Research on the Relationship Between Verbal and Nonverbal Communication: Emerging Integrations

By Stanley E. Jones and Curtis D. LeBaron

The authors argue for an integrated approach in which verbal and nonverbal messages are studied as inseparable phenomena when they occur together. Addressed are assumptions of various forms of this type of research, potential relationships of quantitative and qualitative studies, current trends found in the investigations included in this special issue, and recommendations for further work.

Orientation

During everyday communication, especially face-to-face interaction, vocal and visible behaviors are typically coordinated in ways that provide for their mutual performance. When people talk, they also locate their bodies, assume various postures, direct their eyes, perhaps move their hands, altogether behaving in ways that constitute an interactive event. Historically, however, verbal and nonverbal messages have been studied separately, as though they were independent rather than co-occurring and interrelated phenomena. The primary purpose of this article is to call for more integrated approaches to the study of verbal and nonverbal communication so that more holistic understandings of social interaction may emerge. The eight articles that follow this essay provide examples of how such research might be conducted.

Scholars from communication and allied fields have long recognized the need for integrated approaches to the study of verbal and nonverbal behavior. There is an historical record of criticism against research that isolates verbal and nonverbal behaviors from one another. Writing about linguistic research, Adam Kendon (1977) argued that theories of language derived from a study of only speech should be thought of as special language theories, whereas general language theories would show how different aspects of behavior (visible and audible) function together.

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Similarly but conversely, Margaret Mead (1975) criticized nonverbal research for neglecting linguistic phenomena and pointed, for example, to Paul Ekman's *Darwin and Facial Expression* (1973) as a "discipline-centric approach." While Ekman advanced a theory that the meanings of certain facial expressions are universal, Mead argued that members of cultures derive meaning from facial expressions by relating them to the context in which they occur, including both verbal and nonverbal behaviors.

Another recurring criticism is that the terms "verbal" and "nonverbal" are themselves outdated and no longer useful. Some time ago, Kendon (1972) observed, "It makes no sense to speak of 'verbal communication' and 'nonverbal communication.' There is only communication" (p. 443). More recently, Streeck and Knapp (1992) suggested that the classification of communication as either "verbal" or "nonverbal" is "misleading and obsolete" (p. 5). Although we generally agree with such criticisms, we refer to "the relationship of verbal and nonverbal communication" here because this wording is likely to be recognizable to our readers—connoting a holistic study of communicative forms to see how they work in concert. Our reference to "emerging integrations" is intended in two senses: (a) the interplay of messages conveyed in different sensory modalities; and (b) the potential for different research traditions often regarded as incompatible to inform one another and even, at times, to be used in coordination with one another.

Among scholarly books, the tradition of focusing on either verbal or nonverbal communication separately continued through the 1990s, as seen in books that deal with discourse and conversation analysis (e.g., Beach, 1996; ten Have, 1999; van Dijk, 1997) and those focused on nonverbal behavior (e.g., Feldman, 1992; Poyatos, 1992). However, some recent scholarly books deal with concepts and studies involving interrelationships of different message modalities, including volumes devoted to quantitative research (e.g., Burgoon, Stern, & Dillman, 1995) and those concerned with qualitative work (e.g., Auer & Di Luzio, 1992; Duranti, 1997; Leeds-Hurwitz, 1995; Sigman, 1995).

Progress toward studying verbal and nonverbal behavior together may have been impeded by certain factors. One problem is the linear format of journals and books, which is somewhat at odds with reporting the complexities of multidimensional interactions. It is much easier to present verbal transcripts or statistical tables than it is to describe and analyze integrations among varied message modalities. Another impediment is that there is not widespread agreement about how holistic analyses should be conducted. Especially apparent is the split between quantitative and qualitative research because studies employing these methodologies are generally directed to different audiences and published in different journals (e.g., the *Journal of Nonverbal Behavior* and *Research on Language and Social Interaction*). Rarely are both kinds of research published side by side, as they are in this special issue, and even more rarely are they compared in terms of their assumptions, objectives, and potential contributions to communication theory. Obviously, in this essay we cannot resolve the definitional, epistemological, and methodological issues that are being debated in the field of communication and that impinge on the relationship between verbal and nonverbal communication.

What we can offer are concepts and interpretations that may help to initiate a dialogue on these issues. In the next section, we provide a brief history of research on verbal-nonverbal communication, and we identify some common assumptions about the nature of communication and corresponding research strategies found in different approaches. In the third section, we address potential relationships between quantitative and qualitative studies. Section four previews the articles in this special issue to highlight assumptions, theory development, and research strategies of scholars in current research. The final section makes recommendations for future research, including (a) that videotaped data be used in all observational studies of face-to-face interaction, and (b) that researchers publish not only their written analyses of data but also the actual videotaped recordings upon which those analyses are based, so that these can be inspected by readers and other scholars. These recommendations are demonstrated by this special issue, which includes a CD-ROM containing video clips from several authors.

A Brief History of Verbal-Nonverbal Research: Assumptions and Strategies

Although a distinction between verbal and nonverbal behavior is centuries old, rigorous study of the relationship of verbal and nonverbal messages began in the 1960s among mostly quantitative researchers. Many of these early investigations were based on a "channel summation" model, which depended upon a couple of key assumptions. First, this model assumed that verbal and nonverbal behaviors are generally different kinds of messages with rather different meanings and potential functions (effects). Hence, various kinds of verbal and nonverbal messages were coded separately as conveying different kinds of meanings. Second, this model assumed that the total meaning or impact of messages conveyed in different channels can be derived from the frequency, intensity, or relative weighting of acts summated across channels.

