

EYE CONTACT, PHYSICAL PROXIMITY, AND LAUGHTER: A REEXAMINATION OF THE EQUILIBRIUM MODEL OF SOCIAL INTIMACY

ANTONY J. CHAPMAN

University of Wales Institute of Science and Technology, Cardiff

Independent groups of 7-year-old participants listened to humor on headphones, either with a nonlistening companion (audience) or with a companion who also listened (coactor), and at 1 of 2 interpersonal distances. In coaction sessions, children sitting closer engaged in more eye contact, laughter, and smiling. The direct relationship between them and other intimacy signals is unequivocal evidence against Argyle and Dean's (1965) equilibrium model of social intimacy. It is argued that this model is based upon an invalid assumption, namely, that levels of intimacy remain static during interactions. Humorous laughter is identified as a means of reducing social arousal. Audience and coaction differences in laughter and smiling and correlational data mirror previous results. Girls tended to engage in more eye contact than did boys.

Keywords: equilibrium model of social intimacy, eye contact, physical proximity, laughter.

According to Argyle and Dean's (1965) equilibrium model, the social intimacy of a dyadic encounter is dependent upon a number of mutually compensatory variables, including eye contact (EC), interpersonal distance, smiling, and body orientation. EC is defined as reciprocated looking in the region of the eyes and an equilibrium level of EC is said to exist in any two-person situation. Affinitive needs and the necessity for feedback constitute the main positive forces toward maintaining EC, while any tendency towards excessive EC promotes anxiety which is alleviated through gaze aversion. States of equilibrium are said to exist also for the other signals of intimacy. When the perceived optimum of intimacy is disturbed by a change in intensity along one dimension, a reciprocal change occurs along at least one of the other dimensions. Thus, the affiliative system is in a dynamic state of balance throughout a two-person interaction. In a review of the empirical literature, Patterson (1973a) indicates that the studies which have tested the compensatory relationship between EC and physical proximity provide some of the strongest support for the notion that signals substitute for one another to determine level of intimacy. It is this relationship which is reexamined in the present experiment.

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Correspondence and reprint requests should be addressed to: Antony J. Chapman, Department of Applied Psychology, University of Wales Institute of Science and Technology, Llwyn-y-Grant, Pen-y-lan, Cardiff, CF3 7UX, United Kingdom.

Although Argyle and Dean presented data in support of their hypothesis that EC increases with distance, it is clear from Patterson's survey that few subsequent experimenters have generated data which are entirely corroborative. Other studies have provided equivocal or inconsistent support.

Evidence directly contrary to the compensatory notion would cast doubt upon the intimacy model and the social skill work which has developed from it. However, very few data have been presented so far which run counter to the model's predictions. Jourard and Friedman (1970) purport to have provided negative evidence but their "distance" dimension, a composite of touching and interviewer self-disclosure, is difficult to interpret in the context of compensatory processes. Kleck (1970) measured nonverbal agreeing responses and these are undoubtedly intimacy cues, although not responses specifically listed as such by Argyle: the incidence of head nods was found to be *greater* at 4 feet than at 10 feet, and this directly contravenes the model's prediction.

The impact of EC on intimacy is presumably quite different in verbal and nonverbal interactions: during the former, choice of words, tone of voice and other factors may be much more potent than EC in defining level of intimacy. Gaze direction serves a variety of functions during verbal dialogue, and most of the effect of distance is on looking while listening (Argyle & Ingham, 1972). Nevertheless, prior to this study only Patterson et al. (1971) have considered the EC proximity relationship outside the context of a conversational interaction. They found that, contrary to the compensation notion, frequency of gaze was lower when an intruder sat farther away in a library. However, their study did not incorporate a measure of mutual looking, and nor did studies by Aiello (1972) and Patterson (1973b) which present equivocal findings from conversational settings. This is unfortunate because the intimacy model is couched in terms of EC rather than generalized looking at the companion.

