LET ME COUNT THE WAYS
The Interchange of Verbal and Nonverbal Cues in Computer-Mediated and Face-to-Face Affinity

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Alternative views of computer-mediated communication suggest that it is devoid of affective cues and interpersonal expression, or that the translation of affect into verbal cues facilitates relational communication. Little research has examined basic affective communication online, mirroring a dearth of empirical research identifying spontaneous affective verbal cues in face-to-face interaction. An experiment prompted participants to enact greater or lesser affinity in face-to-face or synchronous computer chat dyads in order to assess the proportion of affect expressed verbally online compared to that which is verbal offline and the specific behaviors that account for affective communication in each channel. Partners' ratings demonstrated affective equivalency across settings. Analyses of the verbal, kinesic, and vocalic behaviors of face-to-face participants and verbal transcripts from computer sessions revealed specific cues in each condition that led to these ratings. Results support a primary but previously untested proposition in the social information processing theory of mediated interaction.

Keywords: *computer-mediated communication; affinity; cues*

A central issue in the research about computer-mediated communication (CMC) is whether and how the social meaning of interactions is affected by the absence of nonverbal cues when communicators substitute text-based electronic messaging for face-to-face (FTF) encounters. Two prevailing positions have arisen with respect to this issue: One,

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that the absence of nonverbal vocal and physical cues denies users important information about partners' characteristics, emotions, and attitudes, resulting in less sociable, relational, understandable, and/or effective communication. The other, that people adapt to the medium by imbuing verbal messages with, and/or by interpreting from contextual and stylistic cues, information about participants' characteristics, attitudes, and emotions, allowing for normal or enhanced relational communication to accrue (see, for review, Walther & Parks, 2002).

The social information processing (SIP) theory of CMC (Walther, 1992) offers a formalization of the latter position. This theory argues that communicators deploy whatever communication cue systems they have at their disposal when motivated to form impressions and develop relationships. When most nonverbal cues are unavailable, as is the case in text-based CMC, users adapt their language, style, and other cues to such purposes. Although SIP has received some empirical support, certain fundamental aspects of the theory have received less attention. Like other contemporary theories of CMC, SIP has most often been tested by creating the antecedent conditions (media conditions and time frames) in which the theoretical dynamics are said to operate, and by exploring the distal outcome variables (such as impressions and relational assessments) that should result from the processes specified by the theory. Less scrutiny has been placed on the processes themselves: how communicators actually adapt their discourse to the relational goals they pursue given the constraints of the medium. The present study sought to address this gap in research on SIP's central propositional process.

Another important level of theoretical understanding is made possible by examining the behaviors by which CMC users signal affective information, in comparison to FTF communicators. Such microlevel explorations add to our confidence that certain theoretical dynamics are operative, rather than distal effects being due to other theoretical dynamics or to effects of history or maturation (see Walther, 1995). The findings also help us understand the basic grammar of relational communication through verbal behaviors in a way that is uncommon both in the new realm of mediated interpersonal interaction as well as in the corpus of research on multimodal, FTF interactions.

This research reports the results of an experiment with two objectives. One was to test a fundamental claim of SIP, that CMC users employ verbal communication behaviors to achieve a comparable level of relational communication as that which is achieved by FTF communicators who use multiple verbal and nonverbal cues. We sought to identify whether the proportion of variance in the experience of affinity attributable to verbal behavior in CMC is equivalent to that proportion of FTF affinity that is achieved by verbal and nonverbal behavior. The second objective was to explore what specific cues CMC and FTF communicators employed in the expression of interpersonal affinity.

A final benefit of this research is a partial glimpse of the complementary roles of verbal and nonverbal cues in the expression of FTF affinity. Affinity, or how people express liking, is a basic construct in social interaction. It has conceptual overlap with fundamental terms such as involvement, immediacy, attentiveness, and the affectively oriented dimensions of communication competence (see Coker & Burgoon, 1987). Despite acknowledgement that nonverbal and verbal systems coexist and complement each other, the widespread assumption that nonverbal behavior is primary in the communication of emotion and interpersonal affect seems to persist. Nevertheless, to understand how CMC differs from FTF it is necessary to understand FTF communication, and we review the measurement of verbal affinity as we also provide an empirical demonstration of how various cues from multiple channels combine in the expression of affect in FTF interaction.

CUES

A major contention of the SIP theory is that CMC users adapt to the medium in order to express social messages. In one sense, this contention should be noncontroversial. Classical positions about the expression of socioemotional, relational, or metacommunicative messages (e.g., Watzlawick, Beavin, & Jackson, 1967) do not specify that such messages are exclusively conveyed by nonverbal cues. Nevertheless, traditional approaches to interpersonal communication research, and the predominance of CMC literature, take as a given the criticality of nonverbal behavior in the communication of interpersonal identity and affect.

The first theory applied to CMC's interpersonal capacities was explicit on this issue. Social presence theory (Short, Williams, & Christie, 1976) maintained that the reduction of nonverbal cues available in various forms of telecommunication led to reductions in the capacity to transmit and receive interpersonal impressions and warmth. This and other similar positions—collectively called the cues-filtered-out approach (Culnan & Markus, 1987)—maintained that relational information is derived from nonverbal cues such as voice quality and vocal inflections, physical appearance, bodily movements, and facial expressions, which are absent in CMC. Concurrently, many early studies on CMC concluded that this new form of communication was unlikely to convey or incapable of conveying positive emotional expression and not conducive to the formation or maintenance of relationships (Dubrovsky, Kiesler, & Sethna, 1991; Siegal, Dubrovsky, Kiesler, & McGuire, 1986). Calhoun (1991) argued that online interaction lacks the level of intimacy and self-disclosure that normally accompanies

offline communication, questioning the capacity of CMC to allow meaningful social bonding.

The unlikely prospects for CMC to foster effective interpersonal and relational communication is still common in the research literature today (e.g., Cummings, Butler, & Kraut, 2002; Nardi & Whittaker, 2002). For instance, although recognizing that there are circumstances in which CMC may supercede FTF in interpersonal qualities, Burgoon et al. (2002) nevertheless argue that overall, mediated communication creates less immediacy and involvement than FTF, all other things being equal (a finding that was not supported by their empirical assessment). The present research contests that assertion.

The view of CMC's limited capacity is not surprising from a larger history on the roles of verbal and nonverbal cues in traditional FTF research. Assumptions about the functions of verbal and nonverbal cues in FTF communication, and corresponding treatment of such cues in research, have perpetuated the notion of their differentiation rather than integration. In a recent summary of nonverbal and verbal communication relationships, S. E. Jones and LeBaron (2002) observed that until recently it was assumed that "verbal and nonverbal behaviors are generally different kinds of messages with rather different meanings and potential functions" (p. 501). The parallel in CMC research was noted by Burgoon et al. (2002), who observed that in both the study of channels in FTF communication and in CMC, respectively,

> Early channel reliance theorists proposed a similar orientation to that of their media richness counterparts in attempting to shed light on the role that verbal and nonverbal cues play in human interaction. In general, these scholars made a case for visual primacy as a key element. (p. 658)

An important theoretical difference between most media theorists and FTF channel theorists is that the latter group "identified instances in which the importance of nonverbal cues would diminish, and in turn, verbal or vocal cues would gain in importance" (p. 659). Whereas S. E. Jones and LeBaron (2002, p. 503) assert that new, more complex paradigms are emerging that focus on "the interplay of messages between interactants" using both verbal and nonverbal systems, their reach has not extended to most theoretical approaches to CMC.