One common type of channel summation research was "channel reliance," an approach that was designed to determine what kinds of cues (verbal, vocal, facial, etc.) were more influential in determining observer perceptions (see, for example, Bugental, Kaswan, & Love, 1970; Mehrabian & Ferris, 1967; Mehrabian & Wiener, 1967). Thus, verbal and nonverbal message combinations were the independent variables, and the dependent variables were the responses of persons exposed to those messages. Subsequent research showed that the channel summation model was too simple, especially when it was used to create formulas for the relative contributions of different channels to the overall impressions of observers. For example, Hegstrom (1979) found that the effects of messages in different channels did not account for general assessments of audiences in an additive manner; rather, meaning depended on the particular combination of messages conveyed in different channels (for a review of channel reliance studies, see Burgoon, Buller, & Woodall, 1996).

In another version of the channel summation model, situational factors were manipulated to see how subjects pursued certain goals (verbal and nonverbal

behaviors thus being dependent variables). For example, Knapp, Hart, Friedrich, and Shulman (1973) induced subjects to converse with another person and then engage in leave-taking, the objective being to assess the frequency with which the leave-taker employed an array of different verbal and nonverbal behaviors. The implicit assumption was that frequent behaviors were more important in achieving closure to the conversation. As Streeck and Knapp (1992) have pointed out, such early studies were commonly flawed in the following ways:

> the use of stimuli which were not derived from naturalistic observation; a focus on the behavior of a single interactant without a freely responding partner; the assumption that judgments of third party observers are isomorphic with the judgments made by interactants themselves; the assumption that the sum of isolated parts of the interaction process is . . . [equivalent to] the whole; the general inattention to the location of behavior in the stream of interaction; and others. (p. 4)

Although Streeck & Knapp's criticisms apply to many quantitative studies of the 1960s and 1970s, other investigators attempted relatively "naturalistic" studies in which people conversed (without a script) and variables were not manipulated. Underlying this type of research was a "sequential co-relational" model of the communication process, which assumed that the meaning or impact of behaviors was derived from their sequential or simultaneous relationships, or both. For example, a series of turn-taking studies was initiated by Duncan (1972) and continued by others (e.g., Cegala, Sydel, & Alexander, 1979; Duncan & Fiske, 1977). After analyzing only two interviews, Duncan (1972) identified certain "turn-relinquishing" signals (linguistic, paralinguistic, and kinesic) whereby speakers could give the conversational floor to the other person (the sequential relationship). The more relinquishing behaviors exhibited (more or less simultaneously, the co-relational aspect), the greater the likelihood that speakership would change. Duncan did not regard the meaning or effect of behavior as inherent. For instance, he observed that if a speaker held a gesture in midair while pausing, no change in speakership would occur, even when various relinquishing behaviors were exhibited—the "turn-suppressing" gesture in effect canceling out the meaning or effect of the other behaviors.

Some qualitative scholars in the 1960s and 1970s took a still more complex view of communication processes. They rejected not only the notion that verbal and nonverbal behaviors have inherent meaning, but also the use of contrived situations and the practice of focusing on one subject's behaviors apart from the influence of interaction partners. They considered how entire episodes of interaction were organized and how different behaviors functioned in combination as people coordinated meaningful patterns of interaction. Much of this research adhered to a "structural" model of communication (Kendon, 1990) designed to discover cultural determinants of behavior. Shared assumptions were (a) that the meaning or function of behaviors is derived from the total observable context of the acts (other behaviors and social situations), and (b) that people communicate primarily by enacting cultural rituals or programs together.

Prominent versions of this perspective include ethnographic studies of the type originated by Erving Goffman (e.g., 1963, 1967) and the tradition of "context analysis" exemplified by the work of Albert Scheflen (e.g., 1964, 1965, 1973) and Adam Kendon (e.g., 1990). For example, Goffman (1967) described the ways people coordinate their actions to establish culturally expected respect for one another in the process of performing ritualistic "facework." Kendon and Ferber (1973) identified six stages in programs of human greetings in formal situations, also finding variations on this pattern in less formal situations, such as when people have seen each other recently. This tradition of studying cultural influences has been carried beyond the 1970s (e.g., Erickson, 1992; Streeck, 1983), sometimes with the purpose of exploring how programs from different cultures may create problems during cross-cultural interactions (e.g., Erickson & Shultz, 1982; Gumperz, 1982, 1992).

In recent years, research on the relationship between verbal and nonverbal communication has advanced as new and more complex approaches have been introduced. A major current trend is to emphasize mutual or co-active influences. Although it is still common, among quantitative studies, for verbal and nonverbal behaviors to be coded as separate messages assumed to have distinct meanings, some researchers are attending to the interplay of messages between interactants, rather than merely the behaviors of one person in an interaction. Somewhat contrived situations are often used in such studies, but the new emphasis on mutual influence contrasts with the traditional experimental approach in which a confederate performs certain planned behaviors in order to see the effects on the other person(s). Increasingly, research subjects interact spontaneously, within the constraints of the situation. For example, when Manusov, Winchantz, and Manning (1997) had subjects engage in cross-cultural, face-to-face interactions, they found that the congruence (matching) of communicative behaviors increased over time. Another example is the work of Judee Burgoon (and associates) based on an "interaction adaptation" paradigm (e.g., Burgoon, Stern, & Dillman, 1995; Burgoon & White, 1997). The objective is to explain how psychological predispositions are related to the ways interactants respond to situational factors and especially to one another's behaviors. Thus, an assumption underlying these studies is that interactants do influence one another, often toward either divergence or congruence of behaviors, depending in part on a variety of potentially impinging factors, including cultural backgrounds, attitudes toward the interaction, and characteristics of the social situation.

