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Quantitative Research in Proxemic Behavior¹

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Proxemics is the study of how man structures microspace, how he relates physically to other persons with whom he is interacting, and what is communicated by these physical relationships. Edward Hall, who coined the term "proxemics" and devised a system of notation for recording proxemic behavior, reports many impressionistic observations on Arab and American proxemic differences. To test these hypotheses systematically, 32 Arab and American college students were observed under controlled conditions and their proxemic behavior recorded. The Arabs and Americans were found to differ significantly in proxemic behavior, the Arabs interacting with each other closer and more directly than Americans, as hypothesized.

EDWARD T. HALL, innovator of the term, defines proxemics as "the study of how man unconsciously structures microspace—the distance between men in the conduct of daily transactions, the organization of space in his houses and buildings, and ultimately the layout of his towns" (1963:1003).

In an article published in 1955, Hall illustrated the difficulties that arise when two systems of proxemic behavior clash. He later presented some of the dynamic aspects of man's structuring of space, linking it with the concept of territoriality (1959:146–164). The paper in which Hall (1963) coined the term "proxemics" stated further theoretical implications of the study of the structuring of space and provided a system for its notation.

In the works cited above, Hall made the point that members of different cultures, when interacting with each other, cannot be relied upon to attach the same meaning to the same elements of proxemic behavior. The examples he most frequently referred to were the differences between Arabs and Americans. In none of these works, however, did Hall present or mention empirical data used in the measurement of these differences.²

Our objectives in pursuing this problem further were threefold: (1) to record empirical data quantifying Arab and American proxemic behavior; (2) to test pragmatically Hall's system for the notation of proxemic behavior to try to uncover any weaknesses or ambiguities inherent in the system; and (3) to test the validity of Hall's impressionistic observations on Arab and American differences.

HYPOTHESES

On the basis of Hall's observations, a hypothesis can be made not only that Arabs and Americans differ in proxemic behavior, but about the direction of this difference as well. Hall's descriptive material (1959, 1963) cites many instances of Arab-American differences. The following is a good example (1963:1005):

When approached too closely, Americans removed themselves to a position which turned out to be outside the olfactory zone. . . . Arabs also experienced alienation traceable to a "suspiciously" low level of the voice, the directing of the breath away from the face, and a much reduced visual contact.

Americans were not only aware of uncomfortable feelings, but the intensity and intimacy of the encounter with Arabs was likely to be anxiety provoking. The Arab look, touch, voice level, the warm moisture of his breath, the penetrating stare of his eyes, all proved to be disturbing.

On the basis of these observations we formulated the following hypotheses:

1. Arabs will exhibit significant differences in proxemic behavior from Americans, with Arabs being closer and more direct in their proxemic behavior than Americans.
2. Within the group of Arabs, persons from any particular Arab country will be more similar to persons from any other Arab country in proxemic behavior than to Americans from any particular region of the United States, the direction of this difference being the same as for over-all Arab-American differences.
3. Similarly, Americans from any particular region of the United States will be more similar to Americans from any other region of the United States in proxemic behavior than to persons from any Arab country, the direction of difference again being the same as over-all Arab-American differences.

RESEARCH STRATEGY

This research was conducted among Arab³ and American⁴ male students studying at the University of Colorado. The Arab students comprised four groups of four students each from Saudi Arabia, the United Arab Republic, Iraq, and Kuwait. The American students comprised four regional groups: four students from New York-New Jersey, four from Colorado, four from California, and four from the Midwest (Michigan, Illinois, and Wisconsin). This made a total of 32 persons: 16 Arabs and 16 Americans.

A member of each subgroup was enlisted and asked to bring three friends from the same country or U.S. region with him at the scheduled time. Unfortunately, it was impossible to observe all subgroups at a similar time during the day, so there was no control for this factor; all observations were, however, made during the daylight hours. When each group of four students arrived, they were told nothing more than they were going to be observed. They were then directed, two at a time, to an observation room (Figure 1) until observations had been made on the six possible combinations of pairs within the group. The room was bare except for a table and two chairs placed in standardized position in front of the observation window. The students were told to talk about anything that came into their heads, the Arab students being told to speak Arabic. The fact that all four members of each group were friends minimized the possibility of hesitancy in talking to one another. They were observed from behind a one-way glass, and listened to through a microphone inconspicuously placed in the ceiling of the observation room. Each pair was given one or two minutes to "warm up," and then observations were recorded over a period of five minutes, one line of notation of proxemic behavior per

minute. Each group of four students therefore had a total of 30 lines of notation, and each individual had 15 lines. After all individual scores had been recorded, group means were calculated and various techniques of statistical analysis, to be discussed later, were applied.

