

NONVERBAL INTIMACY: CLARIFYING THE ROLE OF SEATING DISTANCE AND ORIENTATION

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ABSTRACT: Two studies clarify how distance and orientation affect intimacy in seating arrangements. Previous research had examined only observer-defined intimacy, used questionnaires to represent seating arrangement, or confounded distance and orientation. Study 1, a re-analysis of classic data, indicated that traditional conclusions regarding the joint role of distance and orientation as determinants of intimacy were unwarranted. Study 2 systematically varied distance and orientation in a "live" interaction and examined actor-defined intimacy. Actors' judgments of the intimacy of the seating arrangements were strongly related to distance, but not to orientation. This was true regardless of actors' level of sociability. These findings are discussed in terms of Patterson's (1983) functional approach to nonverbal behavior.

Some seating arrangements represent more nonverbal intimacy than others. Generally, greater intimacy is implied by closer seats. Individuals who wish to engage in more intimate activities (such as conversation) select closer distances than do individuals who are not engaged in such activities (Geisen & McClaren, 1976; Sommer, 1959). Closer distances are judged to be more comfortable (Scott, 1984), and smaller distances are preferred when the individual is attracted to the other (Gifford, 1982). Pairs who are seated closely together are perceived to be on more intimate terms than pairs seated farther apart (Scherer & Schiff, 1973). Generally, more intimate relationships are mirrored in closer seating.

However, the definition of "close" seating is ambiguous. Closeness, on reflection has two physical dimensions: distance and orien-

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tation. There seems little reason to doubt that smaller distances imply greater intimacy. Concerning orientation, however, varying views exist. Is face-to-face orientation more intimate than side-by-side orientation, vice versa, or is there a difference? Some authors simply conclude that both distance and orientation affect intimacy (e.g., Felipe, 1966; Sommer, 1968).

An early approach to intimacy was that of Argyle and Dean (1965), who asserted that intimacy is related, in part, to amount of eye-contact, which should be facilitated by face-to-face seating orientation. Therefore, one might hypothesize greater intimacy for face-to-face orientations. However, Sommer's (1969, pp. 62-63) oft-cited data, and the results of a more recent study by Gifford (1982), suggest that intimacy may be embodied in side-by-side seating arrangements, rather than face-to-face arrangements. When subjects in these studies were asked to choose an arrangement for cooperative activity, the side-by-side arrangement was most commonly chosen. If cooperation functions in a manner similar to intimacy, side-by-side seating implies greater intimacy than face-to-face seating. However, it is possible that cooperation and competition have little to do with the intimacy function of nonverbal behavior (cf. Patterson, 1982; 1983).

These findings and assertions leave a confused picture of seating arrangement intimacy. The purpose of the present research is to systematically examine the effects of distance and orientation on the intimacy of seating arrangements. As a beginning, the data from a particularly relevant study (Sommer, 1968) were re-examined.

STUDY 1

A re-analysis of data on American college students from Sommer's (1968) study of American college students from five countries was undertaken. In that study, participants were shown 37 seating arrangements and were asked to judge the intimacy of each one on a seven-point scale. In simple line diagrams, seated pairs of individuals were depicted at various distances and orientations around square, rectangular and circular tables. Sommer concluded, after considering the pattern of intimacy means for the various arrangements, that the data "underscores the role of both physical distance and orientation in producing psychological closeness" (p. 112).

Since Sommer's conclusion was not based on any statistical analysis of the means, we tested the idea by measuring the distance and orientation of all 37 arrangements from Sommer's diagrams. Correlation coefficients were computed among the intimacy means, distances and orientations (face-to-face orientations were coded 0 degrees; side-by-side orientations 180 de-

grees) of the 37 arrangements for the North American sample. The correlations seem to confirm Sommer's conclusions. Intimacy was significantly correlated with distance ($r = -.53$, $df = 35$, $p < .001$) and with orientation ($r = .49$, $df = 35$, $p < .001$). The latter correlation indicated that side-by-side orientations were more intimate than face-to-face orientations.

However, inspection of the third correlation in the matrix suggested a problem. The correlation between distance and orientation was $-.83$ ($p < 0.001$). Clearly distance and orientation were confounded in this study. In Sommer's set of diagrams, as orientation progressed from face-to-face arrangements (0 degrees) toward side-by-side arrangements (180 degrees), distance decreased. In sum, the two dimensions of "closeness" were not independent.