A growing amount of CMC empirical research, however, has contested the presumed differentiation of verbal and nonverbal cue functionalities, at least at their distal outcome levels. Research has shown that people cope with the lack of nonverbal cues online in the development of relationships, or relational communication dynamics, in a variety of field and experimental contexts. In workplace settings, studies have shown that e-mail is used for the maintenance of relationships and for socializing purposes (Feldman, 1987; Finholt & Sproull, 1990; Haythornthwaite, Wellman, & Mantei, 1995; McCormick & McCormick; 1992). Likewise, relational development has been

documented and measured in electronic venues such as bulletin boards (Rice & Love, 1987), Internet relay chat (E. M. Reid, 1991), Usenet newsgroups (Baym, 1999; Parks & Floyd, 1996), text-based virtual reality systems (Parks & Roberts, 1998), and instructional Web sites (O'Sullivan, Hunt, & Lippert, 2004). Parks and Floyd (1996) found that the length of time and the frequency of participation were important predictors of relationship development among people who met online, whereas Katz and Aspden (1997) found that individuals' skills at using the Internet was most important in online friendship formation, which evolved naturally as a function of time and experience in online environments.

SIP

Although the studies reviewed above did not, for the most part, draw explicitly on SIP, it may be said at a general level that they reflect SIP's contention that individuals adapted the textual cues of CMC to meet their needs when faced with a communication situation that deprived them of aural and visual cues. Such studies have pointed out the ability of CMC to convey the required personal and relational information. SIP rejects the view that CMC is inherently impersonal and that because nonverbal cues are not available in CMC that relational information is therefore inaccessible to CMC users. Rather, SIP posits that users employ the verbal characteristics of CMC to convey the relational information that would normally have been expressed through nonverbal cues.

Although the studies reviewed above reflect SIP potentials in a general way, few studies have examined the specific communication behaviors that are posited to convey the interpersonal affect that the theory suggests transpires in CMC. One that approached a process view was Utz's (2000) research, which found that the use of emoticons and affective scripts by online game players was a significant predictor of relationship development in that environment, accounting for 14% of the variance in users' frequency of friendly or romantic relationships online. Additionally, Tidwell and Walther (2002) examined the use of self-disclosure and personal question asking in the development of interpersonal impressions, comparing their use and effects in CMC and FTF first encounters. Results of that study showed that CMC users devoted a greater proportion of their conversations to disclosures and questions than did FTF communicators, and that the personal questions asked by CMC users were more intimate. These results, according to Tidwell and Walther, support SIP at the microlevel. Indeed, the examination of disclosures and interrogations provides insight into the uncertainty reduction cues that CMC users employ to give and gain impressions of one another. Still missing is the

specification of relational communication at the language and content level, and how CMC users accomplish these exchanges.

CUE INTERCHANGEABILITY

It is almost cliché that nonverbal cues, at least when they are available, account for most of the social meaning of FTF exchanges. Specific estimates range in proportion, although a rigorous meta-analysis puts the ratio at up to 63% (Philpott, 1983, cited in Burgoon, Buller, & Woodall, 1996). Are nonverbal and verbal expressions of affinity interchangeable? One area in which such arguments have been made is in the domain of *immediacy* (Mehrabian, 1971; Wiener & Mehrabian, 1968). Conceptually, immediacy is a composite of involvement, affection, and warmth, which is conceived as reflecting the emotional attitude of one individual toward another person. Nonverbally, numerous studies have examined specific behaviors associated with the expression of immediacy, including combinations of proximity, smiling, eye contact, body orientation, and postural lean (see, for review, Andersen, Andersen, & Jensen, 1979; Burgoon et al., 1996; Burgoon & Hale, 1988). However, Wiener and Mehrabian (1968) argue that the same emotional attitude is expressed by language variations. Verbal immediacy cues include such indicators as spatiotemporally indicative demonstratives, denotative specificity, selective emphasis, and "agent-action-object relationships" (Wiener & Mehrabian, 1968). Indeed, variations in a subset of these cues have been found to correspond to differences in attitudes about CMC group interaction (Witt, 2004).

In one investigation of the interchangeability of nonverbal and verbal cues of immediacy, Donohue, Diez, Stahle, and Burgoon (1983) examined whether FTF interactants compensate for reduced nonverbal affiliativeness with verbal cues in order to restore "normal" conversational style. Donohue et al. relied on Argyle and Dean's (1965) affiliative conflict theory—or equilibrium theory—to stimulate the theoretical dynamics of greater and lesser immediacy expressions. Equilibrium theory posits that communicators dynamically adapt levels of gaze, physical proximity, and other behaviors indicative of intimacy to normative levels based on culture and need for affiliation (Argyle & Cook, 1976). In dyadic interaction, elevations or reductions of these base levels by one communicator through one channel (e.g., proxemic distance reduction) may be compensated for by the other interactant through an alternative channel (e.g., reduced gaze) in order to maintain desired levels of intimacy. Extending this dynamic to verbal and nonverbal cues, Donohue et al. (1983) found that when one conversational partner reduced nonverbal immediacy (i.e., decreased proximity), the other partner exhibited significantly greater (spatiotemporal) verbal immediacy. If linguistic cues can function interchangeably with nonverbal cues of immediacy, their potency in a

variety of relational messages may be expected where other, nonverbal cues are constrained, such as CMC (Walther, 1992).

Short et al. (1976), in their development of social presence theory, were also well aware of equilibrium theory and research. Although they did not embrace equilibrium theory per se, they did speculate that language may substitute or even "overcompensate" for missing nonverbal information. Reviewing teleconferencing research, they suggested that a participant,

> aware of the reduced-cue situation, . . . will modify his behaviour; thus head-nods indicating agreement may be replaced by verbal phrases such as "I quite agree." . . . This constitutes a clear case of interchangeability between non-verbal cues (in this case head-nods and facial expressions) and verbal messages (in this case explicit expressions of agreement or disagreement). (p. 64)

Such arguments are not, even now, commonly accepted when it comes to CMC. The question here is, in a situation in which communicators in both CMC and FTF are prompted to do so, can they employ the cues at their disposal to express affinity or disaffinity, and if so, by which cues? This question tests the root assumption of SIP that CMC users are no less able to express affinity than those who are unfettered by CMC. We propose that the use of language allows enough accommodation to CMC that ultimately, the difference in communicators' affinity due to their relational goals matters more than the medium by which affinity is expressed, despite the absence of nonverbal cues in CMC and the nonpresence of mediated communicators.

> *Hypothesis 1:* Immediacy and affection are affected more by communicators' social motivations than by computer-mediated or face-to-face channels.

