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### Tacit Communicative Style and Cultural Attunement in Classroom Interaction

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## ARTICLES

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# Tacit Communicative Style and Cultural Attunement in Classroom Interaction

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This article examines the effect of a teacher's cultural representations and tacit communicative style on interactive practices in the classroom. We compare two second-grade classrooms constituted predominantly by Latino immigrant children and teachers with differing cultural representations of education. Through video and acoustic analyses of matched samples of classroom activities we document a discourse style that is more group oriented in one of the classrooms and more individual oriented in the other classroom. Our analyses show that the group-oriented communicative style is characterized by greater cooperative overlap and chorusing, more student self-selection, less teacher selection and less arm raising, less confirmatory repetition by the teacher, more frequent collaborative completion and more criticism, and less praise. Using both quantitative and qualitative methods, we go on to describe evidence of greater cultural attunement between teacher and students when they share a common tacit communicative style. The principal index of attunement highlighted by our results is student participation. We also suggest that patterns of interactive timing in classroom discourse provide insight into processes of cultural attunement and conflict.

The primary aim of the present study was to delineate the effects of cross-cultural teacher training on communicative style in two Spanish–English bilingual classrooms. In one classroom, the teacher had cross-cultural teacher training in a program called Bridging Cultures (BC) developed by Greenfield and colleagues (e.g., Greenfield, Quiroz, & Raeff, 2000). This program provided teachers with insight into the reasons for cultural miscommunication and conflict in the classroom. The training paradigm was based on findings that Latino immigrant families from Mexico and Central America move from a “collectivistic” ancestral and home culture into an “individualistic” host society and educational system, with resultant cross-cultural value conflict (Raeff, Greenfield, & Quiroz, 2000). We use the terms *collectivistic* and *individualistic* not as essentialist categories that factor out all the complexities and subtleties of cultural identity but as representing general orientations or world views that constitute frameworks for social conduct. The present study is concerned with the tacit expression and shaping of cultural identity and belonging through dynamic verbal and nonverbal interaction. We propose that “collectivistic” and “individualistic” representations guide situated action and interactive styles that in turn affect these representations. But we are above all interested in the dialogue between representation and cultural practice. The explicit discourse-driven experiences that the BC program offers, we contend, bring about conscious and implicit shifts in teachers’ internal representations that in turn become observable in the micropatterns of social classroom behavior.

The data samples analyzed for this study were taken from a broader data set of video recordings obtained for a large-scale study of the effectiveness of the BC teacher-training program. Seven bilingual English–Spanish teachers from the Los Angeles Unified School District participated in the BC training program, and all of them reported having adopted new teaching practices as a result of the intervention. The effectiveness of the program was evaluated by two previous studies comparing interaction in two classrooms. The students in both classrooms were predominantly children of working-class immigrant Latino parents mainly from Mexico. In one classroom, the teacher had participated in the BC training; in the other, the teacher had not. Correa-Chavez (1999) found a clear distinction between the behavior of the two teachers: the BC teacher had adapted her classroom practices toward a collaborative ethos of sharing and helping, whereas the mainstream teacher maintained a standard orientation toward individual learning. She also noted cultural value conflict between the mainstream teacher’s assumptions and expectations and the Latino children’s tendencies to help each other and to work collectively.

Isaac (1999) also found that children’s interactions were different in the two classrooms and were consonant with the teachers’ contrasting ideologies. In the BC classrooms, the children helped each other and shared materials. In the non-BC classrooms, the children showed awareness that their teacher did not want them to help each other and they manifested conflict between the helping behavior emphasized at home and the “do-it-yourself” mentality enforced at school.

Cultural conflicts between Latino family values and American pedagogical values were also studied empirically by Greenfield, Quiroz and Raeff (2000) through an analysis of parent–teacher conferences. They found widely varying emphases on helping and sharing as well as high levels of misunderstanding and confusion between Latino parents and U.S.-trained mainstream teachers. Implicit cultural conflicts were shown to clearly relate to underlying and nonverbalized cultural assumptions. In these conferences, the teacher, having adopted the “individualistic” assumptions of U.S. school culture, was verbally constructing an “individualistic” child, whereas the parent was verbally constructing a “collectivistic” one. As an example, one element in the “collectivistic” worldview is a dispreference for praise, which makes one child stand out. In the “individualistic”

worldview, in contrast, praise is strongly preferred. In one conference, the teacher's praise for his child made a father extremely uncomfortable. Given that these parents were concerned with socializing their children into their culture, we would imagine that high levels of praise in the classroom would cause conflict with the children's more collectivistic worldview, based on their home socialization. Indeed, school-age children of immigrant Latino parents bring some of their parents' values and communicative styles to the classroom but have also assimilated those of the host culture.

The present study outlines differences in communicative style between the two classrooms studied by Correa-Chavez (1999) and Isaac (1999), focusing on discourse features that index a more collectivistic or a more individualistic communicative style. A collectivistic classroom communicative style was thought to feature more overlapping talk and choral response and more student self-selection, whereas an individualistic classroom communication style was thought to be characterized by better organized turn taking between teacher and students. Ways in which cultural attunement and conflict between teachers and students might be indexed at a nonverbal level are also examined.

The concept of attunement is borrowed from literature on nonverbal interaction and used here to refer to situations of harmonious social engagement between teacher and students. Because of the "collectivistic" values and behavior of the children, as found in prior research, attunement meant, in this particular case a shared communicative style. We suggest that learning is facilitated by shared tacit communication style within situated and co-constructed participation frameworks.

A quantitative acoustic and video-based microanalysis of the teachers' and students' styles of interaction and turn-taking organization first highlights salient cultural differences in the communicative ecologies displayed in the two classrooms, stemming from teacher differences, and second, suggests evidence of greater cultural attunement in the BC classroom. Our findings suggest that culturally sensitive teacher training can greatly improve the experiences of teachers and learners, because it promotes the development of a dynamically shared cultural communicative style between them, which supports engagement and shared affect. Furthermore, a qualitative acoustic analysis of two short segments of classroom interaction provides some basis for the idea that the timing of the teachers' speech and of teacher-student exchanges affords and supports cultural attunement.

### TACIT COMMUNICATIVE STYLE

Studies of spontaneous interaction in various interactive contexts highlight the reciprocal influence of communication and context. We draw upon Bourdieu's (1990) notion of *habitus* to describe tacit communicative style as durable patterns of communication that guide participants' intentions while being continually reshaped by their effects. They are deeply engrained in techniques of the body, including gesture, posture, conversational habits, and conventions that may develop from the earliest months of life.

