

# EFFECTS OF GAZE ON HIRING, CREDIBILITY, ATTRACTION AND RELATIONAL MESSAGE INTERPRETATION

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*ABSTRACT:* Two competing models of the social meaning and effects of eye gaze exist. One holds that different levels of eye gaze have clearly identifiable meanings that will yield main effects on such communication outcomes as hiring and interpersonal evaluations. The other holds that deviant levels of eye gaze are ambiguous in meaning and that interpretation depends on contextual cues such as the reward value of the violator. An experiment required 140 Ss to serve as interviewers during a structured interview in which six confederate interviewees systematically varied three levels of eye gaze (high, normal, low) and two levels of reward (highly qualified, highly unqualified for the advertised position). Results favored a social meaning model over a violations of expectations model: Subjects were more likely to hire and rate as credible and attractive interviewees who maintained a normal or high degree of gaze than those who averted gaze. Interpretations given to higher amounts of gaze were more intimacy and similarity, more immediacy and involvement, and more composure, informality and nonarousal.

“The eyes of men converse as much as their tongues, with the advantage that the ocular dialect needs no dictionary, but is understood the world over.”

—Ralph Waldo Emerson

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"These lovely lamps, these windows of the soul."

—Guillaume de Salluste

"And I have known the eyes already, known them all—  
The eyes that fix you in a formulated phrase . . ."

—T.S. Eliot

Perhaps no element of human communication has captured the imagination like the eyes. Poets, philosophers and empiricists alike have written about their alleged powers—to reveal true, inner feelings; to heal; to spark sexual attraction; to dominate, threaten and frighten; to calm, soothe and placate; to arouse attention and signal involvement; to promote friendship and affiliation, and to probe lies and deceptions.

To separate fact from fiction, researchers have conducted wide-ranging experimental field studies. One of the prevailing conclusions that has emerged from this effort has been that eye gaze has a number of recognizable social meanings. This is exemplified by Argyle and Cook's (1976) enumeration of different functions of gaze behavior (e.g., signalling interpersonal attitudes and emotions, initiating greetings) and an experiment by Burgoon, Buller, Hale and deTurck (1984), which found that eye contact was perceived to convey relational messages of intimacy and attraction, immediacy and involvement, arousal or composure, and dominance and persuasiveness. Numerous other treatises and studies have arrived at similar conclusions (e.g., Andersen, Andersen & Jensen, 1979; Argyle, 1972; Beebe, 1980; Exline, 1963; Fromme & Bean, 1974; Goldberg, Kiesler & Collins, 1969; LaFrance & Mayo, 1978; Mehrabian, 1971; Moore & Gilliland, 1921; Patterson, 1976; Snyder & Sutker, 1977; Thayer, 1969; Thayer & Schiffe, 1974).

An alternative view is expressed in the work of Ellsworth and Langer (1976), who argue that eye gaze is a nonspecific activator whose meaning is highly dependent on contextual cues. This view is consistent with one taken by Burgoon and her associates for a related nonverbal behavior, conversational distance. In her violations of expectations model (Burgoon, 1978a, 1983; Burgoon & Jones, 1976; Hale & Burgoon, 1983), it is proposed that proxemic variations are themselves ambiguous in meaning, having multiple interpretations that could be given to proximal and distal positioning. Selection of meaning depends on the nature of the individual adopting an unexpectedly close or far distance, the direction of the proxemic adjustment (closer or farther than expected) and the extremity of the adjustment.

These two alternative perspectives lead to competing predictions about the effects of differing degrees of eye contact on the outcomes of interpersonal interactions. The former, social meaning view suggests primarily "main effect" hypotheses. Because so many favorable connotations are attached to increased gaze (e.g., liking, attraction, intimacy, dominance, composure, interest) and unfavorable connotations are attached to decreased gaze (e.g., detachment, lack of attraction, disinterest, subservience), increasing levels of gaze should produce increasingly positive communication outcomes.