The reliability of the scoring was checked by having a second observer record scores for the first several interactions, and then by cross-checking the two sets of scores. The sets proved to be identical.

After all the data were collected, it was impressionistically obvious that there were large differences between Arab and American proxemic behavior. The Arabs started talking the moment they entered the observation room and didn't stop until we entered and told them that was enough. In a few instances the Arabs told us to wait a minute until they finished their discussion.

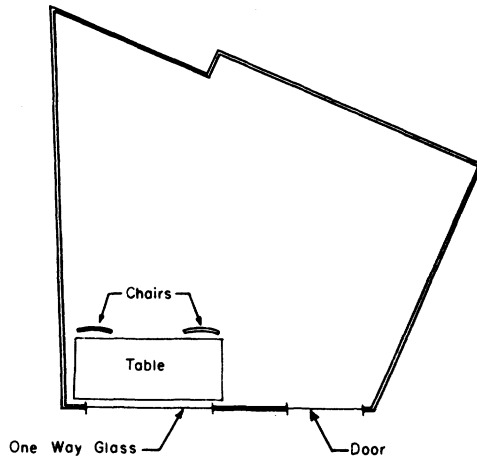


FIGURE 1. Observation room. Scale: 1' = 6'

It could well be that garrulity is a good measure of closeness. The Americans, by contrast, were comparatively restrained in their behavior, but nonetheless carried on conversation in a fashion that we, as Americans, felt to be typical of Americans.

OPERATIONAL DEFINITIONS

Hall (1963:1006) has divided proxemic behavior into eight different categories:

- (1) postural-sex identifiers
- (2) sociofugal-sociopetal axis
- (3) kinesthetic factors
- (4) touch code
- (5) visual code
- (6) thermal code
- (7) olfaction code
- (8) voice-loudness scale

These categories will now be discussed briefly, and operational definitions supplied for each. Hall has treated each category in detail (1963:1006-1018), and the reader is referred there for a deeper understanding of the theoretical and methodological assumptions underlying the categories.

(1) *Postural-sex identifiers*

This category simply identifies persons as to sex and as to whether they are sitting, standing, or prone. Since all subjects in this study were male and since all sat in the chairs provided, this category was not scored as a variable.

(2) *Sociofugal-sociopetal axis*

This category scores the relation of the axis of one person's shoulders to that of the other. These relationships are scored on a scale of 0 through 8 (Figure 2). The Arabs were expected to be more direct, i.e., to score lower, than Americans.

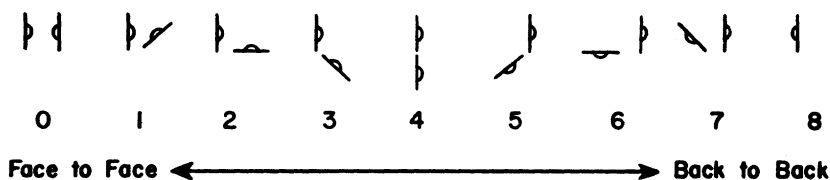


FIGURE 2. Scoring for variable 1—Axis

(3) *Kinesthetic factors*

This category relates to the closeness of one person to another, and to the potential of each for holding, grasping, or touching the other. There are arrangements in Hall's (1963:1010) scheme for each person to receive a separate kinesthetic score. This would be necessary if the persons observed were of different sizes, i.e., had different potentials for length of reach, etc. The subjects of this research were all of approximately the same size, so only one score was given to each pair of interacting persons, i.e., each of a pair shared the same score. As an aid in scoring, the edge of the table closest to the students was inconspicuously marked with a pencil every six inches. The pairs were scored on the following bases:

- 1.0 within body contact distance
- 1.5 just outside this distance
- 2.0 within touching distance with forearm extended
- 2.5 just outside this distance
- 3.0 within touching distance with arm extended
- 3.5 just outside this distance
- 4.0 within touching distance by reaching
- 4.5 just outside this distance

Arabs were expected to interact more closely than Americans.