Communicative behaviors and the environments they arise in mutually shape each other and are continually modified as a function of the variable participation frameworks people move in and out of. According to Deborah Tannen (1984), conversational style is constituted by "tone of voice, pausing, speeding up and slowing down, getting louder and softer, and so on—all the elements that make up not only what you say but how you say it" (p. 2). Participants involved in friendly, sympathetic interaction spontaneously harmonize their communicative style with each

other as well as with the particular context in which they are situated. In a classroom context, where the relationship between teacher and students is often asymmetric, students must adjust to the teacher's style. The teacher's communicative style generally reflects both a broad social *habitus* and more localized *habiti* associated with the practice of teaching itself.

Communicative styles vary widely even within relatively homogeneous contexts. In her analysis of a dinner table conversation between six friends, Tannen (1984) made a distinction between speakers who adopt a "high considerateness style" and speakers who adopt a "high involvement style," and she shows that these styles result from implicit cultural differences between the two groups of speakers. The high involvement speakers exhibit a greater tendency for cooperative overlap or simultaneous talk, a faster rate of speech, faster turn taking, shorter between-turn pauses, and a tendency for "latched" turns, whereas high considerateness speakers, for example, avoid overlap and provide longer between-turn pauses that signal attention and interest.

We propose that tacit communicative style, which includes conversational and vocal style, ways of moving, engaging, touching, and above all ways of patterning expression in time, plays a central role in structuring interaction and characterizing forms of "being together" throughout life. They are the observable outcome of multiple intersecting influences such as common implicit and explicit beliefs, values and representations, environmental constraints and opportunities, and practical requirements.

One example in conversation is provided by attitudes to overlapping talk, which conveys widely different implicit meanings in different environments. For some it enhances communication and indexes affiliation, empathy, and rapport, whereas for others it dramatically impedes communication and indexes dominance, aggression, and intolerance. A tendency to express positive affect through overlap and latching of turns can thus be sorely misinterpreted when interlocutors do not share the same conversational style. In many tacit communicative styles around the world, talking at the same time is valued in everyday conversation. A cross-cultural study of vocal interaction between mothers and babies shows that Indian mothers and infants vocalize simultaneously more often than their American and French counterparts, and that their between-turn pauses vary in accordance with rules governing adult conversation. This is a nonverbal representation of a more "collectivistic" culture with less communicative separation or "space" between participants.

Another contextually variable feature of interaction is the collaborative coproduction of utterances. Collaborative coproduction is defined as the production of speech by a second speaker fitted to that of the first speaker to continue that speech within a not-yet-completed turn-in-progress. This coproduction requires both fine-tuned anticipation on the part of the second speaker and a high degree of projectability built into the talk by the first speaker. Collaborative completions are usually seamlessly articulated to the prior talk without varying the rhythm and timing of the talk in progress, thus highlighting the implicit understanding between two or more speakers. Through these practices, participants may come to form a single social unit. In classroom contexts, Hawaiian children were found to take turns in a collaborative manner, not as single turn-takers but rather as partners performing together. Collaborative completion may also reflect a high degree of attunement and synchrony between speakers. However, collaborative completion might tend to be considered as interruption and to be negatively valued in an "individualistic" worldview.

The turn-taking economy of conversation varies across contexts and, along with the contexts themselves, it is dynamically shaped by interacting individuals. At a very general level we may assume that a "one speaker at a time" format is more likely to be linked to cultural assumptions regarding individual ownership of turn spaces and thoughts, whereas a format that encourages overlap is associated with cultural expectations involving greater enmeshment between people.

## TACIT COMMUNICATIVE STYLE IN THE CLASSROOM

The negotiation of classroom discourse is shaped by the specific roles and expectations of teachers and students. Within the predominant European and North American educational ethos, teachers are expected to orchestrate classroom interaction and to allocate turns to individual students in an orderly fashion involving hand-raising signals, whereas in other educational traditions around the world learners are encouraged to speak at once in synchronous overlap or choral response, or as a collaborative asynchronous group-voice (Moore, 2004). The organization of turn taking in classrooms, however, is highly variable even within culturally homogeneous contexts because it is subject to the internal dynamics of classroom socialization established interactively in line with tacit communication styles brought to the classroom by teachers and students.

A pervasive North American classroom interaction style is the Information question–Response–Evaluation (IRE) discourse sequence (known information question initiated by the teacher, response by a student selected by the teacher, evaluation of the response by the teacher) that suits an “individualistic” cultural emphasis on dyadic as opposed to multiparty interaction and individual as opposed to collaborative learning. This type of externally constructed participant framework of classroom exchange tends to impose a hierarchical interaction style which may interfere with spontaneous and internally organized, emergent, classroom socialization processes that build on the tacit communicative styles of the participants (Sawyer, 2004). It has an implicitly “individualistic” discourse structure—it is a mechanism that ensures a temporal separation between individual speakers.

## CULTURAL CONFLICT AND ATTUNEMENT IN TACIT COMMUNICATION

Cultural conflict at the implicit level occurs when cultural representations of self–other relations and the tacit communicative styles attached to them are in disagreement. Different value orientations and implicit representations can give rise to both explicit misunderstanding and to implicit conflict and confusion experienced at an affective level. Research has shown the powerful connection between cultural representations and communicative styles whereby changes at one level entail changes at the other level. Different implicit rules governing conversational practice in various cultural groups, such as the length of between and within turn pauses or forms of indexicality and metaphoric expression, may come in the way of shared understanding. Recent immigrants, for example, often experience feelings of confusion and isolation because their everyday interactions with people from the host culture are inefficient. At the same time, through their efforts at modifying their representations through acculturative processes, they may start to modify their communicative style, which in turn may facilitate the negotiation of shared cultural representations.

Conversation analysis of speakers from different cultures suggests that they experience difficulty with maintaining topic and with signaling metacommunicative frames. Gumperz (1978) showed that the degree to which cultural background is shared is related to the congruent use of “contextualization cues” that signal important information as they parse conversation. Misunderstandings arise at multiple levels, both explicit and implicit, with more hesitation and less overall participation, missed irony and humor, more repetition, and circumlocution. Many other factors are involved, however, and sometimes culturally similar people experience great difficulty in communication, whereas others who come from different places get along very well.