Qualitative scholars have increasingly employed "microanalytic" methods, such as conversation analysis and allied approaches, which are especially sophisticated in notions of interactivity. Researchers typically examine naturally occurring communication involving two or more people who exchange messages on a real-time basis, with the focus being how people behave (an interactional question) rather than why (a cognitive question). These analysts emphasize that each speaking turn has consequences for others because talk is designed to reflect on prior turns and project future ones. Hence, verbal and nonverbal messages are not seen as inherently meaningful because communicative behaviors are subject to inference and open to negotiation among participants. Behaviors accomplish social actions

by virtue of their placement and participation within sequences of actions. When investigators do make inferences about individual, relational, institutional, or cultural influences, they generally do so only on the basis of clear internal evidence—such as from direct observation of behavior in interactions (e.g., Streeck, 1982), from ethnographic interviews with the participants (e.g., Leeds-Hurwitz, Sigman, & Sullivan, 1995), or from a combination of such methods, as when participants are asked to view themselves on videotape to bring about "stimulated recall" (e.g., Erickson & Shultz, 1982). The model of communication implied by these microanalytic studies has been described as "emergent" or "performative" (Leeds-Hurwitz, Sigman, & Sullivan, 1995). Although similar to the "structural" model (described above) in certain ways, the focus of the emergent model is not restricted to the study of cultural rituals or programs. Rather, an added assumption may be identified as follows: People not only utilize structural forms, but they also co-construct and negotiate meanings and rules in their ongoing interactions.

Microanalytic studies of the relationship between verbal and nonverbal communication usually take one of two forms. One approach involves detailed study of a collection of similar interactive instances. For example, Goodwin (1980) examined dozens of excerpts from videotaped data and explicated subtle forms of coordination between utterance-initial restarts and shifts in participants' eye gaze toward the speaker; thus, restarts, often thought to be a problem of encoding, were found to be functional in that they reflected speaker responses to evidence of listener attentiveness. Employing examples of interactions from different cultures, Streeck (1993) demonstrated that a speaker may draw special attention to the significance of an iconic (figurative) gesture during an explanation by momentarily looking at his or her gesticulating hand, thus drawing the gaze of the listener to that gesture and helping to clarify the speaker's meaning. The other approach involves detailed analysis of a single excerpt from a videotaped record. For example, LeBaron and Streeck (1997) examined an entire police interrogation in which the officers moved their bodies in strategic ways while speaking metaphorically about the interrogation room (and participants' maneuvers within it), saying, for example, "You're locked in a room and you're looking for a window, a door, or some way out—there's not one." The analysis shows how the suspect's confession was interactively brought about.

Our brief review of research on verbal and nonverbal communication is but a broad overview of a wide range of topics pursued and approaches employed. Obviously, some approaches are topically related but incompatible because of their underlying assumptions. For instance, a researcher could not treat behaviors as meaningful in themselves, to be manipulated or counted (according to the channel summation model), and at the same time regard behaviors as meaningful only in context (as with context analysis). It is also clear that some approaches to research have evolved into or been subsumed by others. For instance, the assumptions of the early "sequential co-relational" model (e.g., turn-taking) are not inconsistent with later approaches to mutual influence; rather, the first seems to have been absorbed by the complexities of the second. In some cases, mergers among methods have been explicitly proposed and accomplished. For example,

Heath (1986) combined Scheflen's structural approach (albeit revised) with the emergent or performative approach of conversation analysis, toward a microanalysis of vocal and visible forms co-occurring during videotaped medical consultations (also see Leeds-Hurwitz, Sigman, & Sullivan, 1995). Another relatively major and ongoing issue is the relationship between quantitative and qualitative research traditions, which is considered next.

Regarding Quantitative and Qualitative Research

By design, this special issue includes both quantitative and qualitative studies. We hope to promote dialogue across this methodological divide, which has become unfortunately (perhaps unnecessarily) wide. Traditionally, the quantitative and qualitative paradigms have been regarded as fundamentally at odds, seemingly irreconcilable in their different understandings of the world. Nevertheless, we agree with James Anderson (1987), who saw hope for a "middle ground" or even a "synthesis" of sorts (p. 47).

In a paper entitled "Quantitative Versus Qualitative?," Janet Bavelas (1995) argued that the distinction between the two kinds of research, as it is commonly conceived, involves a number of false, dichotomized assumptions. Among these are notions that quantitative studies are objective whereas qualitative studies are subjective, that quantitative research is deductive and qualitative is inductive, and so on (artificial vs. naturalistic, generalizable vs. not generalizable, internally vs. externally valid, etc.). Take generalizability, for example. In theory, this is a stronghold of quantitative methods because qualitative studies often involve small samples of incidents for analysis. However, by the standards that scholars using statistical methods impose upon themselves, the generalizability of a study is limited to the population from which subjects for a study have been selected, and then only if the subjects have been drawn at random (or matched, in some cases) and in sufficient numbers to justify making statements about a larger population (a condition seldom met). Of course, it could be argued the other way around, that qualitative studies are more generalizable because they are more naturalistic, less artificial. Neither approach can lay exclusive claim to generalizability of findings.

Perhaps the stickiest issues, the points at which scholars from different traditions are most likely to argue against "the other side," involve epistemological distinctions. According to common conceptualization, quantitative researchers are "positivists" or "objectivists" because they regard reality as something "out there" and (with the right methods) discoverable. By contrast, qualitative researchers are said to be "interpretivists" to the extent that they regard reality as something "socially constructed" and humans (hence researchers) as necessarily symbol-using beings (hence unable to access reality directly). In the practice of research, however, these distinctions tend to blur, especially in the realm of verbal-nonverbal research where both quantitative and qualitative investigators routinely use video recordings as a basis for making "direct" observations of human behavior. Compared to studies without firsthand observation (e.g., use of surveys and informant interviews), or, in cases where firsthand observations are reported but there is no ability to replay

or reexamine an event (e.g., field notes), video technology seems to bring the investigator closer to the details of the "original" event. Video recording requires cinematic choices that are interpretative acts by their very nature, yet both qualitative and quantitative researchers tend to treat such records as nonproblematic representations of what actually happened. In short, sometimes the methodological-epistemological divide seems bigger in principle than it does in practice.