(4) *Touch code*

This category provides for the amount of contact during each interaction. It is scored as follows:

- 0 holding and caressing
- 1 feeling and caressing
- 2 prolonged holding
- 3 holding
- 4 spot touching
- 5 accidental touching
- 6 no contact

Arabs were expected to touch more than Americans.

(5) *Visual code*

The coding in this category provides an index of the amount of visual contact present. The code is:

- 1 sharp (focusing directly on the other person's eyes)
- 2 clear (focusing about the other person's head and face)
- 3 peripheral (having the other person within the field of vision, but not focusing on his head or face)
- 4 no visual contact (looking down or gazing into space)

Arabs were expected to have lower scores than Americans, i.e., to display greater and more direct visual contact.

(6) *Thermal code*

This category provides for the detection of one person's body heat by the other. This would be almost impossible to determine by observation. Heat-sensitive devices or questioning the subjects are about the only ways in which this category can be scored. The latter, more inexpensive technique was chosen. Since none reported detection of the other person's body heat, this category was dispensed with as a variable.

(7) *Olfaction code*

This category scores for whether the odor of one person is detected by the other. This category, like the preceding one, would be almost impossible to score by observation. Again, subjects were queried as to the detection of odors, and again none reported that they had detected any. This category also was discarded as a variable.

(8) *Voice-loudness scale*

This category provides a measure for the level of a person's voice during interaction. To make the measurement of this category more reliable, the microphone of a tape recorder equipped with a decimeter was attached to the

speaker over which the subjects' voices were heard. The decimeter was divided into ranges, which provided the scoring for this category:⁵

- 0 very loud
- 1 loud
- 2 normal plus
- 3 normal
- 4 soft
- 5 very soft
- 6 silent

Arabs were expected to obtain lower scores, i.e., to talk louder than Americans.

RESULTS

Table 1 presents mean scores on all of the five proxemic variables that could be scored for Arabs as a group, for Americans as a group, and for the various subgroups.

TABLE 1. ARAB AND AMERICAN GROUP MEANS AND STANDARD DEVIATIONS ON FIVE MEASURES OF PROXEMIC BEHAVIOR

| | VARIABLE 1 | | VARIABLE 2 | | VARIABLE 3 | | VARIABLE 4 | | VARIABLE 5 | |
|----------------|------------|------|------------|------|------------|------|------------|------|------------|------|
| | MEAN | SD | MEAN | SD | MEAN | SD | MEAN | SD | MEAN | SD |
| Saudi Arabia | | | | | | | | | | |
| N=4 | 0.87 | 0.38 | 2.99 | 0.17 | 5.77 | 0.07 | 1.00 | 0.00 | 3.07 | 0.16 |
| UAR | | | | | | | | | | |
| N=4 | 0.44 | 0.14 | 3.07 | 0.12 | 5.79 | 0.11 | 1.10 | 0.16 | 2.67 | 0.15 |
| Iraq | | | | | | | | | | |
| N=4 | 0.70 | 0.14 | 2.96 | 0.04 | 5.82 | 0.08 | 1.09 | 0.08 | 2.77 | 0.13 |
| Kuwait | | | | | | | | | | |
| N=4 | 0.73 | 0.23 | 2.97 | 0.05 | 5.85 | 0.08 | 1.00 | 0.00 | 2.78 | 0.20 |
| Total Arab | | | | | | | | | | |
| N=16 | 0.68 | 0.27 | 2.99 | 0.11 | 5.80 | 0.09 | 1.05 | 0.09 | 2.82 | 0.21 |
| NY-NJ | | | | | | | | | | |
| N=4 | 2.34 | 0.12 | 4.28 | 0.10 | 6.00 | 0.00 | 2.64 | 0.14 | 3.61 | 0.24 |
| Midwest | | | | | | | | | | |
| N=4 | 1.50 | 0.36 | 4.45 | 0.04 | 6.00 | 0.00 | 3.07 | 0.14 | 3.11 | 0.08 |
| Colorado | | | | | | | | | | |
| N=4 | 1.66 | 0.58 | 4.34 | 0.10 | 6.00 | 0.00 | 3.10 | 0.27 | 3.58 | 0.34 |
| California | | | | | | | | | | |
| N=4 | 2.50 | 0.03 | 4.29 | 0.09 | 6.00 | 0.00 | 2.62 | 0.11 | 3.42 | 0.15 |
| Total American | | | | | | | | | | |
| N=16 | 2.00 | 0.54 | 4.34 | 0.11 | 6.00 | 0.00 | 2.86 | 0.28 | 3.43 | 0.29 |