Previous experiments testing decoding notions have generally been conducted in highly structured, artificial situations, and the EC proximity hypothesis in particular has been tested under a restricted range of circumstances. Experiments have characteristically involved the observation of student participants through a one-way screen as they converse for a few minutes with a trained confederate of the experimenter whose behavior is predetermined in some salient respects.

In the present study, the compensatory relationship between EC and proximity is investigated in naturalistic situations in which participants listen to humor through headphones and are not aware of being observed. Two interpersonal distances are employed, and the social situations are based upon the traditional audience and coaction paradigms of social facilitation. Each participant is tested once only in the presence of a companion of the same

sex who either listens with the participant (coaction condition) or is unable to listen (audience condition). The participants are school children.

During pilot testing in dyadic coaction situations, children were seated on the floor. It seemed that those who laughed most sat closer together *and* engaged in more looking at one another. There is psychophysiological evidence that motivational arousal is augmented by EC (e.g., Gale et al., 1972, 1976), and close physical proximity (Gale et al., 1976; McBride et al., 1965), as well as other social factors (cf. Chapman, 1973a, 1974; Shapiro & Schwartz, 1970).

Chapman (1975) has postulated that humor, in triggering laughter, can alleviate socially induced arousal; he implies that this may be a major function of humor. According to this proposal, the laughter in pilot sessions would be seen as leading to the temporary reduction of "social arousal" emanating from EC, close physical proximity, and other factors associated with the presence and behavior of the companion. In general, humor, through promoting laughter, may permit the withdrawal of attention from social aspects of the situation, and thus the intimacy of a small group interaction may be restored to a comfortable level. The optimum conditions for laughter to operate in this way are manifested when the individual's prevailing level of arousal is relatively high and labile.

Such is considered to be the case in the present study, especially when children sit very near to one another. It was predicted, therefore that the children who laughed most would be those sitting close together and, at each of the two distances, children who engaged in most EC were expected to laugh most. Furthermore, the pilot data strongly suggested that the proximate conditions might generate most EC, as well as most laughter and smiling.

A secondary aim in the study is to investigate whether, at seven years of age, girls exhibit more EC than boys, mirroring differences in EC and visual interaction found consistently between adult females and males (e.g., Aiello, 1972; Libby & Yaklevich, 1973).

In a previous study, the author demonstrated that laughter is subject to social facilitation processes (Chapman, 1973b). An integral part of that study features here: overt humor responsiveness is compared across audience and coaction conditions to replicate the finding that more laughter and smiling is elicited in coaction conditions. A further aim in this experiment is to investigate the effects of proximity of a companion upon overt responsiveness to humor.

METHOD

PARTICIPANTS

The participants were 40 boys and 40 girls aged 7 years and of middle-class socioeconomic backgrounds. They were English junior school children of mixed ability. Age was the single criterion for selection.

APPARATUS AND ENVIRONMENT

Testing was conducted under standard physical conditions in a dual-compartment mobile-laboratory which was parked in school grounds. Participants attended to the humorous material through a tape-recorder and headphones. The material comprised a 13 mm, 4 second composite tape-recording of a story (The Funny Green Hair) and a song (The Laughing Policeman) 2 The children were watched continuously through a one-way screen by 2 observers, one of whom was the experimenter. The observers sat at right-angles to the participant-companion axis. Dependent behaviors were recorded by event-recorder.

DESIGN

A 2 x 2 x 2 factorial design was adopted. Physical proximity of companion (2.7ft/ 5.5ft), social situation (audience/coaction), and sex of dyads were varied.

DEPENDENT MEASURES

Measures were obtained of looking, laughing, and smiling behaviors. Three scores were computed for each child: time spent in EC with the other child, time spent laughing, and time spent smiling. Laughs were operationally defined as inarticulate vocal sounds of a reiterated ha-ha form. Smiles were defined as upward stretches of the mouth occurring without vocal sound but sometimes accompanied by loud exhalations of breath.