To some extent, both quantitative and qualitative scholars make reality claims, though the realities they envision may be different and the manner of their explanations may contrast. Quantitative scholars are more likely to make conclusions about multiple incidents in a corpus of data, implying that the behaviors observed are not idiosyncratic or specific to certain encounters. Qualitative scholars are more likely to analyze the details of a single case or of a specific set of interactions, thereby documenting at least one way that some communicative phenomenon may be interactionally achieved, usually avoiding questions about how frequent or commonplace the phenomenon may be. Ultimately, however, establishing a basis for intersubjective agreement is the strategy for making reality claims in both traditions. Thus, quantitative researchers operate as interpretivists when observers rate the effect of certain messages, often achieving interrater reliability through training and discussion among raters. Qualitative researchers, although sometimes acknowledging their interpretive role in creating a view of observed events, employ multiple examples and elaborate descriptions toward persuading the reader that the study is accurate (hence, objective).

A renowned qualitative researcher, Emanuel Schegloff, has argued that there is no inherent contradiction between conversation analysis and quantitative research (1993), but he cautions that researchers should follow certain procedures that are too often neglected. To illustrate, Schegloff reviewed a study in which frequencies (per minute) of laughter were counted by investigators as evidence of "sociability." Schegloff rightly argued that "per minute" calculations are an inadequate basis upon which to evaluate sociability and suggested that behaviors be counted according to whether they occur in "environments of possible relevant occurrence" (p. 103)—that is, places where such behaviors would be appropriate in an interaction. Thus, laughter, if it occurred during or after a funny remark, could be interpreted as "sociable," whereas some other sorts of laughter may be offensive (as documented in a study by Jefferson, Sacks, & Schegloff, 1987). In part, Schegloff was objecting (albeit in different terms) to the notion embraced in some quantitative studies that verbal and nonverbal behaviors have meanings in themselves. Instead, he proposed that behaviors be counted as having a certain function only when they can be seen to occur within an interactive context that provides for that function.

One implication of Schegloff's ideas is that when the two methods are used together, most often quantitative analyses would follow qualitative studies, operating as a test or extension of those prior conclusions. This is not to suggest that qualitative and quantitative investigators often approach data in complementary ways. However, there are cases where quantitative methods have been used to test, extend, or examine some aspect of prior conclusions from qualitative studies. For example, LaFrance and Mayo (1976) conducted a series of two studies about

racial differences in eye gaze behaviors during face-to-face conversations. First, they looked frame by frame ("microanalytic structural") at recordings of one Black-Black and one Black-White conversation, which showed that the Blacks face-gazed more when speaking, while the one White subject face-gazed more when listening. Second, LaFrance and Mayo used a much larger sample based on observations of public behavior (not videorecorded), which demonstrated statistically that there was less face-gazing by listening Blacks than listening Whites. A number of quantitative studies have investigated a phenomenon originally documented in qualitative research (context analysis) by Scheflen (1964), namely that postural congruence is indicative of communicative identification or empathy (Bavelas, Black, Chovil, Lemery, & Mullett, 1988; LaFrance, 1982, 1985; LaFrance & Broadbent, 1976). One discovery of this quantitative research was that postural congruence is indicative of empathy only when behaviors are mirrored, not when postures are identical in form, a finding that constituted a refinement of Scheflen's concept.

Finally, qualitative methods have occasionally been used to test and reformulate conclusions based on quantitative data. For example, Beattie (1983) treated Duncan's (1972) quantitative study and Sacks, Schegloff, and Jefferson's (1974) qualitative study of turn-taking as simply alternative approaches to getting at the same phenomenon—employing qualitative data analysis as a way of combining and revising both sets of conclusions. Thus, although a quantitative-to-qualitative investigative sequence is far less common than the reverse, Beattie's study illustrated the potential for testing hypotheses or prior findings by qualitative means, a possibility suggested some time ago by Glaser and Strauss (1967).

Current Approaches to Verbal-Nonverbal Analysis: Studies Presented in This Issue

When planning this special issue, we solicited articles from scholars known for their work on the relationship between verbal and nonverbal communication. We made no attempt to impose a particular theme, method, or perspective on the contributors—except to ask that they examine both visible and vocal behaviors and consider theoretical issues related to such joint examination. In addition, a balance in the numbers of qualitative and quantitative studies was sought. The result is that a broad array of studies is represented, demonstrating various new ways of approaching assumptions and research strategies in this flourishing area of research.

Buck and VanLear's article is arguably the most theoretical of the contributions to this issue. Drawing on a meta-analysis of research on the effects of brain damage on communicative abilities, they challenge a traditional assumption that analogically codified messages are monitored exclusively by the right hemisphere, a notion that has been employed by some theorists to justify the study of nonverbal behavior as a separate and distinct form of communication. Basing their position on tests of pantomime reception and expression, Buck and VanLear propose that "pseudo-spontaneous communication" (intentionally manipulated nonverbal messages), like verbal symbolic behaviors, are processed by the left brain, whereas

"spontaneous" (nonmanipulated) cues are sent and received by the right hemisphere. Implications for the exchange of relational messages are explored in the article.

Qualitative conversation-analytic studies are sometimes accused of being "atheoretical" because they proceed inductively and emphasize emergent processes and patterns, sometimes eschewing reference to structural factors external and prior to the interaction itself (see discussion of emergent and structural above). However, in the article "Closing Up Closings," LeBaron and Jones combine structural and emergent approaches in their microanalytic study of a chance reunion occurring in a beauty salon. Employing the constructs of "ritual enactment," "multiple conversational involvements," and "differential ritual enactment," they argue that conversational closings may be best understood by considering the dynamics of interaction as they grow out of the cultural-structural and situation-specific contexts in which they are embedded.

The potential for integration of qualitative and quantitative research is demonstrated in the Bavelas, Coates, and Johnson study of "Listener Responses as a Collaborative Process." In developing their hypotheses that a speaker's face-gaze tends to elicit responses from listeners and that once those responses have been obtained, speakers will tend to withdraw gaze, the investigators draw on previous qualitative findings concerning this phenomenon while conducting their own preliminary qualitative analysis. They show statistically that the predicted patterns occur with considerable regularity and conclude that the results demonstrate that conversational participants exhibit a rather precise degree of coordination in their audible and visible acts.