As hypothesized, Arabs confronted each other more directly than Americans when conversing (their mean sociofugal-sociopetal axis scores are lower than for Americans), they sat closer to each other (their mean kinesthetic scores

are lower than for Americans), they were more likely to touch each other (no Americans ever touched each other), they looked each other more squarely in the eye (their mean visual scores are lower than for Americans), and they conversed more loudly than Americans. Every one of our hypotheses about the direction of Arab-American differences in proxemic behavior is confirmed, and *no overlapping* is to be found between the distribution of mean scores within the Arab subgroups and within the American subgroups.

To test the statistical significance of these findings, one-tailed *t* tests were calculated.⁶ Tables 2 through 6 present these results.

TABLE 2. ARAB-AMERICAN DIFFERENCES IN PROXEMIC BEHAVIOR
VARIABLE 1—AXIS

| | | MEAN | | SD | DF | t | SIG | |
|--------------|-----|-----------|----------|---------|-----------|----------|-----------|-----------|
| | | ARABS | | .68 | .27 | | | |
| vs | | | | | 23.09 | 8.70 | p < .0005 | |
| | | AMERICANS | | 2.00 | .54 | | | |
| | | UAR | Iraq | Kuwait | NY-NJ | Midwest | Colo. | Calif. |
| Saudi Arabia | t | 2.11 | 0.81 | 0.59 | 7.31 | 2.41 | 2.28 | 8.50 |
| | SIG | p < .05 | NS | NS | p < .005 | p < .025 | p < .05 | p < .005 |
| UAR | t | | 2.69 | 2.22 | 20.63 | 5.50 | 4.11 | 29.08 |
| | SIG | | p < .025 | p < .05 | p < .0005 | p < .005 | p < .025 | p < .0005 |
| Iraq | t | | | 0.24 | 17.52 | 4.12 | 3.21 | 24.80 |
| | SIG | | | NS | p < .0005 | p < .01 | p < .025 | p < .0005 |
| Kuwait | t | | | | 12.30 | 3.58 | 2.97 | 15.20 |
| | SIG | | | | p < .0005 | p < .01 | p < .025 | p < .0005 |
| NY-NJ | t | | | | | 4.37 | 2.30 | 2.60 |
| | SIG | | | | | p < .01 | NS | p < .05 |
| Midwest | t | | | | | | 0.46 | 5.50 |
| | SIG | | | | | | NS | p < .01 |
| Colorado | t | | | | | | | 2.92 |
| | SIG | | | | | | | p < .05 |

NS: Not significant at the .05 level or better

1. *Axis* (Table 2). Despite the small size of the sample, the magnitude of the difference we found on this variable would have occurred by chance less than five times in ten thousand. Our data therefore provide strong support for our first hypothesis and for Hall's observations. The various Arab subgroups are relatively homogeneous in axis; only three of the six comparisons attained statistical significance, and these at a relatively low level. This is in marked contrast to the 16 Arab-American subgroup comparisons, all of which were statistically significant and generally at a very high level. This supports our

