's for teaching as in T: "You're adult now, you decide where the voids are." (p. 9). The authors argue that the teacher's distinctive use of these pronouns over time served to socialize the students into particular understandings of the role of the teacher and their role as students. The findings point to the significant role that teacher actions and beliefs play in socializing students into particular communities of learners.

Kumaravadivelu, B. (1999). Critical classroom discourse analysis. *TESOL Quarterly, 33,* 453–483.

In this article, Kumaravadivelu offers a framework for conducting what he terms *critical classroom discourse analysis* (CCDA). He begins by reviewing two approaches commonly used to analyze classroom interaction in L2 classrooms, the interaction approach and the discourse approach.

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While both approaches have provided useful insights into classroom learning, the author argues that their limited focus has produced "only a fragmented picture of classroom reality" (p. 456). To construct his framework, he draws on ideas and concepts from two current schools of thought, Foucauldian poststructuralism and Saidian postcolonialism, and from educational applications of this work. These ideas are then integrated into a three-dimensional perspective on discourse: the sociolinguistic, the sociocultural, and the sociopolitical, which he uses to review some recent classroom studies that provide "glimpses of the possibilities and potential of CCDA" (p. 472). He concludes with suggestions for conducting critical discourse analysis and a list of research questions for further explorations into classroom-based L2 learning.

Rojas-Drummond, S. (2000). Guided participation, discourse and the construction of knowledge in Mexican classrooms. In H. Cowie & G. van der Aalsvoort (Eds.), *Social interaction in learning and instruction: The meaning of discourse for the construction of knowledge* (pp. 193–213). Amsterdam: Pergamon.

Although the research reported on here is concerned with interaction and learning in math classrooms, the methodologies used to analyze the data in addition to the findings have something to offer those interested in documenting links between interaction and language learning. Rojas-Drummond and her colleagues investigated the particular discursive strategies teachers used to guide students' participation in instructional activities and then compared the use of these patterns across classrooms. Standard discourse analytic methods were used to examine their transcriptions of videotaped data. The interactions were examined on three levels and then characterized according to five dimensions describing the teaching-learning process. Once they characterized the classrooms, Rojas-Drummond and her colleagues compared students' performance from two fairly different learning environments, as defined by the typical patterns of teacher-student interaction, on two dynamic assessment arithmetic tests. They found that those in a classroom typified by an inquiry-based IRF outperformed their peers whose classroom interactions were dominated by the IRE recitation script. Teacher actions in the higher performing classroom that were found to differ significantly from the other group included using complex actions in the third part of the IRF that affirmed student responses, probed students' understandings, elicited student elaborations, and modeled desired actions, strategies and outcomes. The framework outlined in Table 1 (pp. 198–199) detailing particular teacher and student behaviors indicative of each teaching-learning dimension could be usefully employed in research on interaction found other kinds of classrooms.

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Wells, G. (1999). *Dialogic inquiry: Toward a sociocultural practice and theory of education*. Cambridge, MA: Cambridge University Press.

Dialogic Inquiry is a three-part analysis of sociocultural theory and practice in the classroom. Wells first compares the theoretical insights of Vygotsky and M. A. K Halliday on language learning and development. Despite their different orientations, Wells finds them compatible; both, for example, believe that language development is a process of making meaning with others. Wells builds upon these ideas in the construction of a conceptual framework for understanding the role of discourse in learning. In the second part of the book, Wells gives examples from classroom interaction to illustrate the co-construction of knowledge among teacher and students and the functions that different dialogic exchanges serve in the process. A case study is included as an example of a collaborative community in which scaffolding is an important part of knowledge building. In the third part of the book, Wells discusses the importance of the zone of proximal development (ZPD) using examples taken from his own research on classroom interaction.

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