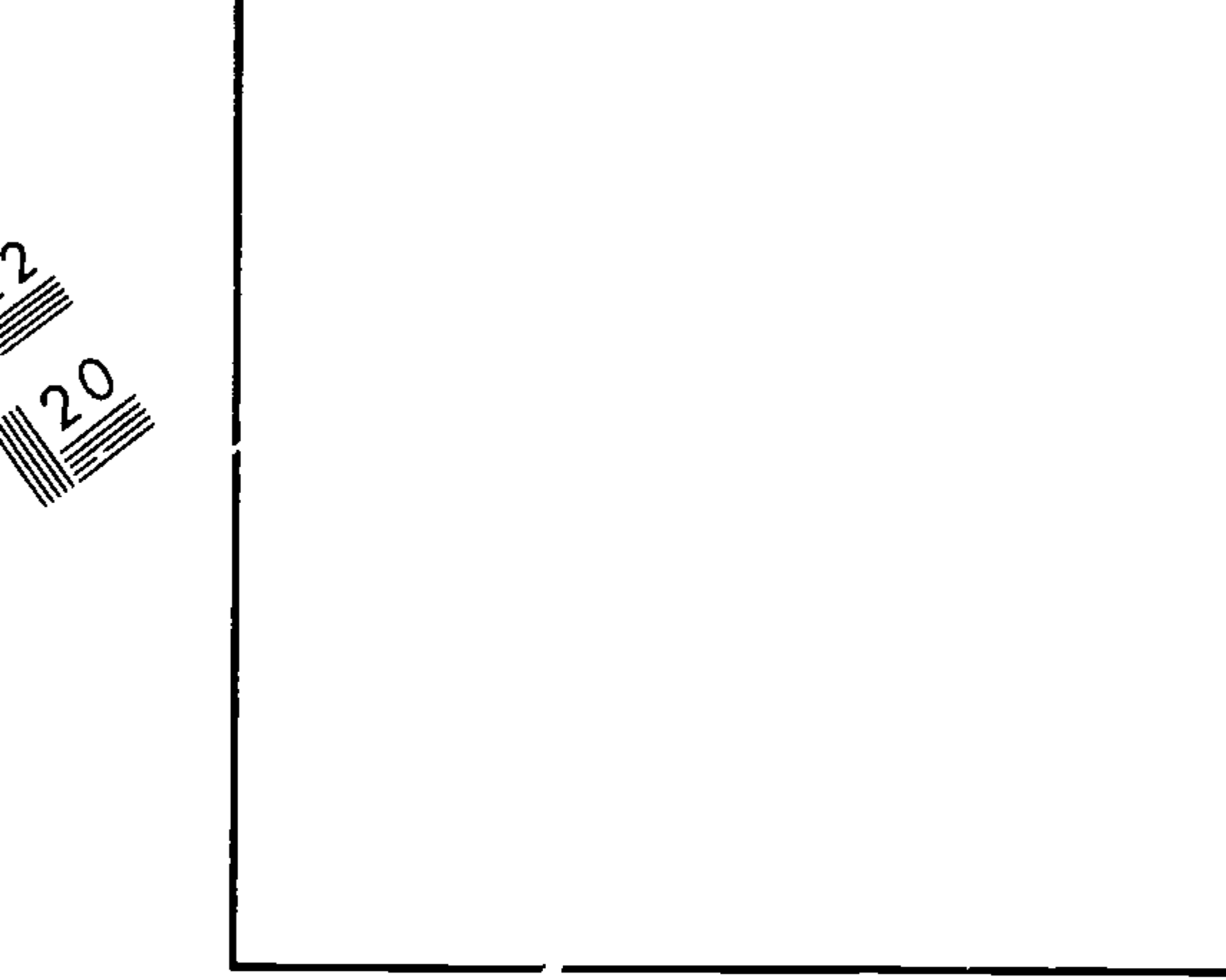

DOCUMENT RESUME

ED 266 504 CS 505 162

AUTHOR Cirlin, Alan
TITLE An Interactional Approach to Predicting Communication Behavior.
PUB DATE Nov 85
NOTE 45p.; Paper presented at the Annual Meeting of the Speech Communication Association (71st, Denver, CO, November 7-10, 1985).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Behavior Patterns; *Communication Apprehension; *Communication Research; Communication Skills; Higher Education; *Predictive Measurement; *Research Methodology; *Test Construction; Test Validity
IDENTIFIERS *Communication Behavior

ABSTRACT

Evidence suggests that individual difference measures of personality are limited in their ability to predict cross-situational behavior. This limitation has applied to measures of communication-bound anxiety that have generally been developed as unidimensional instruments. A study explored whether a measurement approach based on individual and situational differences would yield significantly better cross-situational predictions of communication apprehension than would current measurement approaches. In the first phase of the study, an individual difference measure and a situational difference measure were developed and tested with 71 college students. In the second phase, the two instruments were compared with current instruments to determine how well each could predict the same cross-situational behaviors. All instruments were administered to the same group of students. Results showed that the new instruments predited as well as or better than any of the current instruments across a number of situations, with cross-situational predictions of behavior improving from an average of 5.9% for the current measures to 50.4% of the new ones. (Copies of the instruments developed for the study and related materials are appended.) (FL)

INDIANA UNIVERSITY
NORTHWEST

DEPARTMENT OF COMMUNICATION
AND CREATIVE ARTS
3400 Broadway
Gary, Indiana 46408
Communication: 219-980-6678
Creative Arts: 219-980-6808