TABLE 3. ARAB-AMERICAN DIFFERENCES IN PROXEMIC BEHAVIOR
VARIABLE 2—KINESTHETICS

| | | | | MEAN | SD | DF | t | SIG |
|--------------|-----|------|------|--------|----------|----------|----------|----------|
| ARABS | | | | 2.99 | 0.11 | | | |
| VS | | | | | | 32.00 | 35.95 | p< .0005 |
| AMERICANS | | | | 4.34 | 0.11 | | | |
| | | | | | | | | |
| | | UAR | Iraq | Kuwait | NY-NJ | Midwest | Colo. | Calif. |
| Saudi Arabia | t | 0.87 | 0.38 | 0.18 | 13.39 | 17.19 | 14.06 | 13.70 |
| | SIG | NS | NS | NS | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| UAR | t | | 1.94 | 1.64 | 15.71 | 22.34 | 16.55 | 16.27 |
| | SIG | | NS | NS | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| Iraq | t | | | 0.54 | 23.91 | 48.24 | 25.08 | 25.57 |
| | SIG | | | NS | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| Kuwait | t | | | | 23.32 | 45.98 | 24.48 | 24.91 |
| | SIG | | | | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| NY-NJ | t | | | | | 3.01 | 0.90 | 0.04 |
| | SIG | | | | | p< .025 | NS | NS |
| Midwest | t | | | | | | 1.84 | 3.16 |
| | SIG | | | | | | NS | p< .025 |
| Colorado | t | | | | | | | 0.90 |
| | SIG | | | | | | | NS |

NS: Not significant at the .05 level or better

second hypothesis, that persons from the various Arab countries will be more similar to each other than to any regional group of Americans.⁷ Four of the six comparisons among American regional groups were statistically significant, and a fifth closely approached significance. This suggests that, with respect to axis, American regional groups are more variable than Arab national groups. But even so, relatively little overlap occurs between the *t* values for intra-American comparisons and those for the Arab-American comparisons. Thus we also have support for our third hypothesis, that persons from various

TABLE 4. ARAB-AMERICAN DIFFERENCES IN PROXEMIC BEHAVIOR
VARIABLE 3—TOUCHING

| | | MEAN | SD | DF | t | SIG |
|-----------|--|------|------|-------|------|-----------|
| ARABS | | 5.80 | 0.09 | | | |
| vs | | | | 15.00 | 9.13 | p < .0005 |
| AMERICANS | | 6.00 | 0.00 | | | |

| | | UAR | Iraq | Kuwait | NY-NJ | Midwest | Colo. | Calif. |
|--------------|-----|------|------|--------|----------|----------|----------|----------|
| Saudi Arabia | t | 0.27 | 0.92 | 1.55 | 6.71 | 6.71 | 6.71 | 6.71 |
| | SIG | NS | NS | NS | p < .005 | p < .005 | p < .005 | p < .005 |
| UAR | t | | 0.47 | 0.96 | 3.89 | 3.89 | 3.89 | 3.89 |
| | SIG | | NS | NS | p < .025 | p < .025 | p < .025 | p < .025 |
| Iraq | t | | | 0.59 | 4.43 | 4.43 | 4.43 | 4.43 |
| | SIG | | | NS | p < .025 | p < .025 | p < .025 | p < .025 |
| Kuwait | t | | | | 3.54 | 3.54 | 3.54 | 3.54 |
| | SIG | | | | p < .025 | p < .025 | p < .025 | p < .025 |
| NY-NJ | t | | | | | 0.00 | 0.00 | 0.00 |
| | SIG | | | | | NS | NS | NS |
| Midwest | t | | | | | | 0.00 | 0.00 |
| | SIG | | | | | | NS | NS |
| Colorado | t | | | | | | | 0.00 |
| | SIG | | | | | | | NS |

NS: Not significant at the .05 level or better

regions of the United States will be more similar to each other than to persons from any Arab country.

2. *Kinesthetics—closeness* (Table 3). Arab-American differences on this variable were even more marked than for axis, and the *t* value falls completely off the tables. Again, greater mean differences are found among American regional groups than among Arab regional groups, though both Americans and Arabs are surprisingly homogeneous. This homogeneity is in marked contrast to the highly significant differences between the Arab-American subgroup compari-