Cultural attunement may also be reflected in specific aspects of communicative style. Individuals who share similar worldviews are better able to anticipate each other's expressions as they unfold. There may be an important link between the degree to which interlocutors' thoughts and representations converge and the qualities of temporal coordination between their verbal and nonverbal expressions. It is in this sense that collaborative completion may represent a conversational pattern that is favored by certain cultural groups—notably more “collectivistic” ones—and is therefore an important index of cultural attunement for these groups. Sensing the beat of the conversation and the intentions of interlocutors is fundamental to complete another person's utterance, even if her intentions are not always accurately perceived. Repetition may also constitute an index of cultural attunement between people. It is a well-documented device for signifying agreement and affective concordance between speakers in a variety of contexts. The function and effect of repetition in discourse is a highly complex issue because of its inextricable ties to local semiotic contexts. Cultural attunement should in most cases promote participants' attentional and emotional engagement in interaction.

### CULTURAL CONFLICT AND ATTUNEMENT IN THE CLASSROOM

A few studies provide analyses of cultural conflict in classroom contexts. For example, Susan Philips (1972) compared the interactions between Indian children and their Anglo-American teachers and between non-Indian children and teachers in the Warm Springs Indian Reservation in central Oregon. Philips found that Indian children participated in classroom verbal interactions much less than non-Indian children and went on to analyze the particular features of teacher–student interaction in the different contexts. She described how first-grade Indian children repeatedly failed to conform to Anglo-American teachers' classroom etiquette, which involved accepting and adhering to a teacher-directed orchestration of conversational turns and space allocation. Indian students were more reluctant to speak out individually and focused their attention more multifocally, showing more interest in each other's activities than in the teacher's. By contrast, when working on projects in small groups, which required controlling and directing their own interactions, Indian students got organized very quickly, became fully involved in their activity, and talked a great deal more than non-Indian students. Philips related these features of communicative style in the classroom to aspects of the Indian child's life in the home environment, highlighting for example the community focus on having multiple caretakers for children and on delegating responsibility to children from a young age. Given the “collectivistic” nature of traditional Native American culture, we can see that the greater amount of child–child talk in the classroom represents a focus on a strong peer group collectivity, something that shows up as young as preschool age as a function of the ecological conditions—poverty, rural residence, relative absence of formal education—to which a “collectivistic” worldview is adapted.

In her ethnographic studies of classroom discourse and teaching styles within Black communities in the United States, Shirley Brice Heath (1983) showed that Black students who were unaccustomed to the classical IRE turn-taking format tended to become withdrawn and silent, whereas when asked questions in a format that was more in tune with the conversational styles they were socialized into at home the same children became highly involved and motivated. Heath's work also provides a compelling example of the impact that teachers' new perspectives

on their students' cultural background can have on classroom dynamics, emphasizing the value of culturally sensitive teacher training.

A study of Italian American kindergarten and first-grade children found a strong correlation between home-school cultural differences and communicative incongruence between teachers and students, reflected in difficulties in the management of the turn-taking organization of conversation (Schultz, Florio, & Erickson, 1982). In this study, researchers observed children, parents, and teachers in matched activities in their home and in their school contexts and what they found were marked differences in the "styles and strategies" of social interaction and "participation structures" or the organization of interactional rights and obligations. They showed that these differences arise out of differing expectations about communicative etiquette and style. North American classroom culture was built around certain norms, such as taking turns in conversation, following ideas through, and avoiding simultaneous speaking. Italian Americans, on the other hand, favored multiple simultaneous speakers as well as multiple simultaneous audiences, or what Shultz et al. called "multiple floors." For them, overlapping talk would be experienced as involvement in the conversation rather than as interruption. Based on their research, they propose that minimal adaptation by teachers toward a "cultural congruence" with students' tacit communicative styles facilitates learning.

#### TACIT COMMUNICATIVE STYLE, LEARNING, AND CULTURAL ORIENTATION IN THE CLASSROOM

A central tenet of this article is that teaching and learning rest upon and invoke a tacit communication style between teachers and students and that divergent or contradictory styles may give rise to misunderstandings and confusion between teachers and students, impeding effective educational experience. However, a shift at the level of representations and values may affect a teacher's communicative style and in turn open new pathways for mutually beneficial and rewarding teaching and learning experiences.

We propose that the two teachers in the present study display two fundamentally opposed orientations to learning, an orientation toward collaborative learning on the one hand, and an orientation toward individual learning on the other hand. We also suggest that these orientations are clearly reflected in the tacit communicative styles they use to organize classroom interaction. We demonstrate that the former style is in tune with the children's behavior, whereas the latter style, reflecting "standard" classroom practices, is not. In comparing interactions in the two classrooms, we aim to highlight first the different implicit communicative styles teachers and students rely on, and second the observable indices of cultural conflict and attunement as a result of the teacher's representations and values.

#### THE IMPORTANCE OF INTERACTIONAL TIMING IN TALK

An analysis of timing in social interaction may offer another insightful perspective on cultural attunement and conflict. Teacher talk is characterized by specific rhythmic organizations that afford engagement and involvement. Teachers scaffold their students' learning processes by the gradual weaving of novel information into existing semiotic structures. This subtle intertwining



of old and new knowledge is facilitated by forms of timing in talk and gesture that simultaneously hold and contain structures of meaning and that highlight and pinpoint crucial moments in communication. Timing can be seen as a fundamental indexical tool in interaction. For example, the slowing of the cadence of speech, the insertion of a longer pause, emphasis, accent, and intensity constitute temporal expressive markers that point to crucial information in ongoing talk (Erickson, 1982). This sort of interactional timing, one that affords engagement, shared experiences, and enjoyment, has been shown to be fundamental in nonverbal communication between mothers and infants in general and to be disrupted and disoriented in situations where mothers experience cultural conflict. In this article we begin to explore the idea that the timing of teacher–student interaction is supported by cultural attunement between the implicit cultures and tacit communicative styles of teachers and students.

We use a multiple methods approach to capture both general features of communicative styles and cultural conflict and the temporal dynamics of contextualized exchanges.

## HYPOTHESES

We developed the following hypotheses.

- H1: We anticipated higher levels of overlapping talk in the BC class than in the non-BC class. Specifically, we predicted more teacher–student overlap and more student chorsing in the BC class, indexing the expression of an affiliative and collaborative stance against the “one speaker at a time” communicative practice characteristic of the non-BC class.
- H2: We predicted more frequent self-selection by students in the BC class, as well as less frequent teacher selection and arm raising, and more spontaneous collaborative completion, reflecting a group-oriented and collaborative communicative style.
- H3: In accordance with the IRE classroom discourse format, we expected to find more repetition by the teacher of students’ utterances in the non-BC class and more teacher-directed collaborative completion.
- H4: We predicted more use of praise in the non-BC classroom and more use of criticism in the BC classroom.
- H5: We anticipated a lower degree of student verbal participation (amount of student talk) in the non-BC class, reflecting cultural conflict between the teacher and the students.
- H6: We anticipated a higher degree of student nonverbal mirroring and imitation and student verbal repetition in the BC classroom, indexing a high level of cultural attunement between the collectivistic styles of teacher and students.