Conversely, if eye behavior can be likened to proxemic behavior—and that case can be made, based on both variables being classified as closely interrelated immediacy behaviors (Andersen, Andersen & Jensen, 1979; Argyle & Dean, 1965; Mehrabian, 1971; Patterson, 1973)—then "interaction" hypotheses are warranted. Using the violations of expectations model, the reward value of the communicator plays a major role in determining which of several possible meanings will be assigned to increased or decreased gaze. With highly rewarding communicators, such as those who are attractive, highly credible, high status or interpersonally charming, both increases and decreases of gaze from a "normal" or expected level should prompt positive interpretations. For example, increased gaze would continue to have all the positive connotations noted above, while decreased gaze might be interpreted as signalling deference. For nonrewarding communicators, such as repulsive, dislikable or low status individuals, increased or decreased gaze would be interpreted more negatively than a normal level of eye contact. Increased gaze might be read as overly forward, aggressive or ingratiating, while decreased gaze might be seen as carrying all the negative interpretations noted earlier. The reasoning behind these differential predictions is that deviations from an expected level of behavior arouse the recipient, shifting attention away from the verbal content of the conversation and toward the source of the arousal, the deviating communicator. This makes the communicator's characteristics more salient and, depending on whether that individual is favorably or unfavorably regarded, colors the interpretation placed on the relational communication implicit in the communicator's behavior. Because gaze behavior has a multiplicity of meanings, some positive and some negative, it is possible for the recipient to differentially select positive and negative meanings, depending on his or her relationship with the communicator. The

labeling that occurs in turn mediates the communication outcomes, such that increasingly extreme deviations by a rewarding communicator produce increasingly favorable communication outcomes (up to some as-yet unspecified threshold, where extreme deviations are no longer desirable) and increasingly extreme deviations by nonrewarding communicators produce increasingly negative consequences.

The present experiment was designed to compare these two competing models of the effects of eye gaze on interpersonal communication outcomes. Dependent variables selected for examination were ones of interest in previous tests of the violations model: persuasiveness, credibility and attraction (Burgoon, 1978a; Burgoon & Aho, 1982; Burgoon, Stacks & Burch, 1982; Burgoon, Stacks & Woodall, 1979; Stacks & Burgoon, 1981). To test the critical assumption of both models that multiple meanings attach to gaze behavior, relational message content was also explored. It was expected that with either model, a main effect for reward value of the communicator would obtain and that linear main effects for eye gaze and no interactions would support the social meaning model, while two separate nonlinear patterns for eye gaze at the two levels of reward would support the violations of expectations model.

## METHOD

### *Subjects*

Subjects were 140 undergraduate students enrolled in communication courses at a large midwestern university in the U.S. Participation was voluntary but earned class credit.

### *Procedure*

The ostensive purpose of the experiment, as described to the subjects, was to study interviewing behavior. Subjects were told that they would either be assigned the role of interviewer or interviewee and would conduct a simulated job interview for a position posting that actually existed.

Upon arrival at the experimental location, subjects were told that they were to take the role of interviewer and that another student whom they were going to interview was presently completing an application

form in anticipation of being interviewed for a public relations position with a health maintenance organization. Subjects received a detailed description of the job, some background information on health maintenance organizations and a complete schedule of interview questions. They were asked to confine their questioning to the prepared interview protocol so that "all interviewees would experience a similar interview." This ensured that the subjects themselves would have a uniform experience and that interviewees, who were actually confederates, could follow the same script in replying to interview questions. Built into the interview protocol were some instructions for the interviewer to offer his or her own opinion about some topics, such as enjoyment of living in the local community, so that they could become more personally involved in the interview.

Subjects were ushered into a small classroom equipped with a round table, two swivel chairs, a microphone and a one-way mirror through which they were told they would be observed. They were then given the application form supposedly just completed by the interviewee and asked to review it before the interviewee entered.

In reality, the application was one of two prepared versions, one for a high reward applicant and one for low reward applicant, both named Terry. In the high reward condition, the applicant had strong qualifications for the job, including an excellent grade point average, extensive relevant work and extramural experience and notable references. In the low reward condition, the applicant was poorly qualified, having a mediocre grade point average, little work experience, no relevant extracurricular activities and inappropriate references.

The interview script itself was identical for both reward conditions but written in such a way that it was compatible with both sets of credentials. Some of the interviewee's replies were designed to highlight the differences between the two sets of credentials. For example, in reply to a question about work experience beyond that listed on the application, the interviewees replied that they had done some yard work but that their listed activities had kept them pretty busy in the last few years.