TABLE 5. ARAB-AMERICAN DIFFERENCES IN PROXEMIC BEHAVIOR
VARIABLE 4—VISUAL DIRECTNESS

| | | | | MEAN | SD | DF | t | SIG |
|--------------|-----|-----------|------|--------|----------|----------|----------|----------|
| | | ARABS | | 1.05 | 0.09 | | | |
| vs | | | | | | 18.60 | 24.23 | p< .0005 |
| | | AMERICANS | | 2.86 | 0.28 | | | |
| | | UAR | Iraq | Kuwait | NY-NJ | Midwest | Colo. | Calif. |
| Saudi Arabia | t | 1.28 | 2.04 | 0.00 | 23.74 | 30.63 | 15.52 | 28.94 |
| | SIG | NS | NS | NS | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| UAR | t | | 0.17 | 1.28 | 14.71 | 19.02 | 12.80 | 15.76 |
| | SIG | | NS | NS | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| Iraq | t | | | 2.04 | 19.25 | 24.99 | 14.23 | 21.97 |
| | SIG | | | NS | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| Kuwait | t | | | | 23.74 | 30.63 | 15.52 | 28.94 |
| | SIG | | | | p< .0005 | p< .0005 | p< .0005 | p< .0005 |
| NY-NJ | t | | | | | 4.49 | 3.06 | 0.20 |
| | SIG | | | | | p< .005 | p< .025 | NS |
| Midwest | t | | | | | | 0.22 | 5.14 |
| | SIG | | | | | | NS | p< .005 |
| Colorado | t | | | | | | | 3.30 |
| | SIG | | | | | | | p< .025 |

NS: Not significant at the .05 level or better

sons, all 16 of which achieved the .0005 level of significance. Again all three of our hypotheses with regard to distance maintained between persons were strongly supported.

3. *Touching* (Table 4). Only among Arabs did any touching take place during our observations, and this was all of the accidental type. But touches were observed among persons within *each* of the four Arab subgroups and therefore can be interpreted as a general phenomenon among Arabs. The over-all Arab-American difference again would have occurred by chance less than five

TABLE 6. ARAB-AMERICAN DIFFERENCES IN PROXEMIC BEHAVIOR
VARIABLE 5—VOICE LOUDNESS

| | | MEAN | SD | DF | t | SIG |
|-----------|--|------|------|-------|------|-----------|
| ARABS | | 2.82 | 0.21 | | | |
| vs | | | | 29.31 | 6.85 | p < .0005 |
| AMERICANS | | 3.43 | 0.29 | | | |

| | | UAR | Iraq | Kuwait | NY-NJ | Midwest | Colo. | Calif. |
|--------------|-----|---------|----------|---------|-----------|----------|----------|-----------|
| Saudi Arabia | t | 3.66 | 2.89 | 2.21 | 3.83 | 0.52 | 2.65 | 3.19 |
| | SIG | p < .01 | p < .025 | p < .05 | p < .005 | NS | p < .025 | p < .01 |
| UAR | t | | 1.02 | 0.92 | 6.83 | 5.31 | 4.83 | 7.21 |
| | SIG | | NS | NS | p < .0005 | p < .005 | p < .005 | p < .0005 |
| Iraq | t | | | 0.13 | 6.30 | 4.51 | 4.37 | 6.61 |
| | SIG | | | NS | p < .005 | p < .005 | 0 < .01 | p < .0005 |
| Kuwait | t | | | | 5.38 | 3.05 | 3.96 | 5.09 |
| | SIG | | | | p < .005 | p < .025 | p < .005 | p < .005 |
| NY-NJ | t | | | | | 4.00 | 0.20 | 1.42 |
| | SIG | | | | | p < .01 | NS | NS |
| Midwest | t | | | | | | 2.58 | 3.57 |
| | SIG | | | | | | p < .05 | p < .025 |
| Colorado | t | | | | | | | 0.83 |
| | SIG | | | | | | | NS |

NS: Not significant at the .05 level or better

times in ten thousand. No significant differences were found between any Arab subgroups; and since no Americans touched during our observations, no differences between American regions were observed either. This is again in marked contrast to the Arab-American comparisons, all 16 of which yielded significant differences. Again all three of our hypotheses were supported.

4. *Visual directness* (Table 5). This variable yielded the same familiar picture: over-all Arab-American differences were highly significant; no significant differences were found between Arab subgroups, and relatively small differences between various American regions; all 16 Arab-American subgroup comparisons yielded highly significant differences. Again all three hypotheses were supported.