## METHODS

### Participants

Participants were second-grade students, with a mean age of 7 years, and two teachers. The BC classroom was a Spanish–English bilingual class where all of the 41 children (18 girls and 23 boys)

were from working-class immigrant Latino families. The non-BC classroom was an English-only class where 90% of the 20 children (11 girls and 9 boys) were from working-class immigrant Latino families. The BC teacher had gone through a major change in her teaching philosophy as a result of her BC training. Before BC, she had a more “standard, individualistic” perspective in which she encouraged every child to work independently. After BC, she much more strongly encouraged cooperation and working together. The non-BC teacher had a very individualistic perspective on teaching. She strongly advocated and even enforced independent work in her class.

## Analyses

The quantitative analyses we conducted were based on a corpus of 20 hr of videotaped and partially transcribed teacher–student interaction in these two second-grade classrooms. Variable numbers of students were visible on the videotaped data, ranging from 5 to 17 students depending on the observed activity.

We selected 16 min of classroom interaction for analysis (eight 2-min clips for each classroom.) The selected clips were matched for type of activity, starting at the onset of a new activity. Selected classroom activities included math, reading, science, and social science lessons. However, because of the different natural ecologies of the two classrooms, they could not be matched for seating arrangement and interaction style. For example, in most of the BC classroom clips the students were sitting on the floor in front of the teacher, whereas in the non-BC class students were at their desks and the teacher was at the board.

The sound was extracted from the video data and processed by the software programs *Cool Edit Pro* (Adobe Audition) and Praat (<http://www.praat.org>) to obtain interactive spectrographic representations, pitch plots, and intensity contours. Spectrographs plot sound events in real time and provide information about their pitch and intensity. This procedure enabled us to accurately measure durations of teacher talk, student talk, vocal pauses, and varieties of overlap. Every instance of talk and silence was measured in milliseconds and computed in a database. The video data as well as spectrographic representations were used to quantify the following conversational features:

- The total duration of teacher talk, student talk, and silence.
- The total duration of overlapping talk, including teacher–student overlap, student–student overlap, student chorusing, and teacher–student chorusing.
- The number of times students self-selected for next turn and number of times the teacher selected a student as next speaker.
- The number of times students raised their arms to ask for a turn.
- The number of times teachers and students completed each others’ utterances, including teacher–student collaborative completion, student–teacher collaborative completion, student–student collaborative completion, and teacher-directed collaborative completion (where the teacher motivates a specific completion of her sentence by the students).
- The number of times the teacher and students repeated each other’s utterances immediately after delivery (confirmatory repetition).
- The number of instances of praise and criticism directed at the students.
- The number of instances of nonverbal mirroring of postures and gestures and of vocal imitation between teachers and students.

Four of the segments were double coded, but interrater reliability scores were difficult to obtain. Durations of teacher talk, student talk, overlap, and pause all matched within a 15-sec window, except on one occasion. The interrater agreement rates were lower for the other behaviors because they involved a higher degree of subjective evaluation: We found a 68% agreement rate for collaborative completion, a 75% agreement rate for all forms of verbal repetition, a 62% agreement rate for nonverbal imitation, a 78% agreement rate for praise, and a 71% agreement rate for criticism. These interrater agreements did not however take temporal accuracy into account.

## RESULTS

### Quantitative Analyses

*Indices of tacit communicative style.* Analysis of variance tests were carried out on the different measures of conversational style in the two classrooms. As predicted by Hypothesis 1, there was significantly more overlapping talk between students and teachers in the BC class,  $F(1, 14) = 4.29, p < .01$ . Student chorusing was also higher in the BC class,  $F(1, 14) = 3.15, p < .05$ . Means and standard deviations for forms of overlap are presented in Table 1.

As predicted by Hypothesis 2, in the BC class, students self-selected more frequently,  $F(1, 14) = 5.85, p < .02$ , and the teacher selected students less frequently,  $F(1, 14) = 7.5, p < .01$ , than in the BC class. Non-BC students raised their arms to request a turn more frequently than BC students,  $F(1, 14) = 6.92, p = .01$ . These results are illustrated in Figure 1.

As predicted by Hypothesis 3, the non-BC teacher repeated students' utterances more frequently than the BC teacher,  $F(1, 14) = 7.11, p < .01$ .

As predicted by Hypothesis 4, we found that the non-BC teacher praised the students twice as much and criticized them half as much as the BC teacher. We found four times as much spontaneous collaborative completion in the BC class than in the non-BC class a much higher incidence of teacher-directed collaborative completion in the non-BC classroom. These behaviors, however, did not attain statistical significance due to their relative infrequency.

*Indices of cultural attunement and conflict.* As predicted by Hypothesis 5, students in the BC class participated verbally more than students in the non-BC class,  $F(1, 14) = 9.69, p < .01$ . Both teachers, however, talked as much on average. These results are summarized in Figure 2.

TABLE 1  
Means and Standard Deviations for Durations of Overlap and Chorusing

	<i>M</i>		<i>SD</i>	
	<i>BC</i>	<i>Non-BC</i>	<i>BC</i>	<i>Non-BC</i>
Student overlap	15.49	7.7	14.07	8.69
Teacher–student overlap	11.2	5.75	2.59	5.07
Student chorusing	5.57	.62	7.75	1.43
Teacher–student chorusing	.83	.30	1.16	.57
Total overlap	26.69	13.46	14.45	10.83