Streeck's groundbreaking article, "Grammar, Words, and Embodied Meanings," argues that a primary function of some speech particles may be to connect linguistic to bodily means of expression. In developing his position, Streeck focuses on two words with somewhat parallel functions, "so" in German and "like" in American English. He relates the functions that these words have as interaction devices to their grammatical history—notably "like" has undergone development over time that kept it close to roles relating to embodiment. He then gives microanalytic examples of how these terms are used in naturally occurring interaction, both "so" (German) and "like" (English) being prototypically connected to gestural behavior. His most detailed example involves a conversation between two boys, ages 9 and 10, who relive their experiences concerning a horror movie they have both seen, using "like" in connection with their gestural expressions in which they act out the appearance and actions of characters in the film.

Two studies in this collection involve qualitative microanalytic studies of medical interviews. Heath's paper on "Demonstrative Suffering" contains numerous examples of diagnostic interviews in a physician's office in which the patient dramatizes symptoms by means of gestural (re)enactments in order to portray the pain he or she has experienced, an especially important type of information when the symptoms themselves are not clearly in evidence at the time of the diagnosis. Heath notes that in some cases the doctor responds to such nonverbal messages or provides opportunities for gestural-verbal elaboration on the patient's experiences, whereas, in other cases, the doctor appears to disregard those messages.

Beach and LeBaron's paper on "Body Disclosures" examines a single but revealing episode from a medical encounter: a health appraisal interview in which the patient becomes visibly and audibly emotional when reporting personal problems and when confirming childhood sexual abuse. Analysis shows how the patient's body and the medical file are used as central communicative resources through talk and visible actions (facial expressions, eye gaze, hand gestures, touch, postures, shifting bodily orientations, use of tissue and records). Delicate moments are shown to be collaboratively produced, as attention given to the patient's body gets transformed over the course of the history-taking interview. It is observed that attending to the patient's expressed and exhibited problems is not tantamount to abandoning a medical agenda but an inevitable and valuable resource for generating a comprehensive understanding of the patient's bio-psychosocial health.

Manusov and Trees's study concerning the effects of nonverbal listener responses on the verbal accounting process as speakers attempt to justify their handling of problematic situations is presented in an article appropriately titled, "Are You Kidding Me?" This study employs an innovative approach to coding and statistically analyzing nonverbal-verbal interaction data. Verbal accounts that occurred both before and after evaluations by listeners were coded with categories traditionally used in the account-giving literature, from mitigating or more aggravated behaviors, and raters assessed facial and vocal expressions of listeners separately (as they occurred in conjunction with verbal responses when applicable) along a number of dimensions (negative to positive affect, confusion to understanding, etc.). Then, statistical tests were used to determine the degree to which accounting behaviors following initial accounts were influenced by listener responses. Among other results, Manusov and Trees found that more "negative" nonverbal messages could predict the use of justifications, internal excuses, and facework moves. Besides the fact that past studies of accounting practices have been concerned only with verbal behaviors, this study is unique in that verbal behaviors by listeners were analyzed separately from the nonverbal cues by means of transcripts so that the investigators were able to show that the certain vocal and facial responses could explain accounters' verbal reactions above and beyond what could be explained from verbal exchanges. In addition, it is worth noting that the authors supplement their quantitative analyses with qualitative data in the discussion section of the paper to bolster their interpretations of the results.

The last study in this series is Burgoon, Bonito, Dunbar, Ramirez, Kam, and Fischer's complex exploratory study of the effects that different technological and nonmediated means of communication have on subject evaluations of their interactions and interaction partners. The authors' methods return us in part to an old approach, but in a distinctive and new way. That is, their study is related to the original "channel reliance" approach in that the effects of different sensory modalities are compared, but it is different in that the channel variations examined are differentially mediated forms of communication, such as those that people use everyday. In contrast, the traditional channel reliance studies involved unrealistic circumstances intended to simulate face-to-face conditions in which message combinations were artificially manipulated to test subject interpretations. In the Burgoon

et al. study, subjects were asked to engage in a decision-making task with a partner (confederate) under different communicative circumstances, depending on whether they met face-to-face or they interacted via written text only (when partners are in different rooms), proximal text (by computers, but positioned side-by-side), audioconferencing, or videoconferencing. The results show that different forms of mediation and nonmediation have different advantages and disadvantages; generally, proximal conditions created more favorable evaluations of the exchange and distal circumstances enhanced task performance.

Looking across the studies in this collection, we see many parallels in findings, even though we made no attempt to solicit articles thematically. For example, both the Streeck and the Heath studies are concerned with gestural embodiments of speakers' experiences not directly observable in the here and now: Streeck looks at the reenactment of movie scenes (and other events); Heath reports on demonstrations of symptoms and suffering during medical interviews. Both authors suggest that gestures are structurally related to language and that they may convey information not readily translatable into words. Similarly, Beach and LeBaron describe a patient's emphatic and rhythmic chopping gestures (iconic) when she talks about her personal difficulty of living "different parts" (performing for others, wearing masks, etc.). Thus, the arguments presented by these authors suggest that iconic gestures are much more than mere expressions of inner states or redundant accompaniments of verbal behaviors. One way of looking at the Buck and VanLear study is that it supports the perspectives offered by these gesture-attending authors. That is, the brain hemisphere research shows that speech and pantomimic (iconic) gestures are related, not just structurally, but also neurologically, suggesting that both kinds of behaviors are intentional and symbolic by their very nature.