Partial correlation analysis was used to help untangle this confounding statistically. The correlation between distance and intimacy with orientation controlled was -0.24 ($df = 34$, $p = 0.076$). That between orientation and intimacy with distance controlled was 0.11 ($df = 34$, $p = 0.24$). Distance appears slightly more related to intimacy than does orientation, but of course an experimental analysis in which distance and orientation are systematically varied in an orthogonal manner would answer the question more definitively.

Upon reviewing Sommer's diagrams, it is clear that one reason for the confounding of distance and orientation in his study (and in others, e.g., Cook, 1970; Felipe, 1967) stems from the use of tables, which force the nonindependence of the two dimensions of intimacy. Of course, the use of tables is a realistic and common seating procedure; conclusions drawn from these studies may be valid when applied to seating arrangements around tables. However, they do not necessarily apply to social interactions where individuals are not seated around tables (Weiss & Keys, 1975), and more importantly they do not speak to the general theoretical relations among the variables.

Another problem with most studies is that the judgments of participants in live interactions are rarely examined. Usually pictures or slides are used and the subject is asked to state what level of intimacy would be present if he or she were actually in such a situation. These misgivings about the projective method are given empirical weight by Cook's (1970) work. In his studies of pubs, stated seating arrangement preferences on questionnaires did not match observations of actual seating patterns in pubs.

The fundamental theoretical question of whether distance, orientation, or a combination of the two determines intimacy in seating arrangements cannot be answered from these previous studies. Do distance and orientation both affect intimacy, or is one of the two dimensions the *primary* cause? The following study was undertaken for three reasons: 1) to investigate live interactions rather than projective interactions; 2) to obtain the perspective from *within* the interaction rather than from an observer's perspective; and 3) to investigate the question with an experimental design that varies distance and orientation systematically and orthogonally.

STUDY 2

Method

To examine the role of distance and orientation, we selected four distances and five orientations and systematically presented all combinations of them in "live" tableless social interactions. The distances ranged from quite close (60 cm between the center of the front edges of chairs) through intermediate distances (110 cm and 150 cm) to quite far (244 cm), based on Sommer's (1962) study of comfortable seating distances for conversation. Orientations ranged from face-to-face (0 degrees) through intermediate orientations (45, 90, and 135 degrees) to side-by-side (180 degrees) arrangements.

To make the setting reasonably realistic, we used a room that was furnished like a home living room, with carpets, a coffee table, prints on the wall, a floor lamp, and other small items.

We were concerned that order effects might play a part in the results if all twenty arrangements were presented to each subject (cf. Grice, 1966). An experimental design was selected that allowed both a between-subjects (non-repeated measures) analysis of variance and a within-subjects (repeated measures) analysis of variance. This was accomplished by presenting each of the twenty seating arrangements first to four of the participants, and presenting all twenty arrangements, in randomized sequences, to all subjects. Eighty female volunteers from undergraduate psychology classes at a medium-sized Canadian university participated one at a time.

The participants sat in one chair and the experimenter sat in the other. The same male experimenter was used for all subjects. In each arrangement, the participants were asked to mark, along a 20-point line, the degree of intimacy indicated by the seating arrangement. Participants were instructed to focus their attention on the intimacy implied by the seating arrangement itself, not on the relationship between themselves and the experimenter. Since the experimenter knew none of the participants, degree of acquaintance was similar across seating arrangements and participants.

Results

We examined whether the intimacy ratings were reliable; it is possible that the term means different things to different people. However, alpha was quite acceptable (.82).

Two ANOVAs were computed, one for the between-subjects design (i.e., using only the first Intimacy judgment for each participant, so that the 20 cells of the design each contained four judgments) and a second for the within-subjects design (i.e., using all 20 judgments by every judge, so that each cell in the design contains 80 judgments).