In other words, we expect that CMC users express in language what FTF communicators indicate both verbally and nonverbally in the expression of affinity. Another derivation of the proposition may be predicted this way:

> *Hypothesis 2:* Greater proportions of the variance in immediacy and affection are attributable to verbal behavior in CMC than to verbal behavior in FTF.

Although the above hypothesis may seem overly simple at this point (as there are no nonverbal cues in CMC to compete with the variance in affinity due to verbal behaviors), it can only be true if the premise of SIP is correct. If SIP is false, and other positions about the inexpressiveness of CMC in relation to FTF are true, then there should be little to no variance in the degree of CMC affinity due to either verbal or non-

verbal behavior, to say nothing of its comparability to the degree of variance in FTF affinity due to language in that channel.

To anticipate what verbal cues CMC and FTF partners might employ to express affinity, a review of known findings would be useful. However, there is relatively little to be found on this topic. "Traditional" (i.e., FTF or written) communication research has identified a few verbal and textual performances related to affinity, whereas a few more have been discovered within CMC research.

NONVERBAL RELATIONAL COMMUNICATION

Numerous studies implicate a variety of nonverbal cues and their potential effects on interpersonal perceptions of one kind or another. Many such studies investigate a "social meaning model" and find that certain cues tend to evoke regular, consensually recognized and/or consistently evaluated responses across a variety of contexts, whereas others explore how such cues interact with other features of the setting such as communicator characteristics or relationship contexts to produce meaning (see, for review, Burgoon et al., 1996; Burgoon & Le Poire, 1999).

Although the ultimate aim of these studies is to discover regular patterns of spontaneous FTF interaction dynamics, the methodologies employed to test expected cues and their meanings more often than not rely on contrived enactments of specific behaviors (see, for review, S. E. Jones & LeBaron, 2002). This is also the case in experimental research on verbal forms of relational communication. In both domains, it is common to present staged recorded stimuli that vary on specific variables to raters (e.g., Burgoon, Buller, Hale, & deTurck, 1984) or for an experimental confederate to enact specific cues and assess naive subjects' responses to these manipulations (e.g., Burgoon & Hale, 1988). Such approaches are useful for testing the effects of specific cues and the theories that led to their specification, and help to narrow the range somewhat of the universe of behavioral cues to examine for the spontaneous expression of affinity. This theoretical winnowing provides subsequent researchers a good starting point for exploratory research seeking to identify the range of cues that may or may not correspond to functional, strategic communication performances. For instance, Burgoon and Newton (1991) and Newton and Burgoon (1990), in investigations of verbal and nonverbal behaviors accompanying interpersonal conflict episodes, based their inclusion of coded cues on the findings of previous studies' reliable associations of specific behaviors with interpersonal/relational interpretations.

Following this approach, we identified a number of nonverbal cues that previous studies have associated with affinity and disaffinity. Several studies have found that the simultaneous expression of

interrelated cues—smiling, closer distance, increased eye gaze, direct body orientation, forward lean, touch, and open posture—are associated with greater immediacy, involvement, nondominance, intimacy, and attraction (Burgoon et al., 1984; Burgoon & Hale, 1988). Coker and Burgoon (1987) assessed 59 vocalic, kinesic, and proxemic cues aggregated through factor analysis into 21 cue composites or individual cues in order to determine the nonverbal performance of conversational involvement (a construct incorporating immediacy and other dimensions that in turn signal affection, receptivity, and other qualities). Some of these cues included facial orientation, head nods, gesturing, facial animation, vocal loudness, faster speech, more varied pitch, tempo changes, relaxed laughter, fewer silences, shorter latencies, and fewer adaptors, which relate to the expression of generalized affinity toward another person (see also Burgoon et al., 1996). In this study, we employed the range of nonverbal cues identified by Coker and Burgoon in order to assess the expression of affinity in FTF dyads that might be substituted by verbal behavior in CMC.

VERBAL RELATIONAL COMMUNICATION

Despite the extensive research focusing on nonverbal indicators of affinity, there is substantially less discussion in the literature about the verbal reflection of affinity and interpersonal affect. Taxonomic or analytic schemes such as Bales's (1950) interaction process analysis distinguish within and between task-oriented and socioemotionally oriented messages, but this 12-category scheme is more often used to compare across gross categories of task versus social than to make distinctions within each larger division, and has been criticized on the basis of its relative inability to make fine-grained distinctions in relational tone (Walther, 1992). Among other approaches, many are abstract and speak in general terms rather than pointing to specific behavioral strategies or content (e.g., Gallois, 1993; Johnson-Laird & Oatley, 1989). Only a small set of specific behaviors has been identified as affinity related. For instance, intimacy has been associated with certain tense references and degrees of topic agreement (see Millar & Rogers, 1987). Other cues are deduced from interaction patterns, rather than from specific content, such as dominance in groups being achieved through manipulation of verbal floor-managing cues (Shimanoff, 1988). Rather than develop taxonomies of naturally occurring verbal affinity cues—as has been done in nonverbal communication research—subsets of likely cues have been experimentally tested to see if they correspond with emotional interpretations. According to Fiehler (2002), "When an empirical approach to the interrelations between emotions and language or communication is taken, the studies tend to be experimental investigations in which test subjects are presented with emotional language content in predefined situations"

(p. 80). Although things may have changed in the years since their observation, the relative paucity of research identifying verbal cues to relational communication was noted by Donohue et al.'s (1983) comments on weaknesses "in the past research on the nonverbal and verbal indicators of relational messages . . .":

> First, the majority of the work on verbal indicators has been concerned with either content, e.g. the degree of self-disclosure . . . or with paralinguistic features of speech, e.g. verbal productivity or pausality . . . or with the superiority of verbal messages over nonverbal indicators. . . . Very little attention has been paid to the impact of alternative wording in the creation of relational meaning. . . . [N]one of this research considers the effect of nonverbal messages on verbal relational messages. Perhaps the now classic distinction between content and relational information made by Watzlawick, Beavin, and Jackson (1967) has been too easily translated into a distinction between verbal and nonverbal codes. Since nonverbal cues are thus implicitly seen as the natural or "sole" carriers of relational information, subtle verbal variations that also carry relational information have been neglected. (pp. 2-3)

Even verbal immediacy, as discussed above, presents conceptual/operational problems as a method to explore *interpersonal* affect. Despite the promise of immediacy as a paradigm case for the substitutability of cues between verbal and nonverbal expressions in principle, it may be unwise to rely on the operationalizations of verbal immediacy to demonstrate affinity. In several original sources on verbal immediacy, the examples and measures that Mehrabian and Wiener (1966; Wiener & Mehrabian, 1968) developed depict the speaker's expression of attitude toward the *object* of discussion, rather than the *auditor*. That is, a speaker may use verbal cues (such as spatial or temporal variations) when discussing how he feels about an object (e.g., "'X has been showing me his house' in contrast to '-is showing me his house'"; Mehrabian, 1967, p. 295), and the variations in language reflect variations in attitude about person X, but not about the person to whom the speaker is describing person X. The speaker's attitude toward the object is conveyed by verbal immediacy but the attitude toward the person with whom he is discussing that object is not (see Robinson & Richmond, 1995). In contrast, nonverbal immediacy, as exhibited by forward lean, nodding, smiling, facial directness, and so forth, is conceived as reflecting the speaker's attitude toward the person to whom she or he is speaking, regardless of what object the parties are discussing. For these reasons, the use of verbal immediacy as a cue to interpersonal affinity is questionable, and we did not evaluate it in the experiment that follows. What other cues might function as interpersonal affect signals?