The most evident parallel is that six of the eight articles involve investigations of mutual influence. This takes different forms in the different studies, but most consider the dynamic interplay of two or more persons in their exchanges of verbal and nonverbal messages. Some authors focus mostly on speaker behaviors, although not to the exclusion of two-way influences. For example, Bavelas, Coates, and Johnson emphasize the way that speakers cue listener responses by means of face gazing, although it also shows that the listener's responses in turn serve to cue speakers to discontinue gaze as they proceed with verbalization. Heath draws special attention to the ways medical patients present their health-related experiences verbally and nonverbally, but consideration is nevertheless given to the effects of the interviewing physician's responses. The Manusov and Trees study, on the other hand, focuses on the influence exerted by the person who is ostensibly in the listener's role as his or her responses affect the subsequent account offered by the speaker.

Speaker-listener roles are less analytically separable in the other studies. In the Streeck study, the boys who are acting out the movie scenes switch off in terms of who is speaking and listening, playing off of one another. In the Beach and LeBaron analysis of a medical assessment interview, although the interviewer exerts influence by asking questions, the patient also regulates the conversation by means of emotional displays and signaling when the interviewer can return to

the agenda. In the LeBaron and Jones study, the process examined is still more complex because they analyze not only the mutual influence between the two women engaged in a chance reunion, but also how onlookers exert influence on the course of that conversation.

As already noted, two of the articles are about medical interviews. In recent years, an increasing number of communication researchers have entered into institutional and organizational settings to explicate the communicative practices whereby participants' institutional goals are pursued and realized. Research on verbal and nonverbal communication has contributed to this enterprise. The problematic nature of medical interview situations, especially as seen in the common observation that busy physicians may not attend adequately to the needs of patients, is well known. In the examples provided by Heath, the physician is sometimes attentive, sometimes not. In the Beach and LeBaron study, the medical professional is remarkably attentive. Authors of both studies conclude that when the medical interviewer does attend to the patient's verbal and nonverbal messages, a more comprehensive understanding of the patient's emotional and/or physical condition is obtained, and diagnosis—by implication, treatment—is improved. These studies also show how such attentiveness is interactively accomplished.

Two studies in this volume consider physical surrounds and material objects of face-to-face interactions. Research on the effects of environmental cues related to perceptions and interactions has a long history in the nonverbal communication literature, and, in context analysis research, environments have traditionally been treated as cues providing information about program behaviors and the social situation. The Beach and LeBaron and the LeBaron and Jones articles contrast with these earlier perspectives: Rather than looking at physical spaces and objects as primarily influential factors, these authors treat these elements as resources available for utilization by interaction participants. For instance, Beach and LeBaron show that the arrangement of the consultation room is used by the participants to accomplish transitions, as when the interviewer looks toward the medical file (sitting on the top of a cabinet) as a possible means of returning to discussion about the health questionnaire. At another point, the crying patient glances toward a box of tissues—a subtle action that prompts the interviewer to ask if she would like a tissue; handing the tissue to the patient then serves to end the focus on her feelings and continue discussion of the questionnaire. The LeBaron and Jones study of beauty salon interaction shows the ways the hairdresser coaxes a client back into the swivel chair by patting the back of the chair and by holding a comb in midair—objects used to imply a resumption of the hairdressing activity.

We submit that these parallels among articles give evidence of convergence of findings in the study of relationships among verbal and nonverbal behaviors. That is, when detailed analyses of face-to-face interactions are conducted with a holistic perspective, it is likely that similar patterns will be discovered in separate studies. Perhaps such results are most likely to emerge when inductive approaches are employed. However, as Bavelas (1995) has pointed out, there are different ways of being inductive, and neither qualitative nor quantitative studies have exclusive rights to the claim of being inductive.

Recommendations for Future Research

In this final section, we are not primarily concerned with the programmatic content of future research because, as the present collection demonstrates, there are many fruitful lines of investigation already underway and likely to be continued. Nevertheless, a few of these trends are noted here. The study of mutual influence seems especially important if we are to develop an explanatory theory of interpersonal communication. Mutual influence is especially complex and subtle in face-to-face situations because visible forms of communication occur simultaneously with one another and with vocal messages, and exchanges among persons can occur both sequentially and instantaneously. We do not claim the superiority of either qualitative or quantitative methods, but we do suggest that these methods should be used together much more commonly than they have been in the past. Typically, microanalytic qualitative studies have been followed by separate quantitative studies to test or extend a particular finding. However, we suggest that qualitative and quantitative methods can be used together, so that when the occurrence of certain behaviors is quantified, they are considered in the context of what is going on in the interaction at that time, along the lines recommended by Schegloff (1993). Two other trends seem noteworthy and laudable. First, some analyses go beyond a study of specific behaviors to consider the surrounding social and material environments, examining how these may influence interaction and how participants may use their surrounds as communicative resources. Second, research that attends to the interface of verbal and nonverbal behaviors and technological means of communication seems likely to be increasingly important.

Our primary concern in this section is more basic than the question of trends: We draw attention to issues of data and what kinds of data are most appropriate for research on the relationship of verbal and nonverbal communication. In our opinion, the issue of whether verbal and nonverbal communication should be studied separately or together has been resolved. We agree with Ray Birdwhistell, who reportedly said, "studying nonverbal communication [by itself] is like studying non-cardiac physiology" (cited in Knapp, 1978, p. 3). To systematically ignore either vocal or visible behaviors in a study of face-to-face interaction is to stunt understanding of the phenomena under investigation.

Occasionally, research traditions may need to reexamine and move beyond their origins. The study of "nonverbal communication" emerged in the 1960s, largely in reaction to the overwhelming emphasis placed upon verbal behavior in the field of communication. At about the same time, conversation analysis began to emerge as another and quite different approach to detailed analyses of human interaction. A founder of conversation analysis, Harvey Sacks (1984), began with a tape recording of interaction as a "good enough" record, acknowledging that "other things, to be sure, happened, but at least what was on tape happened" (p. 26). What was good enough then, whether it be a record of nonverbal or vocal behaviors considered alone, may no longer be sufficient at this juncture in the evolution of research on face-to-face communication. We recommend that complete audiovisual records be the basis for future research in this area.