The confederate interviewees were six undergraduate students, three males and three females,<sup>1</sup> who were trained to keep their verbal replies and all other nonverbal behavior consistent across interviews. The eye contact manipulation consisted of one of three levels: high, medium or low. Medium eye contact was the confederate's normal level of eye contact, as determined through pretesting. This ranged from 40% to 60% of the time during an interaction. High eye contact was intended to be a violation of usual gaze patterns and consisted of nearly constant gazing (nearly 90% of the time). Low eye contact was also intended to be a violation of normal patterns and consisted of almost total gaze aversion (gazing only about 10% of the time).

Confederates followed a randomly assigned schedule of eye contact

conditions. They were blind to the reward condition that was randomly assigned to each subject.

Following each interview, which took approximately six minutes, interviewers and interviewees were directed to separate rooms to complete postmeasures. In reality, the confederates returned to the observation room to await their next subject. Confederates alternated conducting interviews so that subjects would not see their interviewee enter or exit the interview room.

### *Manipulation Checks*

As a check on the reward manipulation, the two sets of qualifications were pretested with a graduate communication class ( $N=50$ ) on likelihood of hiring. As a check on the eye contact manipulation and the confederates' control of extraneous nonverbal behavior, pairs of trained coders<sup>2</sup> observed a subset of interactions and recorded what level of eye contact they thought was exhibited in each interaction. They also rated the confederate on twenty seven-interval semantic differential items designed to measure vocal intensity and vocal pleasantness (from a scale by Burgoon, 1978b), kinesic activation, distraction (Stacks & Burgoon, 1981), and three dimensions of interaction behavior related to tension, interest and task orientation (taken from the Interaction Behavior Measure by McCroskey & Wright, 1971). Coefficient alpha reliabilities for the seven respective composites were .84, .59, .87, .70, .94, .92 and .86. Interrater reliabilities were .64, .63, .72, .67, .53, .63 and .41.

### *Postmeasures*

The measure of persuasiveness was the subject's likelihood of hiring the confederate for the advertised position, rated on a 1 to 7 scale from extremely unlikely to extremely likely. Credibility was measured with five subscales of three items each, measuring the dimensions of competence, composure, character, sociability and extroversion (McCroskey, Jensen & Valencia, 1973). Coefficient alpha reliabilities for the five respective subscales were .81, .66, .62, .79 and .88. Attraction was measured with three subscales of four items each reflecting the dimension of task, social and physical attraction (McCroskey & McCain, 1974). Reliabilities were .80, .79 and .81.

To test the assumption that variations in eye gaze carry different relational meanings, a sixty-eight item relational message scale measuring four independent clusters of relational message themes was used (Burgoon & Hale, 1981). Reliabilities for the four dimensions were .86 for intimacy/similarity, .83 for immediacy, .74 for arousal/composure/formality and .76 for dominance.

## RESULTS

### *Manipulation Checks*

The pretest on the high and low reward application forms showed significantly higher likelihood of hiring ( $p < .05$ ) for the high reward credential. The raters' assessments of the eye contact conditions as compared to the actual assigned conditions showed 85% agreement. Disagreements always consisted of being only one category apart (usually seeing a normative condition as high eye contact). Given that raters had only a profile view of confederates through the one-way mirror, this level of agreement was taken as evidence that the manipulations were largely executed as assigned, but that confederates were not always successful in clearly differentiating between normal and extreme levels of eye contact. It was expected that this would somewhat bias the normal condition results.

Analyses of the confederates' nonverbal behaviors further indicated that, despite considerable prior training, they differed significantly on the seven nonverbal subscales of vocal pleasantness, vocal intensity, kinesic activation, distraction, tension, interest and task orientation. This necessitated including confederates as a third, blocking variable in the experimental analyses to control for these systematic sources of variance.

### *Hypotheses*

All effects were initially tested in  $6$  (confederates)  $\times$   $2$  (reward)  $\times$   $3$  (eye gaze) multivariate analyses of variance, with dependent variables grouped into related categories (credibility, attraction and relational messages). The exception was the persuasiveness variable, which was tested in a separate analysis of variance. Significant univariate effects were then probed further through orthogonal contrasts to test the hypothesized relationships.

The analysis of variance on likelihood of hiring produced one significant main effect for eye contact,  $F = 9.75$ ,  $df = 2, 102$ ,  $p < .05$ ,  $\mu^2 = .07$  and no significant interactions. Main effect means (reported in Table 1) showed that likelihood of hiring was highest in the normative and high eye contact conditions, which did not differ from each other, and lowest in the low eye contact condition.