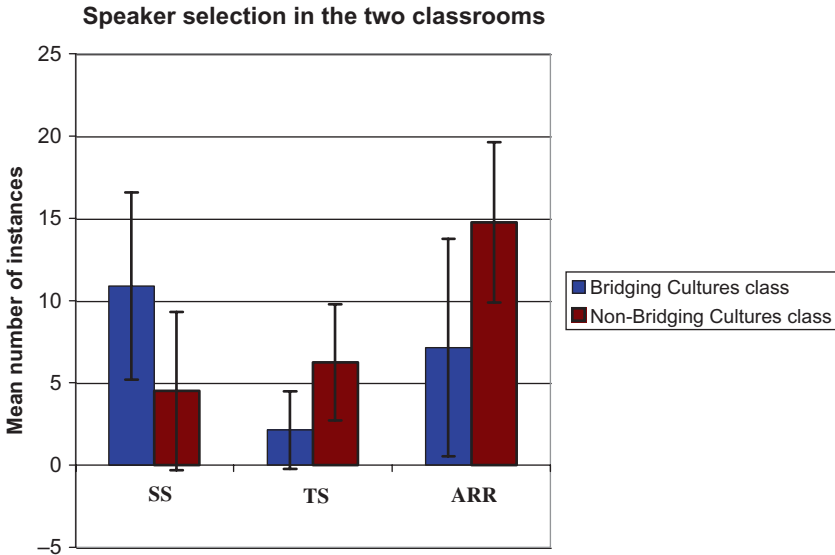


FIGURE 1 Student selection, teacher selection, and arm raise request in the two classrooms.

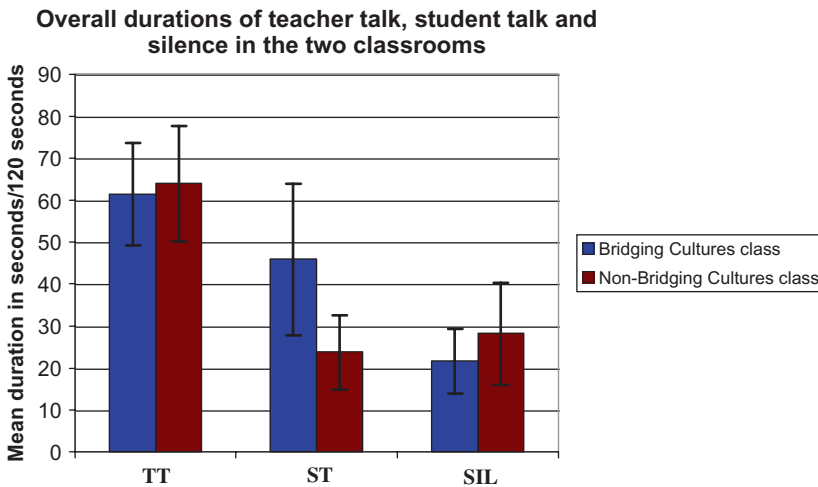


FIGURE 2 Durations of teacher talk, student talk, and silence in the two classrooms.

As predicted by Hypothesis 6, there was overall more nonverbal mirroring of postures and gestures and vocal imitation in the BC class than in the non-BC class,  $F(1, 14) = 8.00, p < .01$ . Also in accord with Hypothesis 6, it is notable that students in the BC class spontaneously repeated each other's or the teacher's utterances four times more frequently than students in the

non-BC class and that they spontaneously completed each other's or the teacher's utterances four times more frequently than the non-BC students.

We believe that all of these results point to the greater cultural attunement of the BC teacher with the children's relatively collectivistic home culture. However, although the teachers were matched for teaching ability and experience, it was not possible to control for the effect of individual differences. It would have been ideal to obtain recordings of the same teacher's classroom interactions before and after the teacher training intervention.

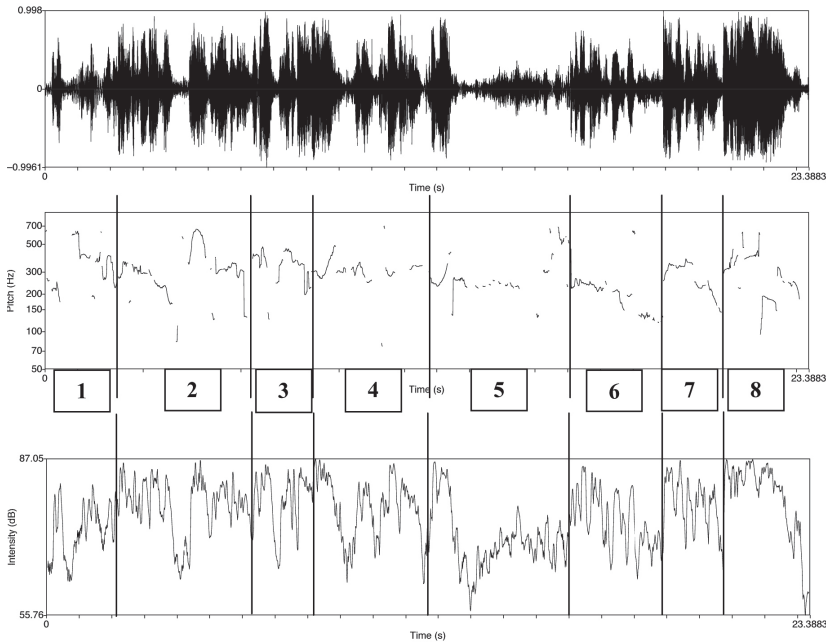
We go on to explore the link between communicative attunement and the timing of the teachers' speech in both classrooms. The following analyses illustrate the quantitative differences highlighted by the hypotheses.

### Qualitative Analyses

The following analyses focus specifically on the timing, duration, and qualities of the teachers' and students' vocal expressions. Microanalyses of their body movements were not performed for the following examples.

*Timing as a basis for cultural attunement and conflict in classroom interaction.* Figures 3 and 5 present three perspectives on the same short segment of classroom conversation. The sonogram provides information about amplitude and the alternation of sound and silence, the pitch plot provides information about the fundamental frequency of the voices of interlocutors and their prosodic contours, and the intensity contours provide information that supports the analysis of timing we offer. The content of the teacher's and the students' talk has been transcribed using Conversation Analysis conventions (Sacks, Schegloff, & Jefferson, 1974; see Appendix) but it is presented in an unconventional manner, according to a segmentation we have performed of the ongoing interaction into "phrase units." This particular method of analysis is a transposition of a method used to analyze spontaneous vocal interaction between mothers and infants. Phrase units are delimited by vertical bar-lines (shown on Figures 3 and 5), and their durations are given at the end of each transcribed phrase beneath the three acoustic plots. These phrase units correspond to prosodic groupings, semantic repetitions, and intensity changes. Phrase durations are given in milliseconds next to each phrase on Figures 3 and 5. Teacher talk is presented in capitals and student talk is presented in small letters.