Suppose that a researcher has a videotaped recording of human interaction, wants to analyze this data, and will begin with a qualitative analysis (whether or not quantitative methods will follow). We suggest that at least three different conclusions could result from examining vocal and visible behaviors in their interrelationships. One possibility (although we think it unlikely) is that little new information will be gained beyond what the observer could tell from a transcript of the interaction. Perhaps what interests the researcher most is an intellectual exchange between certain persons in a seminar or a professional meeting—how ideas are presented by higher and lower status individuals and how they respond to one other, for example. It could be that the ways verbal and nonverbal behaviors are integrated in this exchange shed little light on the issue of central interest, that visible behaviors are largely predictable from the verbal record and do not provide any new insights about how this sort of interaction is conducted. The investigator could report this lack of "newsworthy" information about the verbal-nonverbal interface in the interaction, providing a few examples, or perhaps the lack of information about the verbal-nonverbal interface is itself telling and worth discussing. At the very least, the investigator will find that the dialogue is easier to understand and transcribe as a result of having a videotape to inspect (rather than simply an audiotape) and will have satisfied himself or herself that a verbal transcript is an adequate means of representing the communication.

Another possible outcome is that examination and description of both vocal and visible behaviors provides additional evidence for an interpretation based primarily on the investigator's analysis of verbal communication. In this sense, nonverbal behaviors serve to complement or clarify verbal messages, and their inclusion in a description helps to bolster an argument. For example, in the Goodwin (1986) account of an interaction in which a narrator's story is modified by audience participation, the verbal exchanges are important, but so are the visible actions of the narrator's wife. Goodwin describes especially her use of gaze as she draws others into the act of challenging the narrator's version of the events, descriptions that serve to clarify how the transformation of the story is accomplished, convincing the reader that the story was indeed co-constructed.

A third possible outcome is that the investigator discovers what can be understood only by considering the ways verbal and nonverbal messages are integrated with one another. This requires that the researcher entertain the possibility of such an outcome in the course of examining the data because the interplay between vocal and visible behaviors is often subtle and repeated examination of the audiovisual record may be necessary. As Paul ten Have (1999) has noted, in the conversation analytic tradition, even when videotapes are used, investigators usually start with an audio transcription so that "the verbal production by participants is seen as the base-line for understanding of the interaction, with selected visual details being added to this understanding [later]" (p. 9). One way to avoid the trap of focusing primarily on verbal communication may be to observe the videotape repeatedly before committing to the use of a particular transcription system.

To illustrate this third possible outcome, we examine an excerpt of videotaped data (LeBaron, 1996) in which the interplay between vocal and visible behaviors seems especially salient. The setting is a group therapy session involving five

clients who have been convicted of sexually deviant crimes (e.g., rape) and two therapists. One of the clients ("Ethan") has been appointed as group leader for this particular session, and his duties include keeping the minutes, monitoring the time, and generally ensuring that clients adhere to group rules. When our moment begins, another client ("Stan") is reading aloud from his homework, giving the group a detailed description of his crime and subsequent arrest. Gradually, the intonation pattern of Stan's voice changes as he begins to talk "spontaneously" about his experience rather than read from his homework, which violates a group rule: Clients are supposed to read only what they have written, not speak impromptu. The group's vocal interaction has been transcribed as follows (transcription symbols are explained in the Appendix):

Stan:	I was scared when I was arrested (0.5) and I (0.3) felt very u:h (8.0) very ba:d (.) (°when°) (0.2) when I was handcuffed and u:h (0.2) I felt (0.4) ·hhh y'know (2.0) like my li(h)fe was o:ver (2.2)
Ethan:	U:m (.) d'you write that down or ┌what
Stan:	└Yeah =
Therapist:	= ((guffaw)) =
Stan:	= I did
Therapist:	Tha(h)t's a real good question
Stan:	·hhhh Well (0.2) don't tell me to look up when I'm talking and then you know (.) and not- (.) not look do:wn and you know (.) you know so I'm saying ┌ (I-)
Therapist:	└ Stan
	(1.0)
Therapist:	Put a sock in it.
	(2.2) ((Stan shuffles papers))
Therapist:	Why did you ask that question (Ethan)
Ethan:	U::m (0.2) because uh he u:m (0.4) if the question- I guess felt he: (.) he wa- I: didn't (.) it sounded like he was trying to explai:n . . .

After it becomes evident that Stan is talking and not reading, Ethan (the group leader) asks, "d'you write that down," suggesting through his question that Stan has violated a rule. The therapist immediately laughs or guffaws, and then compliments Ethan's utterance ("real good question"). Stan responds loudly and defensively until the therapist addresses him abruptly ("Stan . . . put a sock in it"). The therapist then asks Ethan why he asked his question. Ethan has some difficulty accounting for his question, but eventually attributes it to Stan's behavior (i.e., ". . . it sounded like he was trying to explain. . . .").

The vocal record does not tell the complete story. Looking at the transcript, it would appear that Ethan asserts his role as group leader upon noticing Stan's violation of a group rule—in fact, that is how Ethan describes his own behavior (". . . it sounded like he was trying to explain. . . ."). A close examination of the videotape, however, shows that the therapist turned and oriented directly toward Ethan seconds prior to Ethan's question. Here is a more holistic depiction of the interaction:

Figure 1. The therapist turns and looks at Ethan (participants' images altered).

Stan: I was scared when I was arrested (0.5) and I (0.3) felt very u:h (8.0) very ba:d (.) (°when°) (0.2) when I was handcuffed and u:h (0.2) I ((therapist looks at Ethan, see Figure 1)) felt (0.4) ·hhh y'know ⌜ (2.0) like my li(h)fe was o:ver (2.2)
Ethan: ⌞ U:m (.) d'you write that down . . . .