5. *Voice loudness* (Table 6). Although greater heterogeneity was found on this variable among both the Arab and the American subgroups, the over-all pattern is very similar to that found on the previous four proxemic variables and strong support was provided for all three of our hypotheses.

In summary, all five of the facets of proxemic behavior defined by Hall for which objective measurement could be achieved yielded highly significant differences between Arabs and Americans in the directions predicted on the basis of Hall's observations. Furthermore, Arab mean scores for the four national groups represented were extremely similar to each other, as were the mean scores of the four American regional groups, though there was more variability among Americans than among Arabs. All three of our guiding hypotheses were given strong empirical support.

Looking at Table 1 more closely, we can see that no one Arab subgroup is consistently more "American" in proxemic behavior than any other. The Arabians were most similar to Americans in axis and voice loudness, the UAR students in closeness and visual directness, and those from Kuwait with respect to touching. Similarly, no American regional group was consistently more "Arab."

Among the four Arab subgroups, certain consistent patterns of similarity did emerge, however. Group means on all five variables were very similar for the students from Iraq and Kuwait. And the Saudi Arabians and Egyptians, whom we might expect to be quite different in terms of the levels of modernization currently achieved by their countries, were most different of the four subgroups on axis, visual directness, and voice loudness. They were similar, however, in distance and touching.

Also, within American regions, except for loudness, the New York-New Jersey group was consistently similar to the California group, in contrast to the Midwest and Colorado groups. This would conform with the similar cosmopolitanism of the two coastal regions. Given the very small sizes of our samples, however, these observations should be considered no more than suggestive clues for future research.

A final question—are we really working with multiple dimensions here, or

TABLE 7. PEARSON CORRELATIONS AMONG FIVE MEASURES OF PROXEMIC BEHAVIOR
N = 32 (16 Americans and 16 Arabs)

| | 1 | 2 | 3 | 4 | 5 |
|------------------------------|---|-----|-----|-----|-----|
| Variable 1—Axis | × | .80 | .71 | .77 | .80 |
| Variable 2—Kinesthetics | | × | .87 | .97 | .72 |
| Variable 3—Touching | | | × | .83 | .64 |
| Variable 4—Visual directness | | | | × | .74 |
| Variable 5—Voice loudness | | | | | × |

can these various aspects of proxemic behavior be subsumed within a single variable, such as the "contact"—"noncontact" dimension suggested by Hall? For our 32 subjects, the uniformly high over-all Pearson correlations among the five variables suggest the latter conclusion (Table 7). But these findings are partly an artifact of the gross ethnic group differences observed. *Within* the American and the Arab groups separately, several of these correlations disappeared or even reversed themselves (Table 8). Given our small sample size, we can again draw no firm conclusions, but it appears that patterns of proxemic behavior may prove more complex and variable than casual observation has led us to believe.

TABLE 8. PEARSON CORRELATIONS AMONG FIVE MEASURES OF PROXEMIC BEHAVIOR

| Americans only (N = 16) | | | | | | Arabs only (N = 16) | | | | |
|-------------------------|---|------|-----|------|------|---------------------|------|------|------|------|
| Variable | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 1 | × | -.51 | .00 | -.58 | .43 | × | -.33 | -.16 | -.11 | .39 |
| 2 | | × | .00 | .26 | -.73 | | × | .38 | -.04 | -.28 |
| 3 | | | × | .00 | .00 | | | × | -.10 | -.16 |
| 4 | | | | × | -.10 | | | | × | -.54 |
| 5 | | | | | × | | | | | × |

SUMMARY AND CONCLUSIONS

Hall's impressions concerning Arab and American differences in proxemic behavior were tested empirically by means of systematic observations of 16 American and 16 Arab college students under controlled conditions. Highly significant Arab-American differences emerged in the direction expected, with the Arab students confronting each other more directly than the Americans, moving closer together, more apt to touch each other while talking, looking each other more squarely in the eye, and conversing in louder tones. Marked homogeneity among the representatives of four Arab nations was also found; this was also true among the four regions of the United States represented.

Nevertheless, interesting patterns of regional differences emerged and appear worthy of further investigation.