PROCEDURE

Boys and girls were assigned randomly to single-sex audience and coaction dyads and were tested once only. Five pairs of boys and 5 pairs of girls were tested in each treatment condition.

Prior to audience condition sessions, children were led to believe that it was not feasible for both members of a pair to listen to the recordings; they were told that one headset was temporarily defective. Their spontaneous choice of seats defined their roles as participants or nonlistening audiences. (The audiences were assured that they would hear the material on a later occasion.) Choice of seats also defined which children were considered participants and which were considered companions in the coaction conditions; participants and companions were treated alike but it was necessary to draw this distinction for analysis of data. The children sat face-to-face and, according to experimental conditions, their chairs were secured 2.7 ft or 5.5 ft apart.

The children were observed in profile at a viewing distance of approximately 6 ft. Both observers recorded EC but they alternated their other observational duties across sessions: while one monitored the participant's laughter and smiling, the other monitored the companion's

laughter and smiling. Both had experience in observing the dependent behaviors but the second observer was not a psychologist and she was not familiar with the equilibrium model of social intimacy which was under scrutiny. The observers paid special attention to recording EC accurately, and there was high interobserver agreement on EC scores ($r = 0.94$). When transcribing individual event charts, it was not known from which experimental condition they were drawn. For each pair of children, the EC score was taken as the average of the observer's readings.

Participants were told that they were assisting in the selection of material for a library. Brief post-test conversations with the participants and discussions with their teachers indicated that they neither suspected that they were observed nor that they were participating in a laughter experiment.

RESULTS

Mean EC, laughter, and smiling scores are presented in Table 1. The $\log(I + X)$ transformation was applied to laughter and smiling data to correct for heterogeneity of variance before application of $2 \times 2 \times 2$ ANOVAs, two-tailed t tests, and the Pearson product-moment statistic, F_{\max} tests revealed that the EC data did not require correction for heterogeneity of variance.

t tests indicated that there was significantly more EC at 2.7 ft than at 5.5 ft in coaction conditions ($t = 2.96$, $df = 18$, $p < .01$). In audience conditions, EC scores were very similar at the two distances. At the nearer distance, there was more EC in coaction than audience

TABLE 1
MEAN LAUGHTER, SMILING AND EYE CONTACT SCORES IN SECONDS
Interpersonal Distance

	2.7 ft		5.5 ft	
	Boys	Girls	Boys	Girls
<i>Coaction Condition</i>				
Participants:				
Laughter	20.7	22.8	12.1	10.5
Smiling	81.2	73.7	62.1	52.5
Participants/Coacting companions:				
EC	138.8	156.1	90.0	109.5
Coacting companions:				
Laughter	19.1	25.6	14.6	11.5
Smiling	87.0	80.2	65.9	44.4
<i>Audience Condition</i>				
Participants:				
Laughter	8.3	9.9	7.7	7.4
Smiling	44.2	53.4	38.0	45.6
Participants/Audiences:				
EC	88.3	120.6	90.1	114.9
Audiences:				
Laughter	2.8	2.8	1.3	1.2
Smiling	29.6	32.3	30.6	37.3

conditions ($t = 3.04$, $df = 18$, $p < .01$), but there was no corresponding distinction at the farther distance. There were no significant differences in EC, smiling, or laughing for the first and second halves of sessions in any of the four experimental conditions. Overall, there was a nonsignificant tendency for girls to engage in more EC than boys ($F = 3.26$, $df = 1/32$, $p < .10$), and in audience conditions the tendency reached statistical significance ($p < .05$, in both cases).