Validation or invalidation. One of the most stimulating treatments of how people regard each other during interaction is found in Cissna

and Sieburg's (1981) examination of patterns of interactional confirmation and disconfirmation. Based on the work of Watzlawick et al. (1967), confirmation strategies are used to validate and reinforce a sense of worth in another person; disconfirmation is the opposite. These strategies provide a possible set of resources for making people feel good or bad about themselves and, by reflection, the confirming or disconfirming partner. Cissna and Sieburg formed a taxonomy of confirming and disconfirming acts. Disconfirming acts include the broad categories of (a) indifferent response (denying the existence or relation), (b) impervious response (denying the self-experience of others), and (c) disqualifying response (denying the other's significance). Each of these categories includes further detailed maneuvers (e.g., impersonal language, monologue, irrelevant response, response that is minimally related to the topic at hand). Confirmation clusters and specifics are also presented (e.g., responses that express acceptance of others' feelings as being true and accurate). Although somewhat abstract, such general strategies might be recognizable with definition in content identification procedures, which we attempted in the present research.

Face and disagreement or agreement during discussion. Two additional analytic approaches to the verbal expression of regard during discussions were adopted in this research. Scheerhorn (1991 to 1992), drawing on a politeness perspective (see Brown & Levinson, 1987), examined the expression of regard expressed by discussion participants. Scheerhorn linked the degree to which conversational partners challenged or helped preserve one another's positive self-image during discussion to their liking for one another. To do so, he identified and tested linguistic strategies that reflect interpersonal regard for the conversation partner reflected in the way that topical discussion issues are addressed. This contrasts with the verbal immediacy approach, which, as mentioned above, linguistically reflects regard toward the topic. In Scheerhorn's work, the ways that participants express agreement or disagreement with one another about the topic, and the metacommunicative manner in which they close, continue, or otherwise manage the conversation, is a manifestation of a participant's affinity toward his or her partner. The categories that Scheerhorn adapted, from lesser to greater assumed liking, include the following: aggravated disagreement, direct disagreement, indirect disagreement, indirect + modest viability, praise + indirect disagreement, praise + provisional agreement, implicit or direct agreement, and strong agreement (Scheerhorn, 1991 to 1992, p. 263). The recognition of affinity cues within topical conversations makes this approach a valuable and heuristic one, and the verbal-behavioral coding system makes it a potentially useful measure for the general investigation of affinity in conversation.

An additional source of verbal strategies with relational implications that occur during primarily task-oriented exchanges also draws on elements of confirmation and disconfirmation, complementing the typologies discussed above and extending them. Jablin (1978) provides five forms of agreement and disagreement, each having both content and relational connotations, which were validated in a study of "open" and "closed" dyadic workplace relationships. Jablin (1979) described these strategies as

> confirmation (a response that provides a speaker with positive content and positive relational feedback), disagreement (a response that provides a speaker with negative content feedback but positive relational feedback), accedence (. . . positive content feedback but negative relational feedback), repudiation (. . . both negative content and negative relational feedback), and disconfirmation (. . . irrelevant content and equally irrelevant relational feedback). (p. 1204)

Given the focus on discussion of attitudes and decisions in so much past CMC (and FTF affinity) research, the assessment of relational aspects of verbal agreement and disagreement messages seemed to be a promising approach for the study of affinity online and off.

Accommodation benchmarks. A final technique for the interpersonal analysis of verbal behavior includes examination of patterns for reciprocation and compensation. In most cases, such analyses rely on the identification of communicators matching (to achieve affinity) or diverging (for disaffinity) on content or structural patterns. However, E. Jones, Gallois, Callan, and Barker (1999) identified and tested specific sociolinguistic conversation behaviors (as well as nonverbal behaviors) that were likely to come into play as accommodation cues. These specific cues include agreement, disagreement, and types of questions such as open, closed, and rhetorical, as well as several types of answers. Although the value of these cues in accommodation research derives from the ongoing interaction patterns, their potential as absolute cues to affinity or disaffinity could also be examined by means of their correspondence to global assessments of immediacy and affection and were included in this study on that basis.

Relational communication in CMC. Few mechanisms have been noted in the CMC literature that are suggested to convey social emotion. The most commonly referenced mechanism is emoticons, that is, typographic depictions of smiling faces, frowns, winks, and other variations. Although Walther and D'Addario (2001) found little impact of emoticons in messages that also include attitudinally rich verbal statements, they remain a widely known and frequently used signal in CMC. Three basic emoticons were included in the coding scheme described below.

Based on the premises of SIP and the hypotheses articulated above, and noting the literature on the verbal and nonverbal cues of affinity-related constructs, we were also interested in research questions about mechanisms that allow for the expression of affinity to occur across channels.

Research Question 1: What combination of verbal and nonverbal cues convey affinity FTF?
Research Question 2: What verbal cues express affinity in CMC?

METHOD

PARTICIPANTS

Half of the participants in this experiment (total $N = 56$) were students in an undergraduate communication course at a large northeastern university in the United States who participated in this experiment to fulfill a research requirement of their course. Each student participant was asked to bring another individual of a specified sex to the experiment, at a specific time slot. Quotas were created to achieve nearly equal ratios for same-sex and opposite-sex dyads as possible for each condition. Two pairs of participants were scheduled to take part in the experiment at a given time. Enrolled students acted as confederates for each session, with the partner of another student taking the role of naïve participant for a confederate other than the one she or he accompanied to the lab. It was these confederates who were the real subjects of the study, with the naïve partners serving as conversational partners and raters. Dyadic pairs were randomly assigned to one of two medium conditions: communicating FTF across a table from one another or communicating from separate rooms via synchronous CMC chat.

LAB PROCEDURES

All dyad partners were given one of two scenarios to generate discussion; these topics were two of the four used in previous research (Burgoon & Hale, 1988) and were capable of generating multiple perspectives in response to social or moral dilemmas. The confederates were then given additional instruction to express either affinity or disaffinity toward their partner after the 1st minute of interaction. Whereas other studies have prompted confederates to display specific behaviors in order, for example, to increase or decrease immediacy (e.g., Burgoon & Hale, 1988), our purpose was to identify what naturally occurring behaviors would emerge in response to an affinity-goal manipulation. Therefore, no specific behaviors were mentioned in the

instructions. Rather, affective attitudes toward the other conversational partner were prompted, with instructions adapted partly from those used by Coker and Burgoon (1987) to affect immediacy and from Scheerhorn (1991 to 1992) to generate liking or disliking toward an imagined partner:

> Imagine that shortly into your meeting, you realize that you really like this person, and care very much that he/she likes you too. In fact, you find that this person is someone that you would like to get to know better. After the first minute (when we ask you both how it's going), change your interaction style to one that would lead him/her to form a positive impression of you. Make yourself as friendly to the other person as you can without making it obvious that this is what you are doing. So act naturally for the first minute. After we signal you, increase your liking and involvement with the other person.