The multivariate analysis on the four relational communication dimensions produced a significant main effect for eye contact ( $\lambda = .82$ ,  $F = 2.62$ ,  $df = 8,202$ ,  $p < .01$ ). No other effects were significant. Univariate analyses on the four dependent measures produced significant eye contact effects specifically for intimacy/similarity ( $F = 5.61$ ,  $df = 2, 104$ ,  $p < .01$ ), arousal/composure/formality ( $F = 7.85$ ,  $df = 2,104$ ,  $p < .01$ ), and immediacy ( $F = 7.18$ ,  $df = 2,104$ ,  $p < .01$ ). As seen in Table 1, confederates were

TABLE 1  
Main Effects of Eye Gaze on Hiring Likelihood,  
Credibility, Attraction and Relational Messages

DEPENDENT MEASURES <sup>1</sup>	EYE GAZE			REWARD	
	HIGH	MEDIUM	LOW	HIGH	LOW
Hiring Likelihood	5.61	5.75	4.76	5.55	5.27
Competence	5.95	6.04	5.48	5.84	5.85
Character	4.48	4.39	4.16	4.32	4.39
Composure	5.26	5.45	4.70	5.06	5.26
Sociability	5.79	5.85	5.05	5.58	5.62
Extroversion	4.98	5.11	4.16	4.89	4.69
Task Attraction	5.90	5.91	5.34	5.81	5.67
Social Attraction	5.66	5.47	4.95	5.36	5.41
Physical Attraction	5.33	5.15	4.54	5.12	4.95
Intimacy/Similarity	4.44	4.41	3.89	4.22	4.32
Immediacy-Nonimmediacy	4.54	4.78	3.85	4.41	4.44
Dominance-Submission	3.87	3.76	3.46	3.77	3.65
Arousal/Composure/Formality	5.52	5.62	5.04	5.41	5.46

<sup>1</sup> Dependent measures are scored such that a higher score indicates greater (1) likelihood of hiring, (2) competence, (3) character, (4) composure, (5) sociability, (6) extroversion, (7) task attraction, (8) social attraction, (9) physical attraction, (10) intimacy and similarity, (11) immediacy, (12) dominance and, (13) composure, relaxation and absence of negative forms of arousal.

regarded as far less intimate and similar, less immediate, less composed and more negatively aroused in the low eye contact condition than in either the normative or high conditions, which did not differ from each other. Additionally, a significant univariate effect for confederates appeared for the dependent variable of arousal/composure/formality ( $F = 3.06$ ,  $df = 5,104$ ,  $p < .05$ ).

The multivariate analysis on the five dimensions of credibility produced significant effects for eye contact ( $\lambda = .78$ ,  $F = 2.69$ ,  $df = 10,200$ ,  $p < .01$ ) and for confederates ( $\lambda = .57$ ,  $F = 2.46$ ,  $df = 25,373$ ,  $p < .01$ ). Univariate analyses for eye contact showed all dependent variables produced significant effects except for character (competence  $F = 3.11$ ,  $df = 2,104$ ,  $p < .05$ ; sociability  $F = 10.25$ ,  $df = 2,104$ ,  $p < .01$ ; composure  $F = 6.47$ ,  $df = 2,104$ ,  $p < .01$ ; extroversion  $F = 7.48$ ,  $df = 2,104$ ,  $p < .01$ ). As with likelihood of hiring and perceived relational messages, credibility was highest in the normative and high eye contact conditions, lowest in the low eye contact condition. Univariate confederate effects were significant for the dependent measures of character ( $F = 3.00$ ,  $df = 5,104$ ,  $p < .05$ ), sociability ( $F = 4.55$ ,  $df = 5,104$ ,  $p < .01$ ), and extroversion ( $F = 5.55$ ,  $df = 5,104$ ,  $p < .01$ ).