Participants laughed more ($F = 9.00$, $df = 1/32$, $p < .01$) and smiled more ($F = 8.38$, $df = 1/32$, $p < .01$) in coaction conditions. While physical proximity was not shown to have any effect on the laughter and smiling behaviors of participants in the audience situation, a marked effect was demonstrated for coactors: participants in the coaction situation laughed more ($t = 3.03$, $df = 18$, $p < .01$) and smiled more ($t = 3.01$, $df = 18$, $p < .01$) when they sat close together. There were no interaction effects.

Proximity did not significantly affect the laughter or smiling scores of audience-companions. In coaction conditions, only choice of seats had discriminated participants and coactors procedurally; it is not surprising, therefore, that their mean laughter and smiling scores were very similar.

Pearson product-moment correlations (one-sided tests) revealed that, in each treatment group, the participants who laughed most also smiled most ($p < .01$, in each case). For each of the two coaction conditions, the participants who laughed most and the participants who smiled most also engaged in most EC ($p < .005$, in each case). No corresponding relationship between EC and laughter or smiling was evident for participants in either of the audience conditions.

There were significant correlations between audiences' and participants' scores on measures of laughter ($r = 0.46$, $p < .025$) and smiling ($r = 0.54$, $p < .01$) although, when considered separately, girls' laughter scores were not significantly correlated ($r = 0.38$). Similarly, the correlation between the laughter scores of coacting girls was nonsignificant ($r = 0.50$), whereas there was a high coefficient ($r = 0.92$, $p < .005$) for boys. For coacting children as a whole, the coefficients for both smiling ($r = 0.59$) and laughter ($r = 0.68$), were highly significant ($p < .005$). All correlation coefficients were numerically larger at the nearer interpersonal distance.

DISCUSSION

This study provides strong evidence in opposition to the fundamental principle underlying Argyle and Dean's (1965) Intimacy model: namely, the notion that there exists a single, static equilibrium level of intimacy for any particular dyadic encounter. It is argued below that in the coaction situation employed in this experiment, and to a lesser extent in the audience situation, interactions became increasingly intimate. Spasmodic laughter permitted the frequent but momentary withdrawal of attention from the companion and, it is postulated, uncomfortable levels of socially induced arousal were thereby reduced. Audience/coaction differences in laughter and smiling, and participant-companion correlations, are very similar to those of Chapman (1973b).

Each of these aspects to the study is discussed separately, and reference is made to the methodological issue of artifact in EC measurement.

On the basis of adult studies, it was anticipated that girls would tend to engage in more EC than boys. The trend was confirmed in the audience conditions, and it approached statistical significance in coaction conditions. This evidence is interpreted as support for the implicit assumption that 7-year-olds, like adults, are sensitive to subtle changes in signals of intimacy.

EC-PROXIMITY DATA

The key finding is that group differences in EC for coaction children are significantly different in the *reverse direction* to that predicted from Argyle and Dean's intimacy model: when listening to humor recordings in dyads, individuals engage in more EC if they sit close to one another. In audience conditions, where only one child could listen, EC scores were very similar at the two distances.

The demonstration of a positive relationship between EC and increasing proximity is unique and assumes major importance against a background of corresponding covariations in other variables. It was found in all conditions that laughter and smiling, which might both be considered signals of intimacy, covaried with one another and, in coaction conditions, they also covaried with EC and proximity.

The observers looked for reciprocal changes in other nonverbal cues (e.g., body posture and seating orientation) which, according to Argyle and others, would have been expected to operate towards the restoration of a dynamic state of balance in intimacy of the interactional system. No such changes could be detected. On the contrary, informal observations suggested that the coactors who indulged in most EC, as well as displaying most laughter and smiling, also showed the greatest tendency to lean forwards for sustained periods in a heads-raised position. They appeared also to move their limbs more: the legs of some quivered in displays of excitement and a few even knocked their knees together in an unrestrained fashion. These "self-manipulatory" behaviors are akin to the hand rubbing and scratching activities which Kleck (1970) found to be more common at his proximate interaction distance. Such behaviors are probably indicative of high states of arousal. The disparity in EC-proximity findings between this and all previous studies is now considered in a three-part discussion.