Or,

> Imagine that shortly into your meeting, you realize that you are disgusted with this person and no longer care what he/she thinks of you. In fact, this person is someone that you would not like to talk to again. After the first minute (when we ask you both how it's going), change your interaction style to one that would lead him/her to form a negative impression of you. Make yourself as unfriendly to the other person as you can without making it obvious that this is what you are doing. So act naturally for the first minute. After we signal you, decrease your liking and involvement with the other person.

Although this procedure may be criticized as creating demand characteristics on the expression of affinity, it offers several offsetting benefits. It is similar to parallel treatments for the discovery of spontaneous verbal and nonverbal cues in other settings (Burgoon & Newton, 1991; Coker & Burgoon, 1987) where

> confederates were not informed as to how to alter their behavior . . . they were simply asked to encode high involvement or low involvement as they saw fit . . . this induction permitted both a fuller range of involvement enactments and more natural presentations than would have existed with trained confederates. As such, it should have increased ecological validity. (Burgoon & Newton, 1991, p. 102)

Moreover, other CMC studies have explored the social contexts that lead to such adaptations and demonstrations of affinity (see, for review, Walther & Parks, 2002), the further discovery of which was not the focus of the present, process-oriented effort.

The FTF dyads were recorded from behind a window using a high-end digital video camera, and the CMC dyads used the chat function of Microsoft's NetMeeting program, installed on Windows Pentium III computers. The FTF dyads were given a maximum of 10 minutes for their interaction, whereas the CMC dyads were given a maximum of 40

minutes. The differential time allotments reflect the established literature, indicating that (a) 1 minute in FTF is not equal to 1 minute in CMC and may be equivalent to 4 or more (Siegal et al., 1986; Tidwell & Walther, 2002), as the nature of typing decreases the amount of remarks generated per minute; and (b) time pressure affects CMC behavior disproportionately (F. Reid, Malinek, Stott, & Evans, 1996). Participants were given the opportunity to use this entire time period, or they could inform the lab administrators when their discussion was complete.

Following the interaction, confederates were interviewed about their exchange. Confederates were asked to state, in their own words, what they deemed the manipulation to have been, and these statements were recorded in their own words. Confederates were also asked what specific behaviors they used to convey their assigned attitude. For each behavior a confederate mentioned, she or he was probed to be as specific as possible. Each confederate was probed with "What else?" questions to elicit as many specific behaviors as possible, both verbal and, in the case of FTF participants, nonverbal. The authors later reviewed the confederates' responses, inducing from them general behavioral strategies, and these strategies were included with the existing list of coding behaviors if they did not already appear there, increasing the inclusiveness and exhaustiveness of the coding scheme.

While confederates were being interviewed, naïve participants were directed to a lab room where they completed an assessment of their partner's interaction style. This assessment was completed via a computer form on a Web page and included items rating generalized immediacy (Andersen, 1979) and the affection dimension of relational communication (Burgoon & Hale, 1988). Following the interview and partner ratings, all participants were debriefed as to the true nature of the experiment.

MANIPULATION CHECK

The confederates' answers to the postinteraction interview question about the manipulation were reviewed by a research assistant who was uninformed about the condition to which each confederate was assigned. The assistant classified each confederate's response as reflecting either an affinity or disaffinity manipulation. There was 100% consistency between the assigned condition and the assistant's interpretation of the confederates' interview responses.

SEGMENTATION

Following the collection of all behavioral samples, videotapes and CMC chats were treated to identify representative segments for further coding. The 1st minute of interaction was isolated on each

videotape and copied as a high-resolution digital movie file (avi file) on the lab server. In addition, the middle and last minutes (which followed the affinity manipulation) were identified and copied. These segments were then made available via the Web server to the original confederates, who transcribed the verbal portions of the conversations into text documents, labeled for speaker. As for CMC, verbal conversations had been stored with time stamps preceding each line of discourse and were used to identify equivalent sections of the transcript, although CMC segments were approximately 4 times as long in real time in order to achieve transcripts of similar length to those from FTF. These segments were then subject to coding for specific verbal and nonverbal behaviors. Only the 3rd minutes' segments are reported in the present research.

BEHAVIOR CODING

The student participants who served as confederates were recruited to code the observational segments (although they were disqualified from coding their own dyads). As coders, these 27 individuals were trained in a laboratory session where they practiced coding segments and asked questions pertaining to coding procedures. Then, coders signed up for three 1-hour coding sessions. Coders were limited to two consecutive sessions to prevent coder fatigue.

Coding categories were developed from preexisting measures and concepts used in prior studies of interpersonal communication reviewed above, including those of Coker and Burgoon (1987), Cissna and Sieburg (1981), Jablin (1979), elements from E. Jones et al. (1999), and Scheerhorn (1991 to 1992), as well as those suggested by the confederates' interview responses. A total of 122 codes were employed, which are listed in the appendix. Coding was done independently for kinesics, vocalics, and two sets of verbal indicators. Each segment was coded by three raters, and all ratings were entered on Web-based forms, with instructions and coding definitions embedded in the Web pages as clickable, pop-up windows and/or as "mouse-over" scrolling text. Coders were presented visual (kinesic) stimuli on a lab computer using the digital video files, with the computer speakers turned off. The naïve participants' images on the monitor were hidden.

When coding for the value of vocalic dimensions of speech, it is important to remove the potentially biasing verbal content of that speech, that is, the effects of the words themselves (see Scherer, Koivumaki, & Rosenthal, 1972; Starkweather, 1956). For this reason, the vocalics coders employed a low-pass content filter (see, e.g., Rogers, Scherer, & Rosenthal, 1971) that rendered the verbal content of speech indecipherable yet allowed the characteristics of the vocal behavior to be heard and rated without the influence of verbal content. These coders were also shown the selected FTF video segments, with the section

of the monitor showing the visual image of the confederate covered to reduce bias from kinesics; although coders could not see the person whose voice they were rating, they could tell when their target person was speaking by observing when the other person in the scene was not speaking (see Burgoon, Le Poire, & Rosenthal, 1995).

The verbal coders were given written transcripts of the previously selected segments from either the CMC or FTF interactions. These coders were instructed to analyze specific conversational strategies that the confederates employed throughout the interaction.

RELIABILITIES

Before testing hypotheses and exploring research questions, data were subjected to reliability analyses. Data from naïve participants' ratings of partners' behavior were assessed for interitem reliabilities, from which the 4-item immediacy measure achieved Cronbach's α = .84, and affectionate communication (16 items) achieved α = .95. The coders' assessments of verbal and nonverbal cues were subjected to intercoder reliability analyses. In each case where deletion of one coder's scores raised reliability of the other two coders', only two coders' scores were retained as part of the averages used for analyses. Across all codes, alphas for these codes ranged from uninterpretibly low to very high. This variation is in one sense unsurprising, given that some behaviors that coders were to rate were exhibited rarely, if at all (offering little or no variance) and because the behavioral codes ranged in specificity and subjectivity. As Baesler and Burgoon (1988) point out, the level of abstraction or concreteness associated with nonverbal coding methods can have a large impact on the ability to generate reliable coding results. Only those cues with reliabilities of at least .65 were retained for further analysis. The complete list of cues and reliabilities is provided in the appendix.