The therapist, by shifting his orientation away from Stan and toward Ethan, signals a juncture that arguably prompts Ethan to behave in some way. By directing his gaze at Ethan, the therapist cues Ethan to respond, and within seconds Ethan censures Stan with the question, "d'you write that down. . . ." Moreover, when the therapist asks Ethan, "Why did you ask that question," the therapist thereby quashes the fact that he prompted Ethan's question nonverbally. In response to the therapist, Ethan might have said, "I asked Stan that question because you were looking at me as though I was to do something."

Such findings may have considerable practical value. The stated purpose of this particular therapy program is to "increase clients' self-awareness, self-monitoring, and self-control." Within this therapy for "self," the therapists (and clients) regard good acts of leadership by clients as an individual accomplishment—evidence that a certain "self" is making progress toward rehabilitation, moving closer toward completion of the program. By effacing the subtle visible behaviors whereby group leaders are prompted, participants may interactively collude in the myth that group leadership is an individual attainment. In a day when recidivism rates for sex offenders are extremely high and worrisome, researchers might want to scrutinize both the vocal and the visible behaviors whereby clients are interactively brought to "recovery." The so-called "talking cure" is also a nonverbal undertaking.

In summary, we recommend that future studies of face-to-face interaction be grounded in audiovisual records, if possible, so that analysts may examine the ways vocal and visible behaviors are associated with each other. This is not to say that videotape (or film) provides a perfect record of an event. As Jacoby and Ochs (1995) have emphasized, human interaction is "contingently dynamic and unfolding in interactional time" and researchers who use recordings (and transcriptions)

should not treat that record as complete (p. 179). Obviously, camera angles, camera scope, the absence of other sensory input (e.g., smell), and so forth reflect choices made by the observer and constraints imposed by technologies. It is also true that the act of recording may potentially influence interaction, although there are ways of mitigating this problem. Nevertheless, we maintain that audiovisual technologies put researchers in the best possible position to conduct holistic analyses capable of producing maximally insightful arguments and conclusions. Furthermore, when researchers provide their audiovisual data along with their analyses and conclusions, others can inspect the original data and draw their own conclusions, resulting in a more rigorous and empirical social science.

Because a CD-ROM accompanies this special issue, we offer a final comment about technology and its relationship to research on verbal and nonverbal communication. Communication research has always been heavily influenced by technology. Transcripts, photographs, audiotapes, films, videotapes, and now digital technologies facilitate research because they render as "strange" human communication practices, allowing us to catch ourselves in the process of representing ourselves and altogether perceive communication anew. In addition to facilitating research, technologies have affected conceptions of communication, descriptions of phenomena, the construction of arguments, and, of course, the conclusions that researchers reach. Gregory Bateson and Margaret Mead (1942) reported using photographs in their anthropological work because photographs could capture and present behavioral events better than verbal descriptions. Adam Kendon studied talk until 1963, when he "discovered" film and began to analyze embodied interaction: "It became apparent at once that there were complex patterns and regularities of behavior, and that the interactants were guiding their behavior, each in relation to the other" (Kendon, 1990, p. 4). Using multimedia software, LeBaron (1998) digitized and closely examined audiovisual recordings, then discovered similarities among hand gestures because the computer provided a nonlinear environment within which to work, making it possible to analyze multiple videotaped images simultaneously, juxtaposing them on the screen. Increasingly sophisticated technologies, such as tools for transcribing, indexing, and analyzing video and visual images, are on the horizon. Although research technologies should not be overvalued—they will never replace a well-trained analyst's discerning and interpreting eyes and ears—their impact on communication research should not be underestimated.

The CD-ROM accompanying this special issue contains most of the authors' audiovisual recordings, giving readers access to the videotaped data upon which the journal articles are based. Those who put the CD into their computer will see a menu of journal articles (in PDF format) that include hyperlinks to various video clips. Users will notice that some video clips have been digitally modified to protect research subjects by masking their vocal and visible identities. These modifications were made using Adobe Premiere, which is a common video editing tool that, like a variety of other software programs, comes with options and features that are also useful for analysis. For example, digitized clips can be looped, slowed, or "zoomed in" for more careful study; audio and video tracks may be separated, as needed; audio data may be graphically displayed; locations within the data can

be marked and numbered; and so forth. Digital technology allows for detailed and repeated examination of recordings without damage to audio and videotapes. Some programs now exist and others are under development that link video clips to text transcriptions. In general, our argument is that scholars now have the insights and the tools necessary to make major strides in the study of face-to-face interaction.

Appendix: Transcription Conventions

Timing

Brackets	[ ]	Marks temporal overlap among utterances.
Equal sign	=	Indicates the end and beginning of two sequential "latched" utterances that continue without an intervening gap.
Timed silence	(1.8)	Measured in tenths of a second, a number indicates silence occurring within (i.e., pauses) and between (i.e., gaps) speakers' turns at talk.
Micropause	(.)	A timed pause of less than 0.2 sec.

Delivery

Period	.	Indicates a falling pitch or intonational contour.
Question mark	?	Rising vocal pitch or intonational contour at the conclusion of a TCU.
Exclamation	!	Marks the conclusion of a TCU delivered with emphatic tone.
Hyphen	-	An abrupt (glottal) halt.
Colon(s)	:	Indicates sound stretching or sustained enunciation of a syllable.
Greater than/ less than signs	> < < >	Portions of an utterance delivered at a noticeably quicker (> <) or slower (< >) pace than surrounding talk.
Degree signs	° °	Marks speech produced softly or at a lower volume.
Capitalization	HEY	Represents speech delivered more loudly than surrounding talk.
Underscore	hey	Underscoring indicates stress on a word, syllable, or sound.
Arrows	↑ ↓	Marks a rise or fall in intonation.

Other

Out breath	Hhh	Audible expulsion of breath (linguistic aspiration) as in

		laughter. When aspiration occurs within a word, it is set off with parentheses.
In breath	•hh	Audible inhalation is marked with a preceding dot.
Parentheses	( )	Text enclosed in parentheses represents transcriber doubt. Empty parentheses represent untranscribed talk or unknown speaker.
Double parentheses	(( ))	Transcript annotations.

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