(a) EC, Proximity, and Changing Intimacy These results bring into question the extent to which the widely-acclaimed principle of mutually compensatory signals of intimacy, and especially the inverse relationship between EC and proximity of companion, can legitimately be regarded as operative in everyday dyadic interactions.

Implicit in Argyle's equilibrium model for intimacy is the notion that a "natural" level of intimacy exists for a pair of interactors at any given time. In his review, Patterson (1973a) is uncritical when he says that the "process of compensation can be likened to a hydraulic model in which the total pressure in the system, while remaining constant, can be differentially distributed" (p. 238). The "pressure" or intimacy level is, therefore, conceived as being invariable for indefinite periods of time. However, there appears to be no objective justification for this view. In fact, Scherer and Schiff (1973) found that perceived intimacy *varies* inversely with distance; their second main finding was that looking constitutes a good index of intimacy. Unfortunately, their results are somewhat ambiguous and difficult to interpret in the context of the intimacy model because participants rated intimacy of interactions from photographic slides.

No precise definition of "intimacy" has ever been proposed, and the concept therefore remains something of an enigma. It seems intuitively plausible to adopt a viewpoint counter to that of Argyle. A reexamination of experimental studies cited earlier leads the present author to the *post hoc* interpretation that participants experienced increments in desired or tolerable levels of intimacy as they became acquainted with companions and/or engrossed in their joint activities. Furthermore, common experience would suggest that close proximity can be particularly disarming and is certainly conducive to the growth of a confidential or participative and shared atmosphere. In the present experiment, there is every reason to believe that intimacy rose steadily during sessions, especially in coaction sessions and at the nearer distance where participants were fully sharing similar and enjoyable experiences. In fact, EC, laughter, and smiling scores all tended to be higher in the second half of both audience and coaction sessions, but these trends were not statistically significant ($p < .10$).

As well as in this study, intimacy may have grown sharply during the testing sessions of Kleck (1970) and Jourard and Friedman (1970). It is reasonable to assume that in both these studies the participants would have "warmed" to the confederate-companions as sessions progressed: the studies involved interviewer disclosure of information about himself (Jourard & Friedman) or attitudes about topics of high importance to the participant (Kleck). More importantly and for the reason just given, the rapport which presumably developed may have been greater at the nearer distance.

In summary, the compensatory relationship may not be upheld when the basic axiom of the model, concerning static intimacy, is seriously contravened. It is suggested specifically that the tolerable levels of intimacy were not constant in this study but tended to increase during sessions, especially at the proximate distance. No doubt there were also fluctuations on a momentary basis. Presumably other situations also exist where intimacy either increases or decreases on a regular basis. In each of these situations, signals of intimacy will tend, by definition, to covary rather than compensate for one another. Further research is necessary to

ascertain in what general circumstances interactors might experience, or inject into the interaction, incremental or decremental changes in intimacy. It is apparent then that, until more empirical data are available, predictions from the intimacy model must be treated with the utmost caution.

(b) Humorous Laughter, Arousal and Intimacy It may be the sharing of humor and the prevalence of laughter which lie at the root of the disparity between the findings of this study and most others. Listening to humor (or telling and exchanging jokes) and laughing may themselves constitute intimate and enjoyable activities, and the introduction of non-aggressive humor into social situations may promote a rapid growth of intimacy.

Humor stimuli are considered to enhance arousal, causing laughter to be triggered if a threshold level is attained (cf. Chapman, 1975). Arousal relating to the theme of the humor may then be alleviated to a level below that experienced before the onset of the humor stimulus. Psychophysiological and physiological evidence, although sketchy, is consonant with the view that changes in arousal are concomitant with humor experiences (Langevin & Day, 1972). Social arousal, induced by EC, proximity and other social aspects of the situation (Chapman, 1974; Gale et al., 1972, 1976; McBride et al., 1965), may be reduced in the process, primarily because laughter affords the opportunity to withdraw attention from the companion.