RESULTS

Hypothesis 1 predicted that the motivation and effort to be nice or be mean would have a greater effect on communicators' perceived affinity (in terms of immediacy and affection) than would differences in communication channel. Naïve participants' ratings of their partners' immediacy and relational communication were subject to a 2 (medium) $\times$ 2 (affinity manipulation) ANOVA. The effect of the affinity manipulation had a significant effect on perceived immediacy, $F(1, 22) = 21.51, p < .001, \eta^2 = 0.64$, with the performances of those who had been instructed to display affinity rated more immediate ($M = 4.28, SD = .77, n = 13$) than those who were instructed to express disaffinity ($M = 2.38$,

$SD = 0.71, n = 13$). There was no effect of medium, $F(1, 22) = 0.474$, nor a significant interaction of affinity and medium, $F(1, 22) = 1.24, p = .28$.

The results for affection were similar, with no significant interactions of affinity manipulation and medium, nor medium main effects. The effect of affinity assignment was significant, $F(1, 22) = 46.42, p < .001, \eta^2 = 0.66$, with high-affinity participants exhibiting greater affection ($M = 3.98, SD = 0.58$) than those in the disaffinity condition ($M = 2.48, SD = 0.76$). Hypothesis 1 was supported: The motivation to express affinity was more robust than medium effects, with interpersonal affect varying entirely due to the intended emotional expression and not due to the communication medium.

Research Question 2 asked what combination of verbal and nonverbal cues convey affinity in FTF interaction, and Research Question 3 repeats the question as it pertains to verbal cues in CMC. The next step of the analysis examined the specific behavioral cues that were associated with subjective ratings of partner affinity. Correlation analyses revealed which of the reliably coded cues, observed after the affinity manipulation, independently corresponded with variations in immediacy and affection, although not how they combined. Within FTF conversations, numerous cues had significant relationships. Kinesic cues corresponding with both immediacy and affection included direct body orientation, facial orientation, gaze, facial pleasantness, facial animation, smiling, facial concern, nodding, laughing, bodily involvement, and postural openness. In addition, rocking was associated with affection, and body straightness was inversely associated with immediacy. Vocalic cues associated with both immediacy and affection included vocal happiness, warmth, pleasantness, laughing, receptivity, and cooperativeness; condescension was inversely related to immediacy. Very few verbal behaviors were significantly associated with affinity. Insults were negatively related to immediacy, and offering personal information was positively associated, in FTF interaction. No zero-order correlations were found between specific verbal behaviors and affection. The large proportion of nonverbal over verbal cues that were associated with these interpretations are consistent with expectations that when communicators have nonverbal cues at their disposal, they rely predominantly on those cues to signal interpersonal affect.

In CMC interactions, only verbal behaviors were identified and examined. One specific cue that correlated to both immediacy and affection was explicit statements of positive affection. Immediacy alone was related to monologue, yet other cues were associated with affection, including expressing joy, offering personal information, and offering encouragement. In addition, use of a smiling emoticon was associated with affection in CMC. At a superficial level, and consistent with SIP theory, more verbal cues were associated with affinity in CMC than in FTF conversations where numerous nonverbal cues may have done the majority of the relational work.

To gain a more complete picture of the nature of affinity expression in multimodal FTF interaction, the preferred treatment would involve multiple regression analysis including all verbal and nonverbal cues related to, and their relative involvement in, immediacy and affection. However, the large number of predictor variables representing specific cues, and the intercorrelation among these cues, leads to multicollinearity too great to interpret. A number of preliminary analytic strategies are available for partialling the data in order to approach a final regression equation. For instance, Burgoon and Newton (1991) performed factor analyses on 59 nonverbal cues related to relational communication in order to derive subsets, or composites of cues, and then used these composite clusters as predictors in subsequent regressions. Alternatively, in order to retain or drop cues based on their relationship to affinity measures rather than on their covariation with other cues, we used a different multiple-step process. This involved conducting several preliminary regressions focusing on each channel—verbal, kinesic, or vocalic—at a time. Based on these results, we computed new variables representing the contribution of each channel by combining the significant independent cues within each channel weighted by their *b* coefficients from the preliminary regressions. Finally, these combined channel-effects variables were compared through regression to analyze the relative contributions of each one where multiple channels occurred.

The immediacy scores from FTF sessions were regressed on all reliably coded vocal cues first. The equation showed only two cues that simultaneously were associated with immediacy: pleasantness (b = .80, β = 1.12), and pausing during speech (b = .41, β = .38). These cues resulted in an adjusted R^2 = .92, $F(2, 10) = 71.89$, $p < .001$. The FTF affection scores were related to vocal pleasantness (b = .73, β = 1.20), sharpness (b = .26, β = .41), condescension (b = .47, β = .54), and timbre (whiney to resonant (b = –.24, β = –.23). These cues produced an adjusted R^2 = .92, $F(4, 8) = 36.63$, $p < .001$.

Kinesic cues that predicted variations in FTF immediacy included smiling (b = .33, β = .66), body relaxation (b = –.38, β = –.46), and directness of gaze (b = .17, β = .28), for an adjusted R^2 = .88, $F(3, 9) = 31.44$, $p < .001$. Kinesic cues predicting FTF affectionate communication included smiling (b = .28, β = .66), direct facial orientation (b = .55, β = 1.02), looking around the room (b = –.28, β = –.38), random head movement (b = –.16, β = .26), and gaze (b = .22, β = .42), adjusted R^2 = .96, $F(5, 7) = 55.98$, $p < .001$.

Finally, two verbal cues predicted FTF immediacy: insults (b = –.80, β = –.54) and offering personal information (b = .28, β = .45), adjusted R^2 = .60, $F(2, 10) = 10.14$, p = .004. The regression on affectionate FTF communication produced no significant associations.

In contrast to the two verbal cues in FTF immediacy, CMC immediacy was associated with four specific verbal cues which together

achieved adjusted R^2 = .73, $F(4, 10)$ = 10.61, p = .001. These were explicit positive statements of affection (b = .85, β = .61), changing the subject (b = .71, β = .67), indirect disagreement (b = .51, β = 1.68), and praise plus novel proposition (b = –.48, β = –.35). Whereas the expression of affection FTF was associated with kinesic and vocalic, but no verbal cues, CMC affection was expressed through explicit positive statements of affection (b = .81, β = .67) and changing the subject (b = .47, β = .52), adjusted R^2 = .61, $F(2, 12)$ = 11.98, $p < .001$.