The multivariate analysis on the three dimensions of attraction also produced significant eye contact ( $\lambda = .86$ ,  $F = 2.57$ ,  $df = 6,204$ ,  $p < .05$ ) and confederate effects ( $\lambda = .49$ ,  $F = 5.58$ ,  $df = 15,282$ ,  $p < .01$ ). All three dimensions produced significant univariate eye contact effects (task attraction  $F = 3.94$ ,  $df = 2,104$ ,  $p < .05$ ; social attraction  $F = 4.40$ ,  $df = 2,104$ ,  $p < .05$ ; physical attraction  $F = 6.15$ ,  $df = 2,104$ ,  $p < .01$ ) and univariate confederate effects (task attraction  $F = 3.41$ ,  $df = 5,104$ ,  $p < .01$ ; social attraction  $F = 3.20$ ,  $df = 5,104$ ,  $p < .01$ ; physical attraction  $F = 17.44$ ,  $df = 5,104$ ,  $p < .01$ ). The same pattern of least attraction in the low eye contact conditions and most in the norm and high conditions obtained.

Despite a successful manipulation check on reward, reward failed to produce any significant main effects on the dependent measures. This precluded a direct test of the violations model predictions (since the model is predicated on having two distinctly different levels of reward to compare on eye contact effects). However, the results consistently showed more negative consequences for an interviewee adopting a negative type of violation, i.e., reducing eye contact, and more positive consequences for maintaining a normative or high level of gaze.

## DISCUSSION

The present results demonstrate that violations of normative gaze patterns may have negative or positive communication consequences, depending on what form the violation takes. One type of deviation from the expected conversational pattern, gaze aversion, causes interviewers to reduce their likelihood of hiring the offending interviewee, to see him or her as less credible and attractive and to assign negative interpretations to his or her relational communication. More specifically, such violations may lead to attributions of incompetence, noncomposure, unsociability, and passivity. They may result in the violator being viewed as unattractive socially, physically and as a task partner. And they may cause the violator's relational communication to be interpreted as expressing dislike, dissimilarity, detachment, disinterest, tension, formality and negative arousal. By virtue of negative meanings assigned to it as well as the detrimental evaluative and behavioral consequences, gaze aversion clearly qualifies as a negative type of violation.

Conversely, nearly constant gaze may qualify as a positive type of violation. It does not differ from normative gaze patterns in earning more favorable endorsements for hiring from an interviewer, in conferring greater credibility, in increasing attraction and in receiving favorable relational communication interpretations. Specifically, those who engage in relatively to very high levels of gaze are seen as competent, composed, sociable, dynamic, socially attractive, physically attractive and task attractive. Additionally, their relational communication is seen as expressing liking, intimacy, similarity, immediacy, relaxation, informality and pleasant emotional states.

Unfortunately, the present results do not answer the question of whether reward value of a violator can mediate these patterns, making both types of violations more acceptable for "high reward" individuals and less so for "nonrewarding" ones. No main effects for reward emerged in this study, despite a manipulation check demonstrating that the two sets of credentials were detectably different. The most likely explanation for the nonsignificant reward effects is that the student interviewers placed more importance on the interviewees' actual interaction behavior than on their pre-interview qualifications and that interviewee behavior overrode the reward manipulation. Post-analysis discussions with

the confederates and coders raised the possibility that the interviewee scripts allowed the confederates to reveal so much knowledge of Health Maintenance Organizations that it compensated for any experience deficits in the application itself. Moreover, the amount of rehearsal the confederates underwent, along with the repeated performances, may have made them unusually fluent and verbally facile in the eyes of the student interviewers. In fact, examination of the absolute mean ratings confederates received on the credibility and attraction postmeasures revealed that, regardless of the qualifications attributed to them, they all received moderately favorable evaluations. Thus, behavior during the interviews evidently neutralized the effects of the preinterview reward manipulation. Inasmuch as reward value has repeatedly proven to make a difference in other studies (see Burgoon, 1983, for a summary), it is probably fair to conclude that experimental procedures were at fault in this case. Future replications will need to alter the qualifications induction such that it either makes the credentials more salient throughout the interview or actually varies the interview behavior between high and low reward applicants. Additionally, greater attention should be centered in the training sessions on making the interviewee behavior appear spontaneous.

While the numerous significant differences due to confederates are an experimenter's nightmare, they do underscore the need to conduct interpersonal communication research using multiple confederates. The current findings strongly demonstrate the idiosyncratic differences in individual communication styles that may mediate communication outcomes. Had only one or two of the confederates in this experiment actually been used, very different results might have appeared. One has to wonder how many interpersonal experiments have been subject to this kind of undetected confound. At least by incorporating confederates as a variable in the statistical design, one can determine if hypothesized relationships operate in addition to such idiosyncracies. Moreover, detecting confederate effects of the magnitude found here should spawn efforts to isolate and study further the confederate behaviors that are responsible.