*An acoustic analysis of a segment from the BC classroom.* What we wish to highlight in the 23-sec segment of teacher–student interaction, presented in Figure 3, is the subtle adjustment between the timing of the teacher's verbal expressions and the regulation of her students' attention. All of the students (12 students are visible on the video recording) are seated in a semicircle in front of the teacher, who is standing. The segment begins with a contextualization cue that frames a new episode in the ongoing interaction. The first "Okay" marks not only the beginning of a new episode and a new topic but also a new phase of heightened attentiveness. The quality of its accent and placement seems to serve the function of gathering the children together around a new discourse topic. The next thing the teacher does is to announce the new topic that will be broached (they will be talking about the sea—note the emphasis placed on the word *mar*). However, the students' level of excitement increases. By postponing her next segment of talk, the teacher contains their excitement and harnesses their attention before launching into the discussion. The third phrase we have highlighted in our analysis of timing starts with a



- 1    **OKAY (talk) 2.16 sec.**
- 2    **VAMOS A PLATICAR SOBRE EL MAR. oooh:: (talk) 4.33 sec**
- 2    ***WE ARE GOING TO CHAT ABOUT THE SEA.***
- 3    **OKAY ::: (ya me) ya me lo se todo 1.56 sec.**
- 3    ***(already I) already I know everything***
- 4    **EL MAR (miss Daley) °miss Daley° (talk) ES 3.62 sec.**
- 4    ***THE SEA***
- 5    **EL MAR (talk) 4.28 sec.**
- 5    ***THE SEA***
- 6    **>ES LA COLECCION DE MUCHA< AGUA. PERO< 2.85 sec.**
- 6    ***>IS THE COLLECTION OF A LOT OF< WATER. BUT<***
- 7    **<AGUA FRESCA O AGUA SALA :DA 1.85 sec.**
- 7    ***<FRESH WATER OR SALT WATER***
- 8    **agua sala::da:: OKAY< 2.6 sec.**
- 8    ***salt water***

FIGURE 3 Sonogram, pitch plot, and intensity contour of 23.3 sec of teacher–student interaction in the Bridging Cultures classroom.

*Note.* Teacher talk is transcribed in capital letters and student talk is transcribed in small letters. See the appendix for other symbols used in transcription.

repetition of the word “okay,” a reiteration of the teacher’s desire for attention. Amidst a cacophony of student voices one student can be heard saying that he knows everything about it (“*ya me lo se todo*”). Phrase 4 constitutes an attempt to begin the new lesson, but its timing fulfills two important functions: It conveys the teacher’s impatience and it enables her to pursue the work of harnessing attention. In the following phrase the teacher reiterates her intention to launch into the subject, and when she senses the moment is right she produces a long stretch of talk that presents a foundational definition of their topic (“*es la coleccion de mucha agua*”). Of interest, one student can be heard clearly anticipating the verb *es* and appears to offer a possible completion of the teacher’s phrase (“*es °agua*”). Collaborative completion is closely related to overlapping talk and constitutes another collectivistic mode of discourse.

The student’s anticipation supports the idea that the teacher has been able to harness the students’ attention and that they are eager for her to move ahead with the subject at hand. Figure 4 illustrates the subtle timing involved in this process of attention regulation. Finally, Phrases 7 and 8 show quite clearly that teacher and students are together in their exploration of the topic. The students give an emphatic choral response to the teacher’s simple question, illustrating a collectivistic mode of participating while suggesting that they are involved, eager, and excited. The teacher’s last “okay” marks the end of this unit of interaction and the beginning of another one. It also indexes the teacher’s satisfaction at having succeeded in gathering her students’ attention.

*An acoustic analysis of a segment from the non-BC classroom.* This 19.5-sec segment of classroom interaction (Figure 5) was selected because it highlights various typical interactive patterns and styles of the non-BC classroom. The teacher has just asked a group of students (six of them are visible on the video recording) to sit together on the floor in one section of the room; she is seated in front of them with an open book on her lap. The new activity begins when the teacher is ready and she launches into a lengthy phrase announcing it, with one within-turn micropause and a fast cadence. She clearly monitors the students’ readiness for the new activity as she announces it, because she signifies to Johanna and then to Jose that they should close their books. The teacher then asks a first question which is almost immediately followed by a reformulation (Phrases 3 and 4 on Figure 5). On the video she turns her gaze from Jose to scan the entire group. Almost every student’s arm is raised to ask for a turn at answering the question,

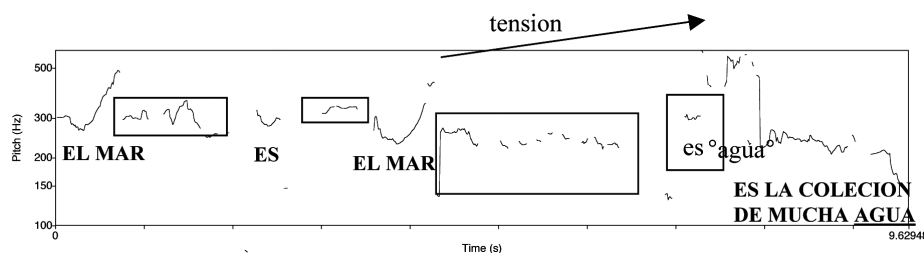
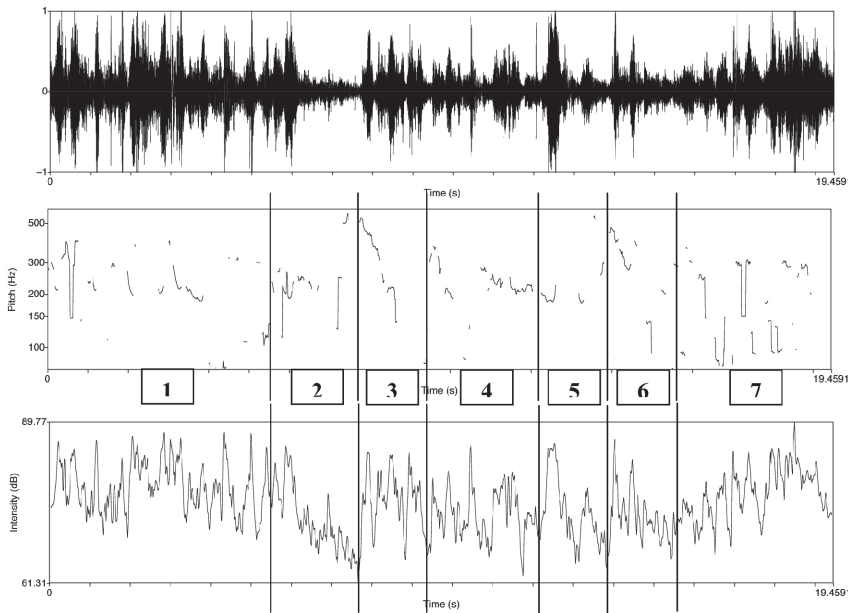


FIGURE 4 Pitch plot of a 9.6-sec selection from the Bridging Cultures classroom.