Hypothesis 2 predicted that a greater proportion of the variance in affinity is attributable to verbal behavior in CMC than in FTF conversation. Attempts to isolate the contribution of verbal cues in a regression analysis including all verbal and nonverbal cues were fruitless, as multicollinearity prevented such a simple analysis. One alternative approach involved a reduced regression analysis including only those variables that had been significant in the channel-by-channel analyses of FTF immediacy. Using a forward entry procedure for this subset of verbal and nonverbal cues, only vocalic pleasantness and pauses during speech, but no verbal cues, were significantly associated with immediacy, adjusted R^2 = .98, $F(2, 10)$ = 71.89, $p < .001$. For affection, significant predictors included vocal pleasantness, vocal sharpness, vocal condescension, timbre, and the kinesic cue of looking around the room, the combined effect of which was adjusted R^2 = .95, $F(5, 7)$ = 47.33, $p < .001$. Thus, for both immediacy and for affectionate communication, when combined with nonverbal cues, there was effectively no variance accounted for by verbal cues alone in the FTF settings that could be compared with the counterpart verbal cues in CMC.

A final regression analysis was employed to allow verbal cues the most liberal opportunity to emerge in a multiple-channel analysis of immediacy and affection in FTF interactions. Drawing on the previous intrachannel regressions, a unique new variable was computed by combining all significant verbal cues and their respective beta weights into one term for each outcome in each channel. Thus, for the analysis of immediacy, a *FTF verbal cues to immediacy* variable was computed as ([–.80 × insult] + [.28 × offer personal information]). Likewise, *kinesic cues to immediacy* was represented as ([–.38 × body relaxation] + [.33 × smiling] + [.17 × gaze]), and *vocalic cues to immediacy* as ([.79 × vocal pleasantness] + [.41 × pauses during speech]). No composite was computed for FTF verbal affection cues because no verbal behaviors were retained in the previous analyses. Composite variables were also computed for *CMC verbal cues related to immediacy* ([.85 × explicit positive affection] + [.71 × changing the subject] + [.67 × indirect disagreement] + [–.48 × praise plus novel proposition]) and CMC verbal cues to affection ([.81 × explicit positive affection] + [.47 × changing the subject]).

Independent multiple regression analyses on immediacy were then conducted within each medium to determine the variance accounted

for by each composite dimension, especially those representing verbal cues in the respective FTF and CMC conditions. FTF immediacy was analyzed using a forced-entry procedure including verbal, kinesic, and vocalic terms simultaneously, and the adjusted multiple R^2 for the entire model was .94, $F(3, 9) = 68.76, p < .001$. The term for verbal cues was associated with a partial correlation of –.06 and a nonsignificant proportion of the variance accounted for, $F(1, 9) = .03$; the term for kinesics produced $F(1, 9) = 4.99, p = .052$ and a partial correlation of .59, and the term for vocalics produced $F(1, 9) = 8.34, p = .02$ and a partial correlation of .69.[1]

A similar analysis was conducted for immediacy in the CMC condition, regressing the immediacy ratings on the composite term composed of cues and their beta weights in order to generate comparable coefficients. The verbal-behaviors term produced an adjusted multiple R^2 of .78, $F(1, 13) = 55.15, p < .001$. The partial correlation associated with this term was .90.[2]

Finally, examinations were performed to assess whether there was a significantly smaller degree of immediacy or affection in CMC than in FTF and to assess the relative contributions of verbal cues in each channel. First, the multiple R^2s (converted to r) reflecting *all* predictors, including the respective FTF and CMC equations, were compared across channels. The overall variance in immediacy accounted for by the multiple R^2s in FTF and CMC conditions did not differ, $Z = 1.58, p = .114$. Turning to the partial correlations for the composite verbal behaviors in each condition, reflecting the contributions of verbal behavior to each total effect, there was a significant difference favoring the partial correlation from the CMC condition, $Z = –3.42$, $p < .001$. Thus, using this most liberal technique by which to isolate the contribution of verbal behavior to FTF immediacy, it appears that CMC users do indeed achieve significantly more interpersonal affect via their verbal behavior than do FTF communicators who, in contrast, rely to a greater extent on nonverbal cues for affective expression, supporting Hypothesis 2 with respect to immediacy.

DISCUSSION

This research set out to examine the transferability of basic interpersonal affect, or affinity/disaffinity, from nonverbal to verbal communication accompanying the alternative communication channels of FTF versus CMC. It addressed a fundamental theoretical issue in SIP theory that asserts that communicators adapt to any remaining communicative codes (usually language, text, and chronemics) the affective information that is customarily exchanged nonverbally in FTF settings. Although other tests of SIP, and studies on related processes, have often supported the general parameters of the theory in terms of

its preconditions and interaction effects on distal outcome variables, little research has examined the direct transferability argument that is a cornerstone of the theory's calculus. Without such direct evidence, SIP-like effects cannot ultimately be disambiguated as having been caused by other explanatory processes or due to confounding but atheoretical factors. The present research helps to establish the viability of one of the theory's major contentions.

Two sets of results came out of this research. The first revealed that the amount of subjectively experienced affinity—measured in terms of immediacy and affectionate communication—did not differ due to the communication channel in any substantial way compared to the effects of a simple experimental request to participants that they exhibit liking or disliking to their conversational partners. Although other theoretical positions such as social identification/deindividuation theory (Spears & Lea, 1994) and the hyperpersonal perspective (Walther, 1996) specify several social-cognitive dynamics that are predicated to prompt affinity and its behaviors in CMC, this research shows that very little motivation or identity issues need be salient for communicators to adapt their relational behaviors effectively across channels.

The second set of results was more complex with regard to establishing the relational potency of specific verbal cues in CMC as compared to FTF verbal behavior. The research design ultimately was not able to demonstrate statistically that verbal CMC cues have a greater impact on the expression of affection than verbal cues do in FTF settings, because verbal behaviors of affection in the multimodal FTF setting did not carry enough weight to remain meaningfully compared. Descriptive analyses of these cues in each setting did show that verbal cues show a robust effect in CMC expression of affection, whereas they diminish in importance in FTF settings, which is consistent with every expectation. In the detection of immediacy, however, comparisons were more demonstrable and supportive to SIP hypothesis.

It is interesting to note the assortment of cues that did become associated with affinity in both settings. It is unsurprising that the prevalence of many nonverbal behaviors previously associated with immediacy (e.g., smiling, facial orientation, and gaze) were reflected in the analysis of FTF interaction. Such findings add credence to prior studies on the manifestation of interpersonal affect in settings where all cues, verbal and nonverbal, are available. Looking around the room (coupled with gaze) seems out of place as a kinesic cue associated with affinity unless it may signal relaxation among partners—the opposite of a hostile stare. Although the vocalic cue, condescension, seems at first to have negative connotations, it may be valuable to consider that vocally, condescension may resemble softening, exaggerated affect, and a nurturing tone.

It is more interesting that some verbal behaviors were associated with affinity when they were afforded a statistical "head start" in doing

so. So bold a strategy as insults, and the more subtle strategy of offering personal information—akin perhaps to the well-known value of self-disclosure in communicating intimacy—may take their place as verbal indicators, among the bevy of nonverbal indicators, of interpersonal affect. At times more subtle yet were several of the verbal strategies of affinity identified in CMC conversations. Explicit statements of positive affection, of course, are hardly subtle. Yet changing the subject, being indirect in disagreements, and offering praise while proposing a different idea are fascinating maneuvers to enact in order to preserve the face of, and engender liking from, a conversational partner during a topical discussion.