The results of the present study are entirely compatible with this arousal-reduction formulation. Children can be assumed to have attended to the novel and stimulating features of the humor material and social psychological environment, and they would thus have boosted their levels of arousal to threshold levels at which they could engage in natural laughter. It was noted informally that there was a tendency for coactors to stare continuously at one another's eyes during the build-up to a punch-line and/or just before they burst into laughter. At the onset of laughter a child would usually avert his/her gaze. Sometimes children threw their heads back laughing, and occasionally they gestured extravagantly with their arms and hands.

In essence, therefore, it is suggested that a major function of laughter is to act as a "safety valve" against excessive social arousal. There may, overall, be a sustained trend towards the growth of intimacy in interactions, and laughing may bring about reductions in individuals' levels of arousal at times when the combined strength of social signals momentarily becomes uncomfortable.

(c) Conversational versus Non-conversational Interaction The disparity in EC-proximity data from this and previous studies is explicable in terms of a more simple but less plausible proposal. It is conceivable that the previously reported relationship between EC and proxim-

ity is not an intimacy phenomenon: the higher EC at greater interpersonal distances may simply have reflected increased difficulty in obtaining feedback and synchronizing speech. Whether or not this is the case, EC and eye movements in general function in a number of important ways during speech, aside from maintaining an affiliative balance. It is not surprising, therefore, that EC scores are considerably lower (per unit of session time) in this listening study than in conversational studies. Clearly, other factors may also have contributed towards this difference: for example, EC may be higher when, as in most previous experiments, participants either know or suspect that they are observed.

The coaction data could be interpreted as indicating that the EC proximity hypothesis, and possibly therefore the intimacy model, is not appropriate to non-vocal forms of interaction. Data from audience conditions are consistent with this view in that EC scores were very similar at the two distances. Of course, EC often takes place between persons who are not talking even when they have no intention of becoming addressors or addressees. It could be that in all such circumstances EC and other nonverbal cues may tend to covary rather than oppose one another in a mutually compensatory fashion. Previous literature is supportive to the extent that the only other study of proximity and looking behavior outside the dyadic dialogue paradigm is also the only other study to have produced negative trends (Patterson et al., 1971): however, as stated earlier, that study did not embody a measure of EC.

A decoding approach which assumes that a change in EC is concomitant with a change in perceived intimacy inevitably tends to deny that EC has other functions. It is paradoxical that the EC-proximity hypothesis should not hold in this study after being apparently confirmed in conversational settings where a high proportion of the EC would have been of relatively minor relevance to the intimacy of the interaction. This experiment contrasts with the others in that EC may be assumed to have functioned almost exclusively in the nonverbal passage of information about attitudinal and affective states.

LAUGHTER AND SMILING DATA

The variations in the coactors' laughter with interpersonal distance were to be expected from the theory of socially facilitated laughter advanced in Chapman (1975). According to this theory, humor would have been used to supplement levels of arousal, when already near the laughter threshold, so that laughter was triggered. Social arousal would generally have been higher at 2.7 ft. the more proximate interaction distance, and humorous laughter would therefore have been expected more frequently to operate in this way. Proximity did not affect laughter in audience conditions because, it is suggested, the intimacy of interactions was appreciably lower than in coaction conditions and social arousal of participants was less often close to the laughter threshold. Since the laughter and smiling of audiences tended to be

tied to and dependent upon participants' responses, it is not surprising that proximity also did not affect audiences' responses.

Some attention has been paid elsewhere to comparing and contrasting laughter and smiling in humorous situations (e.g., Chapman & Chapman, 1974; Chapman & Wright, 1976). A distinction has been drawn, for instance, between mirthful and sociable smiling, mirthful smiling being considered low intensity laughter. Laughs sometimes begin and usually end with mirthful smiles, and the proximity effect on smiling in coaction conditions may be accountable for in terms of mirthful smiling, like laughter, being significantly greater at the nearer distance.