TABLE 1

Intimacy Means for Each Distance and Orientation

Distance (meters)	Orientation (degrees)					Mean
	0	45	90	135	180	
0.6	14.75	12.00	14.50	16.50	16.75	14.90
	16.46	15.90	15.05	15.89	14.85	15.63
1.1	10.25	5.50	5.75	7.50	7.75	7.35
	12.69	11.09	10.01	8.69	7.18	9.93
1.5	8.75	6.50	3.50	2.75	2.75	4.85
	9.31	8.09	6.59	5.45	4.28	6.74
2.4	4.25	2.75	2.25	2.75	1.50	2.70
	6.10	4.00	2.74	3.39	1.90	3.63
Mean	9.50	6.69	6.65	7.38	7.19	7.45
	11.14	7.27	8.60	8.36	7.05	8.98

Note. In each cell, the top mean is from the between-subjects design ($n = 4$) and the bottom mean is from the within-subjects design ($n = 80$) on a scale ranging from 1 (lowest intimacy) to 20 (highest intimacy). Zero degrees indicates a face-to-face arrangement, 180 degrees indicates a side-by-side arrangement. The distance is the number of meters between the nearest front legs of the two chairs.

ments). The Intimacy means for each combination of Distance and Orientation are displayed in Table 1.

Both analyses give the same general picture: Distance was strongly related to intimacy in the between subjects design [$F(3, 60) = 48.9, p < 0.001; \eta^2 = 0.64$] and in the within-subjects design [$F(3, 237) = 827, p < 0.001$]. Orientation was much more weakly related to intimacy in the between-subjects design [$F(4, 60) = 2.0, ns; \eta^2 = 0.03$] and in the within-subjects design [$F(4, 316) = 52.0, p < 0.001$]. In the between-subjects design, the ratio of effects was on the order of 25 to 1 in favor of Distance. In the within-subjects design, the effects are not strictly comparable because they employ different error terms, but again Distance appeared to be much more strongly related to Intimacy.

It is true that, with 80 observations per cell, the Orientation effect was statistically "significant" in the within-subjects design, but it was not significant in terms of accounting for an important portion of the variance in intimacy. To illustrate this, the correlations among Intimacy, Distance and Orientation (zero to 180 degrees) were computed. Intimacy and Distance correlated $-.70$ ($df = 78$, $p < 0.001$) while Intimacy and Orientation correlated $.06$ (ns). Thus, Distance accounted for nearly 50% of the variance in Intimacy, while Orientation accounted for less than 4%.

In order to explore the possible role of individual differences in judgments of seating arrangements, each participant was asked to complete the sociability scale the California Psychological Inventory (Gough, 1975). However, sociability was not related to how participants viewed the intimacy of a seating arrangement. The correlation between Sociability and Intimacy was only $.13$ (ns).

Discussion

Previous researchers concluded that seating intimacy is a function of both distance and orientation. This conclusion is supported by studies that did not manipulate distance and orientation independently. However, the re-analysis of Sommer's data and the new study strongly suggest that is the view of persons actually in various seating arrangements, intimacy is strongly related to distance, but not to orientation.

Basically the same result is found whether the seating arrangement is the first one encountered by the person or is one of a series of 20 arrangements. The results also appear to hold across the range of sociability.

These findings have implications for the study of seating arrangements. First, they suggest that orientation is less important as a determinant of intimacy than most investigators in the area thought. Second, it means that the role of orientation in seating needs reexamination.

Patterson's (1982; 1983) functional approach to nonverbal behavior may be a suitable way of approaching this reexamination. Presumably, seating orientation serves one or more functions of nonverbal behavior. The present results and the re-analysis of Sommer's (1968) data suggests that seating orientation is not an important factor within the intimacy function. Of course, our study focused only on seating arrangements and therefore investigated only distances between 60 cm and 224 cm. Sitting closer than 60 cm is not

easy. If closer distances were studied, perhaps with standing participants, orientation might play a larger role in perceived intimacy.

The finding that individuals prefer more face-to-face orientations for competitive interactions and more side-by-side orientations for cooperative ones (Gifford, 1982; Sommer, 1969) may have nothing to do with the Intimacy function. In these situations orientation may serve the Social Control or the Interaction Regulation function. For example, Social Control involves a "deliberate, purposeful response designed to promote a change in the other person's nonverbal behavior" (Edinger & Patterson, 1983, p. 31). Perhaps individuals use different seating orientations to influence their interactions. Within the Interaction Regulation function, different arrangements might be selected depending on the needs of conversation participants to organize the flow of information. Further research on how orientation operates within the different functions is required. Seating distance is clearly related to the Intimacy function, but orientation is not.

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