These findings should be taken into consideration in the larger scholarly and public discussion of the effects of CMC on interpersonal interaction. Much research and commentary, as well as the casual responses of users and prospective users, suggest that the cues that are missing from CMC are what differentiates it from FTF communication. For instance, Fussell (2002) optimistically argues that system designers can build better emotion-supporting interfaces if a better understanding of interaction is achieved:

> An understanding of the ways verbal and nonverbal cues are integrated has become especially relevant today, now that new technologies allow for communication via text-based chat, e-mail, and other media in which verbal communication is the primary channel of communication. . . . A better understanding of how people integrate verbal and non-verbal cues in face-to-face settings would enable system designers to develop technologies to support emotional communication among remotely distributed parties. (p. 11)

Such a position implies that text alone, and current text-based systems, are not up to the task of emotional exchange. Although concerns about the lack of cues in CMC may persist with regard to determining participants' identity, or the reduction of message equivocality, as functions of bandwidth and interface design, affinity issues may be different and readily translatable from one cue system to another. Insofar as this aspect of social interaction is concerned, a chat system or an e-mail message may be as good as a meeting or a videophone, or anything else as yet to be developed, when communicators are even minimally motivated to make them so through the adaptation of affective intentions into text-based cues.

NOTES

1. For exploratory purposes, kinesic affection was computed as ([.55 × direct facial orientation] + [.28 × smiling] + [.28 × gaze] + [–.22 × looks around the room] + [–.16 × random head movement]). Vocalic affection was computed as ([.73 × vocal pleasantness] + [–.26 ×

sharpness] + [.47 × condescension] + [.24 × resonant timbre]). Multiple regression analysis produced an adjusted multiple R^2 for both terms of .98, $F(2, 10) = 270.09$, $p < .001$. Of the two terms, only the kinesics composite remained significant when both terms entered the model, $F(1, 10) = 18.48$, $p = .002$, with a partial correlation of .81.

2. The composite term for verbal cues to affection was computed as ([.81 × explicit positive affection] + [.47 × changing the subject]). Regressing the ratings of confederate affection on this term yielded an adjusted multiple $R^2 = .64$, $F(1, 13) = 25.91$, $p < .001$. Although the variance accounted for by the vocalic and kinesic terms in the FTF condition appears to be larger, there was no difference between these measures when compared statistically.

APPENDIX
Coded Variables for the Expression of Affinity

	Reliability
Kinesics	
Body orientation to partner (indirect/direct)	.82
Facial orientation to partner (indirect/direct)	.84
Gaze (averted/direct)	.78
Gesture frequency (none/frequent)	.82
Gesture activity (passive/active)	.92
Facial pleasantness (unpleasant/pleasant)	.97
Facial animation (passive/active)	.91
Smiling (none/frequent)	.97
Facial concern (indifferent/concerned)	.78
Nodding (none/frequent)	.99
Laughing (none/frequent)	.85
Leg and foot movement (none/frequent)	.79
Rocking and twisting (none/frequent)	.76
Random head movement (none/frequent)	.94
Composure (nervous/cool)	.78
Facial tension (tense/relaxed)	.65
Rigidity (rigid/loose)	.77
Body straightness (erect/slumped)	.51
Body involvement (uninvolved/involved)	.95
Interest (uninterested/interested)	.24
Openness (closed/open)	.95
Activity (passive/active)	.96
Body lean (backward/forward)	.94
Warmth (cold/warm)	.85
Head shaking side-to-side (none/frequent)	NA
Self-touch (none/frequent)	.64
Object touch (none/frequent)	.89
Touch partner (none/frequent)	.68
Random arm movements (none/frequent)	NA
Coordinated movement (uncoordinated/coordinated)	NA
Body relaxation (tense/relaxed)	.58
Hand/arm relaxation (tense/relaxed)	NA
Looked at ground/feet (none/frequent)	.64
Looked around room (none/frequent)	.75
Folded arms (none/frequent)	.44
Moved farther or closer (farther/closer)	.89
Rolled eyes (none/frequent)	NA
Tapped table	.57

(continued)

APPENDIX (continued)

	Reliability
Vocalics	
Loudness (soft/loud)	.62
Sharpness (mellow/sharp)	.74
Rate/tempo (slow/fast)	.91
Pitch variety (monotone/varied)	.98
Articulation (unclear/clear)	.87
Fluency (nonfluent/fluent)	.87
Rhythm (jerky/rhythmic)	.72
Happiness (unhappy/happy)	.87
Warmth (cold/warm)	.86
Pleasantness (unpleasant/pleasant)	.86
Laughing (none/frequent)	.91
Pitch (low/high)	.77
Timbre (whiny/resonant)	.78
Pausing (none/frequent)	.95
Tension (tense/relaxed)	.86
Vocal expressiveness (flat/expressive)	.95
Receptivity (closed/receptive)	.97
Concern (apathetic/concerned)	.95
Patience (impatient/patient)	.45
Dominance (submissive/dominant)	.86
Cooperativeness (competitive/cooperative)	.78
Condescension (sincere/condescending)	.90
Interruptions (waited/interrupted)	.85
Attentiveness (distant/attentive)	.95
Silences between speakers (none/frequent)	.89
Pauses during speech (none/frequent)	.91
Turn duration (very short/very long)	.88
Proportion of talking by target person (0%-100%)	.61
Verbal (all coded as none to frequent):	
Irreverent response	.79
Monologue	.98
Denigrate idea	.92
Change subject	NA
Insult	.84
Challenge credibility	.89
Challenge facts of statement	.56
Express doubt	.97
Profanity	.74
Brief disqualification	NA
Sarcasm	NA
Reinterpretation of feelings	.57
Personal language	.89
Praise idea	.98
Praise ability	.99
Praise attribute	.99
Express enjoyment/misery	.92
Ask for personal information	NA
Offer personal information	NA
Use of humor	NA
Asks for opinion	.92

APPENDIX (continued)

	Reliability
Extreme positive language	NA
Extreme negative language	.85
Explicit positive affection	.99
Explicit personal praise	.99
Explicit negative affect	.99
Explicit negative condemnation	NA
Outright disagreement	.51
Direct disagreement	.57
Indirect disagreement	.81
Indirect disagreement + modest viability	.23
Repudiation	NA
Accedence	.24
Simple agreement	NA
Direct agreement	.37
Strong agreement	NA
Monosyllabic affirmation	NA
Praise + indirect disagreement	NA
Praise + provisional acceptance	.79
Praise/acknowledge + novel proposition	.53
Closed-ended questions	.41
Open-ended questions	.59
Ambiguity	NA
Asked questions	.56
Made assertions	NA
Offered encouragement	.57
Tone toward topic	NA
Self-praise	NA
Self-denigration	.79
Discuss personal similarities	.89
Rhetorical questions	.96
Contradiction	.15
Apathy	.64
Sarcasm	NA
Refuses to answer	NA
Seeks future contact	.45
Emoticons (coded for frequencies of appearance)	
:)	.99
;)	na
:(	na

Note: NA indicates that reliability was < .00 or > 1.00 (incomputable), or that there was no variance.

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