- 1 <LET ME ASK YOU SOME QUESTIONS (.) YOUR BOOKS ARE CLO:SED, (BOTH) CLOSED JOHANNA. 5.53 sec.
- 2 JOSE. 2.2 sec.
- 3 TELL US WHAT AN ARTIST DOES. 1.76 sec.
- 4 WHAT DOES AN ARTIST DO?=Draw (talk). 2.75 sec.
- 5 DRAWS, (.) OKAY? 1.71 sec.
- 6 HOW ABOUT A PHOTOGRAPHER. 1.76 sec.
- 7 WHAT'S A PHOTOGRAPHER DO?=takes pi:ctures=OKAY, 3.79 sec.

FIGURE 5 Sonogram, pitch plot, and intensity contour of 19.45 sec of teacher–student interaction in the non-Bridging Cultures classroom.

*Note.* Teacher talk is transcribed in capital letters and student talk is transcribed in small letters. See the appendix for other symbols used in transcription.

and the teacher seamlessly nods to one of the students on her right who gives the answer “Draw?” Students realize that only one can speak at a time, according to the teacher’s rules, so there is no group chorusing. Thus, teacher selection is a mechanism to ensure separation of individual contributions to the conversation.



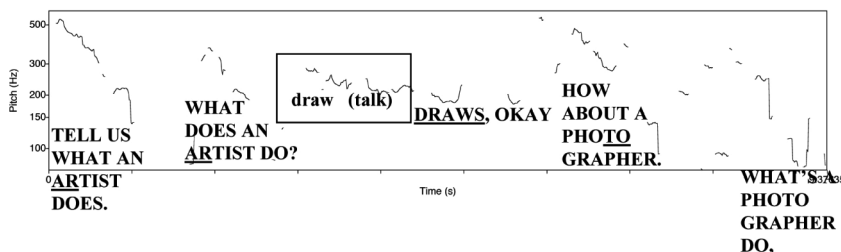


FIGURE 6 Pitch plot of a selection from the non-Bridging Cultures classroom.

In Phrase 5 the teacher performs a confirmatory repetition and in Phrase 6 asks a second question, using the same prosodic contour as for the previous question. This second question is also immediately followed by a reformulation during which she points to one of the students whose arm is raised. The prosody of the student's answer is unvaried and stretched suggesting an experience of boredom or fatigue. Perhaps it is the lack of harmony with the students' preferred collectivistic style of interaction that produces this apparent boredom and fatigue.

The teacher has begun looking away before the student has finished speaking. The analysis of timing in this segment highlights the way in which the interaction is structured as regular bouts of talk with few pauses. This interaction illustrates the IRE teaching format that is pervasive in this classroom but also suggests that the timing of the teacher's talk, gestures, and body orientation is not optimally adjusted to the students' state of engagement. It is hard to know whether this is because she encourages the children to act as independent and separate individuals or because this encouragement elicits negative responses because it is culturally out of synchrony, or both. Figure 6 reveals the remarkable prosodic similarities between the teacher's two questions and their reformulations. The students in this sequence look away a lot of the time, look in different directions, and display little affect or excitement through the prosody of their vocal expressions, through facial expression or body movement.

## DISCUSSION

The quantitative results support the general hypothesis that interactions in the two classrooms present different communicative styles that are in line with the teachers' cultural orientations. Through her experiences in the BC program, the BC teacher has adapted her habits and expectations to fit in with the predominantly Latino communicative style that her students bring to the classroom setting. We propose that the BC classroom's communicative style does not reflect a static set of interactive habits but rather a dynamically changing communicative practice, which is in harmony with the tacit styles of the Latino children at the same time as it encompasses other local influences. This communicative style is characterized by greater cooperative overlap and chusing, more student self-selection (which can lead to multiple participants at the same time, as in group chusing), less teacher selection and less arm raising (which are both mechanisms to produce but one speaker at a time), less confirmatory repetition by the teacher, more frequent collaborative completion, more criticism, and less praise.

The non-BC teacher, on the other hand, appears to have maintained a North American communicative style that regularly takes on the traditional IRE format (Mehan, 1979), fostering a clearly demarcated interactive framework. The students in the non-BC class seem to take on the teacher's style and adhere to IRE interaction rules, suggesting that they may have suppressed their tendencies to interact according to norms of a Latino communicative style in order to fit the individual-learning ethos of the classroom. In line with the IRE format, students wait for the teacher to grant them a turn during classroom conversation, raise their arm to request a turn, and rarely take a turn spontaneously. All of these behaviors are in place to ensure only one speaker at a time.

The non-BC teacher's tendency to repeat students' utterances and to prompt collaborative completions further supports the observation that the predominant communicative pattern is built on the IRE format. Overall, non-BC students do not talk simultaneously as much as their BC counterparts and they do not provide as frequent choral responses to the teacher's questions.

The greater incidence of self-selection among the BC students is probably related to an affiliative stance indexed partly by high levels of overlap and chorusing. However, it also goes against the classroom interaction norms in Latino cultures where students are often expected to be quiet and to show deference and respect for elders, precluding, for instance, student-teacher overlap initiated by the student. It seems likely that in the BC class the students and teacher have cocreated a communicative style that is a peer-group-led rather than a teacher-led enterprise. The high level of self-selection might also reflect a sense of partaking in a group voice and sharing a coherent group identity, one that is challenging to attain in an immigrant context. It may also denote a general openness to novelty and creative responding and an orientation to verbal play, narrative, and humor.

In the non-BC class, the implicit assumption connected with the pattern of speaker selection our results highlight seems to be that each individual "owns" his or her turn space and that its boundaries are relatively clear and defensible. This might go hand in hand with a notion that individual students have rights over their answers, which are either right or wrong and thus either worthy of praise or ignored. An implicit belief in the individual ownership and right over knowledge may also be reflected in the finding regarding the non-BC teacher's frequent repetition of students' utterances. By repeating a student's utterance, the teacher makes individual knowledge publicly available. Knowledge, perhaps, is thought of as emerging in individual minds rather than between minds.