There is high agreement between this study and Chapman (1973b) on participant/companion correlations, and on correlations for laughter and smiling within participants; EC was not measured in the earlier experiment. The audience and coaction group differences in laughter and smiling were also obtained in the earlier study, where they were analyzed in detail. It is interesting to note that since members of coacting pairs had more similar experiences than participant-audience pairs, their situation might be regarded as intrinsically more intimate. It might have been anticipated from the intimacy model, therefore, that behavioral scores would be higher in the audience situation. In fact the converse was the case.

The group differences in laughter and smiling are currently the subject of molecular analyses in further experimental investigations (Foot & Chapman, 1976). In studies employing confederate children, overt humor responsiveness has already been shown to be influenced by the companion's role per se, the amount the companion laughs and smiles, the amount the companion attends to the participant whether or not humor is presented to the companion, and a variety of other social factors (Chapman & Chapman, 1974; Chapman & Wright, 1976).

Recent reviews (e.g., Rothbart, 1973) have tended to ignore the effects of companionship on expressive responses to humor. However, the above results point to the vital importance of social aspects of situations as determinants of so-called "humorous laughter" and "mirthful smiling", and they indicate that mirth will never be fully understood until social dimensions are explored in a systematic fashion.

MEASUREMENT OF EC

It has been established in two independent conversational studies that observers find it increasingly difficult to distinguish between EC and other forms of looking behavior as distance between interactors is increased from 2 to 10 feet (Stephenson & Rutter, 1970; White et al., 1970). The studies can be interpreted as support for the view that *recorded* EC increases with distance as a function of observer rather than subject performance. However, Stephenson et al. (1973), using zoom lens photography and split-screen monitoring, have shown recently that EC does increase with distance, at least in their one specific setting. The relation-

ship, therefore, cannot be dismissed as merely an experimenter artifact. The two earlier studies have been subjected to severe criticism because they had required confederates to engage in unnatural, pre-programmed looking behavior: they looked during set periods at the companions' ties and/or ears and shoulders, rather than at their eyes. A similar study by Knight et al. (1973) may be criticized on precisely the same grounds.

Argyle (1970) and others believe that interactants either look at one another's eyes or they look away from the head region altogether. This assertion is difficult to test but it has been given some indirect support by Vine (1971). He found that it is very much easier to discriminate between EC and other looking behaviors in interactions which are "natural" in the sense of not involving a confederate. Differences in inter- and intrareliabilities in the two types of conditions, he argues, must arise from differences in gazing behavior. Vine also implies that practice markedly improves observer performance. The present study was "naturalistic" and was designed with these methodological issues in mind. The observers had gained expertise in monitoring looking behaviors during a series of prior experiments and this is reflected in the high inter-observer reliability in EC scores. Also, the difference in maximum and minimum distance between participants was appreciably less in this study than in most previous work.

REFERENCES

- Aiello, J. R. (1972). A test of equilibrium theory: Visual interaction in relation to orientation, distance, and sex of interactants. *Psychonomic Science*, **27**, 335-336.
- Argyle, M. (1970). Eye-contact and distance: A reply to Stephenson and Rutter. *British Journal of Psychology*, **61**, 395-396.
- Argyle, M., & Dean, J. (1965). Eye-contact, distance, and affiliation. *Sociometry*, **28**, 289-304.
- Argyle, M., & Ingham, R. (1972). Gaze, mutual gaze, and proximity. *Semiotica*, **6**, 32-49.
- Chapman, A. J. (1973a). An electromyographic study of apprehension about evaluation. *Psychological Reports*, **33**, 811-814.
- Chapman, A. J. (1973b). Social facilitation of laughter in children. *Journal of Experimental Social Psychology*, **9**, 528-541.
- Chapman, A. J. (1974). An electromyographic study of social facilitation: A test of the "mere presence" hypothesis. *British Journal of Psychology*, **65**, 123-128.
- Chapman, A. J. (1975). Humorous laughter in children. *Journal of Personality and Social Psychology*, **31**, 42-49.
- Chapman, A. J., & Chapman, W. A. (1974). Responsiveness to humor: its dependency upon a companion's humorous smiling and laughter. *The Journal of Psychology*, **88**, 245-252.