An additional noteworthy finding in the present study is the replication of Burgoon, Buller, Hale and deTurck's (1984) finding that eye gaze carries multiple relational meanings. Consistent with the findings of that experiment, increased gazing communicates higher degrees of intimacy/similarity, immediacy and non-

arousal/composure/informality. The latter finding is contrary to what was originally predicted, which was that nearly constant gaze would communicate negative arousal and lack of composure while low degrees of gazing would express relaxation and informality. Burgoon et al. speculated that the introduction of three levels of the cue might begin to show curvilinear patterns. While the present results do not show significant differences between the normative and high levels of gaze, the high gaze mean is slightly lower, hinting at the possibility that a more extreme manipulation might produce more of a decrement. Such a pattern, if more pronounced, however, would be the exact opposite of Burgoon et al.'s speculation that extremes in gazing communicate more informality, composure and nonarousal. Perhaps what is needed is more precision in the analysis of gaze frequency, duration and configuration (e.g., a stare) before more firm conclusions can be drawn about the arousal meanings of gaze behavior. One final interpretation not replicated in this study was that high levels of gaze communicate dominance and low levels communicate submissiveness. However, the means are in the right direction and the multivariate analysis on the relational communication measures was significant, offering some marginal support for this relationship.

Beyond replicating findings from earlier research that eye gaze carries relational meanings, the present results speak more fundamentally to the issue of gaze behavior better conforming to a social meaning model or to a violations model. Clearly, gaze behavior is not a totally ambiguous behavior that depends exclusively on the context for its interpretation. It has a variety of meanings that can be attributed to it, many of which are interrelated and compatible in expressing attentional and affiliative states. For these interpretations, context is more relevant for selecting which meanings deserve emphasis, rather than in selecting among potentially contradictory or conflicting meanings. There are, however, other interpretations related to dominance, formality and composure that may introduce potentially incongruent messages. For example, interpreting high degrees of gaze as expressing intimacy and similarity implies equality and closeness in a relationship, while interpreting such gaze as expressing dominance and formality implies inequality and distance. It is because these possibilities exist that the violations model may still apply to gaze behavior, with the nature of the violator determining which in-

terpretations are likely to be emphasized. Moreover, it is possible to interpret unambiguously a behavior as affiliative and have different evaluations of the act, depending on who committed it. Such familiarity may be desired and appreciated from a liked other, but unwanted and resented from a stranger. Hence, the nature of the communicator would still mediate the *reaction* to the act if not the actual *interpretation* of its social meaning.

In short, it appears at this juncture that both models may be applicable. Consistent with the social meaning model, eye gaze may be regarded as part of a socially shared vocabulary of relational communication. However, the fact that it is subject to multiple interpretations implies that some additional process is necessary for selecting among meanings. Moreover, even when meanings are unambiguous and compatible, one's evaluative reaction to receiving a particular message may vary considerably. A model that offers predictions both of how choices among conflicting meanings may be made and how respondents will react, once an interpretation is selected, is the violations model. Whether this model, with its emphasis on the mediating role of the reward value of the communicator, can be generalized beyond proxemics to gaze behavior awaits further empirical testing.

## REFERENCE NOTES

1. Confederates were volunteers from an undergraduate nonverbal communication course who ranged in age from 20 to 26. All were Caucasian but differed in height, coloring and physical attractiveness. This variability, besides being a practical necessity, was considered an asset because it put the generalizability of the competing models to greater test. At the same time, it was recognized that such differences would undoubtedly influence results, as they had in previous investigations (e.g., Burgoon & Aho, 1982). Confederates were therefore included as a third element in the design.
2. Coders were three male and five female undergraduates who received extensive instruction and training in nonverbal coding using videotaped dyadic interactions prior to conduct of the actual experiment.

## REFERENCES

- Andersen, J.F., Andersen, P.A., & Jensen, A.D. The measurement of immediacy. *Journal of Applied Communication Research*, 1979, 7, 13-180.
- Argyle, M. *The psychology of interpersonal behavior* (2nd ed.). London: Penguin Books, 1972.
- Argyle, M., & Dean, J. Eye contact, distance, and affiliation. *Sociometry*, 1965, 28, 289-304.
- Beebe, S.A. Effects of eye contact, posture and vocal inflection upon credibility and comprehension. *Australian SCAN: Journal of Human Communication*, 1980, 7-8, 57-70.