Our findings point to the existence of different tacit communicative styles in the two classrooms that may be linked to underlying representations and emotions of affiliation and belonging. However, we must take into account the fact that the BC class is conducted primarily in Spanish, whereas the non-BC class uses mainly English, which may in itself promote the use of specific communicative patterns inherent in the structure of the language or intimately tied to language use customs.

We turn next to an examination of some indices of cultural conflict and attunement in the two classrooms in the hope of providing some insight into the dynamic patterning and shaping of these divergent communicative styles. The finding that students in the non-BC class participate less in verbal discourse might be a powerful index of cultural conflict between the teacher and the students and it supports Philips's (1972) findings with Native Indian children and Heath's (1983) studies of Black children. It is interesting to note that the BC and the non-BC teacher both talk as much during classroom activities, suggesting that the way in which the teachers

organize their talk—and we might add *in time*—is crucial for student participation. We would like to suggest that the lack of a clear shared communicative style between the non-BC teacher and her students disrupts the dynamic processes of *habitus* and of the interactive shaping of what Bourdieu referred to as “the feel for the game.” Our results seem to imply that the tacit communicative style shared by the BC teacher and her students is one that differs from traditional Latino styles and that seems to have been negotiated within local contexts through participation and involvement in shared purposes. Thus in the non-BC class the primary lack of “common ground” may impede the interactive building of a shared tacit communicative style through experiences of attunement.

The qualitative analyses of timing in teacher talk that we provide, which are clearly in need of further elaboration, are presented in order to highlight the way in which a timing that is sensitive to style and *habitus* may hold and frame mutual involvement in fundamental ways. Timing sets up expectations, lines of tension, and release that guide excitement and meaningful moments in interaction. It would in fact be most interesting to extend the present study by including measures of student attentional engagement and emotional expression.

We have suggested that the higher levels of student nonverbal mirroring, vocal imitation, and verbal repetition in the BC classroom constitute indices of cultural attunement. It seems to us, however, that repetition in classroom interaction can potentially index both communicative style and attunement. Repetition in conversation is known to have a rapport-building meta-function. It signals involvement, alignment, and affiliation (Tannen, 1989), all of which are more highly valued in a collectivistic culture. In Deborah Tannen’s (1989) words, “In terms of the musical aspect of language, repeating a word, phrase, or longer syntactic unit—exactly or with variation—results in a rhythmic pattern that creates ensemble” (pp. 52–53). Our results support this idea that verbal repetition and nonverbal forms of repetition (mirroring and imitation) fuel the dynamics of interaction by generating processes of attunement and experiences of belonging. However, we wish to explore the idea that repetition may also have a disruptive or interruptive function, one that may break up the temporal flow of interaction. Indeed, the frequent repetitions by the non-BC teacher of her students’ utterances seem to slow down the ongoing dynamic of exchange rather than give it impetus: One has the sense that it never “takes off.” This particular pattern of repetition may thus contribute to explain our finding concerning a lack of student participation in the non-BC class. We propose that this disruptive function of repetition in conversation may be linked to the degree of variation in repetition. It may be the case that the kinds of repetitions that create “ensemble” are subtly varied (in prosody, tone, or accent) and that the ones that stymie the flow of conversation are rigid replicas. The difference might reside in the interpersonal value of the repetition. Varied repetition implies both identification with the other and transformation through a relationship, whereas rigid repetition without variation may lack such an interpersonal dimension. This issue clearly requires further investigation.

We wish to make it quite clear however that we do not believe that cultural attunement is necessarily connected to a collectivistic world view but rather that it is universally applicable to any group of individuals who share cultural values, representations, and communicative styles. In turn cultural conflict may be observed in any group of individuals with divergent and incompatible values and styles. We suggest that some degree of cultural attunement is a key component of successful classroom practice, although we do not by any means suggest that teachers and students must always share the same cultural background. Attunement processes build on a

basic openness to differences in communicative style and a motivation to bridge the gaps. They spontaneously give rise to emergent communicative styles for teacher–student interaction. To further investigate our hypothesis it is clearly important that we study attunement processes in an individualistic classroom. The question we must try to answer is whether cultural attunement is defined by a set of stable characteristics regardless of the cultural communicative styles it is based on. On the basis of the present study we propose that student involvement and shared positive affect are key components of attunement and that a certain quality of interactive social timing underlies its processes.

The findings from this study suggest that a pedagogy that takes into account students' tacit cultural communicative styles facilitates effective education through motivation, shared excitement and dynamic collaborative learning. Keith Sawyer (2004) described effective teacher–student interaction as “framed” or “disciplined” improvisation because it occurs within frameworks that provide both routines and familiar scripts for interaction and a flexible enough context to enable what he calls “collaborative emergence” or the joint production of novel patterns. Erickson's (1996) research on coordinated social interaction in the classroom focuses on collective improvisation as a fundamental organizer of culturally shared meaning between participants. Shared implicit knowledge of expectations and expressions in moment-to-moment classroom interaction supports the cocreation of meaning that is both locally situated and rooted in a common history. We suggest that common cultural communicative styles provide coherent and convenient routines and scripts for teachers and students to build on as the basis for establishing specific microcultural practices in the classroom. We are left with the question of whether the non-BC teacher would have provided the same cultural harmony with children who were socialized to share her own individualistic beliefs and practices.

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## APPENDIX

The following transcript symbols, based on The Jefferson Transcription System (Sacks, Schegloff, & Jefferson, 1974), are used in Figures 3 to 6 and in some places in text:

- |             |   |
|-------------|---|
| <u>Word</u> | Underlining is used to indicate some form of stress or emphasis   |
| ::          | Colons are used to indicate the prolongation or stretching of the sound just preceding them. The number of colons is proportionate to the degree of stretching. |
| ( )         | Parentheses indicate uncertainty on the transcriber's part but represents a likely possibility.   |
| =           | Equal signs are used to indicate that there was no discernable silence between the turns of two speakers, that the turns were "latched".                        |
| ◦ ◦         | Degree signs indicate that the talk occurring between them was markedly quiet or soft.  |

- (.) A dot in parentheses indicates a “micropause”, hearable but not readily measurable.
- > < “More than” and “less than” symbols indicate that the talk between them is rushed or compressed.
- < > Used in the reverse order, these symbols indicate that the talk between them is markedly slowed or drawn out.
- < Used when talk is jump-started, starts with a rush.
- ? A question mark indicates rising intonation.
- , A comma indicates continuing intonation, not necessarily a clause boundary.
- . A period indicates a falling, or final, intonation contour.