- Chapman, A. J., & Wright, D. S. (1976). Socially facilitated laughter: An experimental analysis of some companion variables. *Journal of Experimental Child Psychology*, in press.
- Foot, H. C., & Chapman, A. J. (1976). The social responsiveness of young children in humorous situations. In A. J. Chapman & H. C. Foot (Eds.), *Humour and laughter: Theory, research and applications*. London: Wiley. In press.
- Gale, A., Lucas, B., Nissim, R., & Harpham, B. (1972). Some EEG correlates of face-to-face contact. *British Journal of Social and Clinical Psychology*, **11**, 326-332.
- Gale, A., Spratt, G., Chapman, A. J., & Smallbone, A. (1976). EEG correlates of eye contact and interpersonal distance. *Biological Sciences*, in press.
- Jourard, S. M., & Friedman, R. (1970). Experimenter-subject "distance" and self-disclosure. *Journal of Personality and Social Psychology*, **15**, 278-282.
- Kleck, R. E. (1970). Interaction distance and non-verbal agreeing responses. *British Journal of Social and Clinical Psychology*, **9**, 180-182.
- Knight D. J., Langmeyer, D., & Lundgren, D. C. (1973). Eye-contact, distance, and affiliation: The role of observer bias. *Sociometry*, **36**, 390-401.
- Langevin, R., & Day, H. I. (1972). Physiological correlates of humor. In J. H. Goldstein & P. E. McGhee (Eds.), *The psychology of humor*. New York: Academic Press.
- Libby, W. L., & Yaklevich, D. (1973). Personality determinants of eye contact and direction of gaze aversion. *Journal of Personality and Social Psychology*, **27**, 197-206.
- McBride, G., King, M. G., & James, J. W. (1965). Social proximity effects on galvanic skin responses in adult humans. *The Journal of Psychology*, **61**, 153-157.
- Patterson, M. L. (1973a). Compensation in nonverbal immediacy behaviors: a review. *Sociometry*, **36**, 237-252.
- Patterson, M. L. (1973b). Stability of nonverbal immediacy behaviors. *Journal of Experimental Social Psychology*, **9**, 97-109.
- Patterson, M. L., Mullens, S., & Romano, J. (1971). Compensatory reactions to spatial intrusion. *Sociometry*, **34**, 114-121.
- Rothbart, M. K. (1973). Laughter in young children. *Psychological Bulletin*, **80**, 247-256.
- Scherer, S. E., & Schiff, M. R. (1973). Perceived intimacy, physical distance and eye contact. *Perceptual and Motor Skills*, **36**, 835-841.
- Shapiro, D., & Schwartz, G. E. (1970). Psychophysiological contributions to social psychology. *Annual Review of Psychology*, **21**, 87-112.
- Stephenson, G. M., & Rutter, D. R. (1970). Eye-contact, distance and affiliation a re-evaluation. *British Journal of Psychology*, **61**, 385-393.
- Stephenson, G. M., Rutter, D. R., & Dore, S. R. (1973). Visual interaction and distance. *British Journal of Psychology*, **64**, 251-257.
- Vine, I. (1971). Judgement of direction of gaze: an interpretation of discrepant results. *British Journal of Social and Clinical Psychology*, **10**, 320-331.
- White, J. H., Hegarty, J. R., & Beasley, N. A. (1970). Eye contact and observer bias: A research note. *British Journal of Psychology*, **61**, 271-273.