- Burgoon, J.K. A communication model of personal space violations: Explication and an initial test. *Human Communication Research*, 1978, 4, 129-142. (a)
- Burgoon, J.K. Attributes of the newscaster's voice as predictors of his credibility. *Journalism Quarterly*, 1978, 55, 276-281, 300. (b)
- Burgoon, J.K., & Aho, L. Three field experiments on the effects of violations of conversational distance. *Communication Monographs*, 1982, 49, 71-88.
- Burgoon, J.K., Buller, D.B., Hale, J.L., & deTurck, M.A. Relational messages associated with nonverbal behaviors. *Human Communication Research*, 1984, 10, 351-378.
- Burgoon, J.K., & Hale, J.L. *Dimensions of relational messages*. Paper presented at the Speech Communication Association Convention, Anaheim (November, 1981).
- Burgoon, J.K., & Jones, S.B. Toward a theory of personal space expectations and their violations. *Human Communication Research*, 1976, 2, 131-146.
- Burgoon, J.K., Stacks, D.W., & Burch, S.A. The role of nonverbal violations of expectations in interpersonal influence. *Communication*, 1982, 11, 114-128.
- Burgoon, J.K., Stacks, D.W., & Woodall, G.W. A communicative model of violations of distancing expectations. *Western Journal of Speech Communication*, 1979, 43, 153-167.
- Ellsworth, P.C., & Langer, E.J. Staring and approach: An interpretation of the stare as a non-specific activator. *Journal of Personality and Social Psychology*, 1976, 33, 117-122.
- Exline, R. Explorations in the process of person perception: Visual interaction in relation to competition, sex, and need for affiliation. *Journal of Personality*, 1963, 31, 1-20.
- Fromme, D., & Bean, D. Dominance and sex differences in nonverbal responses to differential eye contact. *Journal of Research in Personality*, 1974, 8, 76-87.
- Goldberg, G.N., Kiesler, C.A., & Collins, B.E. Visual behavior and face-to-face distance during interaction. *Sociometry*, 1969, 32, 43-53.
- Hale, J.L., & Burgoon, J.K. Models of reactions to changes in nonverbal immediacy. Paper presented to the Second International Conference in Social Psychology and Language, Bristol, UK., 1983.
- LaFrance, M., & Mayo, C. *Moving bodies: Nonverbal communication in social relationships*. Monterey, CA: Brooks/Cole., 1978.
- McCroskey, J.C., Jensen, T., & Valencia, C. Measurement of the credibility of peers and spouses. Paper presented to the International Communication Association convention, Montreal, 1973.
- McCroskey, J.C., & McCain, T.A. The measurement of interpersonal attraction. *Speech Monographs*, 1974, 41, 261-266.
- McCroskey, J.C., & Wright, D.W. The development of an instrument for measuring interaction behavior in small groups. *Speech Monographs*, 1971, 38, 335-340.
- Mehrabian, A. *Silent messages*. Belmont, CA: Wadsworth, 1971.
- Moore, H.T., & Gilliland, A.R. The measurement of aggressiveness. *Journal of Applied Psychology*, 1921, 5, 97-118.
- Patterson, M.L. Compensation in nonverbal immediacy behaviors: A review. *Sociometry*, 1973, 36, 237-252.
- Patterson, M.L. An arousal model of interpersonal intimacy. *Psychological Review*, 1976, 83, 235-245.
- Snyder, R.A., & Sutker, L.W. The measurement of the construct of dominance and its relation to nonverbal behavior. *Journal of Psychology*, 1977, 97, 227-230.
- Stacks, D.W., & Burgoon, J.K. The role of nonverbal behaviors as distractors in resistance to persuasion in interpersonal contexts. *Central States Speech Journal*, 1981, 32, 61-73.
- Thayer, S. The effects of interpersonal looking duration on dominance judgments. *Journal of Social Psychology*, 1969, 79, 285-286.
- Thayer, S., & Schiffe, W. Observer judgment of social interaction: Eye contact relationship inferences. *Journal of Personality and Social Psychology*, 1974, 30, 110-114.