Our research, which was exploratory in nature, demonstrates both the feasibility of systematic investigation in this area and its potential power. Improved methods of recording lines of proxemic notation need to be used—such as a digital magnetic tape recorder or even a simple adding machine—that will enable the investigator to keep his eyes on the subjects at all times. A mechanical recording device would also enable the observer to increase the lines of notation to as many as one every five or ten seconds.

It is also obvious that larger samples are needed to increase confidence in the generalizability of our conclusions and to permit the kinds of within-area analysis that proved so provocative. Samples of students from all over the world are contemplated, with the eventual aim of subjecting our observations to a factor analysis. If clusters of subjects belonging to distinct cultural areas emerge, we will obtain interesting definitions of “Arab” or “Latin” character in proxemic terms.

When recording techniques have been perfected and when our understanding of the underlying dimension or dimensions of proxemic behavior have advanced under controlled conditions, observations in the field are also anticipated. The plea advanced for the study of preliterate cultures before they are engulfed by the tide of civilization applies with equal weight to the study of proxemic behavior within these cultures. Observations of proxemics are not common in the ethnographic literature and tend to be limited to nonquantitative descriptions of postural and gestural habits or to remarks by the ethnographer about how the people appear to make spatial distinctions.

Acculturative changes in proxemic behavior are also worthy of systematic study. Do shifts in proxemic behavior occur as people are exposed to patterns different from those in which they were reared? Is there a syndrome of proxemic behavior associated with the urban industrial society toward which developing nations are moving? These remain tantalizing questions for further research.

Finally, almost nothing is yet known about the psychological *meanings* attached to various forms of proxemic behavior. The discomfort aroused by the gross violation of proxemic norms, particularly in cross-cultural situations, has often been noted. But *within* a culture area, are differences in proxemic style—a tendency to confront others more directly, to avoid looking them in the eye more than most, etc.—associated with other personality traits? What kinds of things are communicated by such subtle deviations? We can envision the emergence of a field of “psychoproxemics” as challenging to the researcher as psycholinguistics is proving to be.

NOTES

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² The system of notation apparently originated from the insights gained from Hall's interviewing of foreign students studying in the U.S. (Hall 1963:1005).

³ Bernard Lewis (1950) has pointed out the difficulties inherent in a definition of "Arab." Suffice it to say that all students in our Arab group came from countries considered by Lewis to be "Arabic."

⁴ Hall (1963:1005) points out that there are two basic American types as far as closeness is concerned: a "contact" group, predominantly of southern European origin, and a "noncontact" group, composed primarily of northern Europeans. The "noncontact" group supplies the predominant ethos of American proxemic behavior, and it was assumed that the American students were of this type. Analysis of the data later showed this assumption to be correct.

⁵ At Hall's suggestion (personal communication) the direction of scoring this variable was reversed from that suggested in his 1963 article. This results in a low score always representing the "close" end of the continuum, as is his current practice, and all our predictions concerning Arab-American differences are that Arab mean scores will be lower.

⁶ With small samples the distribution of *t* provides a more appropriate model than either the binomial or the normal distribution (Ferguson 1959:126-127). The test was one-tailed because the expected direction of difference had been specified in our hypothesis. Use of the *t* test involves two assumptions: that the sampled population is normal and that the population variances are homogeneous. But as long as the sample size is even moderate for each group, quite severe departures from normality seem to make little practical difference in the conclusions reached (Hays 1963:322). Furthermore, for samples of equal size, relatively large differences in the population variances seem to have relatively small consequences for the conclusions derived from a *t* test.

⁷ On two of the five proxemic variables—axis and kinesthetics (distance)—both persons in an interacting pair receive the same score. Since a person is alternately paired for observation with each of the other three in his subgroup, he thereby comes to share a portion of his variance on these measures with them. This produces greater subgroup homogeneity on these two measures (lower variance) than would occur if each member's score was independent of the other three, and increases the likelihood of statistically significant differences from other subgroups. Hypotheses two and three are an attempt to overcome the statistical problems that this lack of independence creates. Since each of the eight subgroups contains this same problem, pairs of American or of Arab subgroups should be as likely to display statistically significant differences from each other by chance as cross-ethnic pairs of Arab-American subgroups. Our hypothesis on the reality of Arab-American differences in proxemic behavior depends on the rejection of this null hypothesis.

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