AN INTERACTIONAL APPROACH TO PREDICTING COMMUNICATION BEHAVIOR

Alan Cirlin

Indiana University Northwest

A paper presented at the Speech Communication
Association National Convention
November 1985, Denver

ABSTRACT

AN INTERACTIONAL APPROACH TO PREDICTING COMMUNICATION BEHAVIOR

The preponderance of evidence suggests that personality measurements are very limited in their ability to predict cross-situational behavior (Mischel, 1968). This limitation has applied to measures of communication-bound anxiety (Hewes & Haight, 1979; Parks, 1980) which have generally be developed as unidimensional instruments (Daly, 1978). This study explored the possibility that limited predictive power and unidimensionality are both the result of methodological considerations. Using an interactive measurement approach and a more appropriate factoring procedure a strong unidimensional individual difference structure was identified and cross-situational predictions of behavior were improved from an average of 5.9% for current instruments (SADS, PRCA, PRCS) to 50.4%.

Alan Cirlin

Indiana University Northwest

AN INTERACTIONAL APPROACH TO PREDICTING COMMUNICATION BEHAVIOR

Individual difference measures of personality variables have become an important focus of social science research (Hewes & Haight, 1980). And yet, there is a significant body of scholarship which suggests that individual different measures are not powerful predictors of actual behavior (Mischel, 1968; Parks 1980). In essence, such measurement instruments, while significant, are, relatively speaking, trivially significant. Mischel, after examining related research across a number of disciplines, concluded that, "in general it was unlikely cross-situational correlations . . . would ever exceed an absolute value of 0.30" (Hewes & Haight, 1979, p. 246), which was consistent with the conclusions of Hunt (1965). We might, therefore, refer to the cross-situational prediction limit of 0.30, or 9% of variance accounted for, as "Mischel's Ceiling."

The limitations on individual difference measures are inherent because behavior is a function of both individual and situational variables, and the sole reliance on individual difference measures fails to account for either situational differences or for the interaction between individual and situation. Research based on such an exclusive approach can be expected to achieve very limited results (cf. Allport, 1937; Farber, 1964; Cirlin, 1981).

This study was an attempt to demonstrate that research based on both individual and situational difference measurements (an interactional approach) would yield significantly better cross-situational predictions than research based exclusively on individual differences.

This hypothesis was tested on a construct which has been generally labeled "communication-bound anxiety" (Ad Hoc Committee on Evaluation of the Speech Association of America, 1970; Daly, 1978) and has been investigated under the rubrics audience anxiety, audience sensitivity, communication apprehension, disturbed verbal behavior, reticence, shyness, social fear, stage fright, timidity,

unwillingness-to-communicate, and verbal dysrhythmia.

Daly concluded in 1978 that almost all current communication-bound anxiety measurement instruments are functionally identical. Siebold and McPhee (1980) reanalyzed Daly's data and suggested that there are three distinct but highly related factors involved. For the purpose of this study, three instruments were selected which loaded most heavily on Siebold and McPhee's three factors: The Watson and Friend (1969) Social Anxiety and Distress Scale (SADS), which loaded .81 on the social anxiety factor; McCroskey's (1970) Personal Report of Communication Apprehension (PRCA), which loaded .95 on the communication anxiety factor[1]; and Gilkinson's (1942) Personal Report of Confidence as a Speaker (PRCS), which loaded .92 on the performance anxiety factor. If Daly is correct, the information provided by these instruments is redundant; if Siebold and McPhee are correct, these three instruments cover the field. In either case they can be taken as representative of current measurement approaches to communication-bound anxiety.

In addition to the pragmatic failure of communication-bound anxiety measures to break Mischel's ceiling (Hewes & Haight, 1979), a close examination of these instruments suggests that they are artificially unidimensional in nature (Phillips, 1977; Cirlin, 1981). Almost all current measurement instruments were developed using a similar method. In step one, a list of statements was generated. In step two, these statements were administered to a group of subjects who were either asked to agree or disagree with each, or to rate each on some scale of agreement. In step three, the results were analyzed (frequently R-factor analyzed) to determine an initial factor structure. And in step four, an instrument was developed using that factor structure as a guide. In almost every reported case, step three resulted in a strongly unifactorial interpretation; thus step four served to magnify that unidimensional interpretation, and in the process bury any suggestion of other dimensions. The unifactorial results of step three can be viewed as an artificial product of problematic assumptions operating in step

one, assumptions which had the effect of building a unidimensional interpretation into the data, and making a unifactoral solution a necessary outcome. One major assumption, as Phillips (1977) points out, is that fear is necessarily the causal factor in communication-bound anxiety behaviors. This problem was often compounded by the use of R-factor analysis on a problem which might be more appropriately investigated by the use of Q-factor analysis. (For a detailed critique of these instrument development procedures, see Cirlin, 1981.) Given these instrument development techniques, we should not be surprised by Daly's 1978 results. It is as if we set out to investigate the berries which grew in the next county, but started out with such a limited idea of what a berry looked like we refused to pick anything that didn't look like a strawberry. After examining the results of numerous berry-picking expeditions we would naturally conclude that strawberries must be all there is.

This study fell into two distinct phases: instrument development and comparative analysis. During the first phase, an individual difference measure and a situational difference measure were developed. During the second phase, these instruments were compared with current instruments to determine how well each could predict the same cross-situational behaviors. The following hypothesis was being tested:

> A measurement approach based on individual and situational differences will yield significantly better cross-situational predictions than current measurement approaches.

The following criteria was set for considering the prediction difference to be non-trivially significant (after Cohen, 1969): the new approach had to provide better cross-situational predictions and also had to break through Mischel's ceiling. To avoid equivocation, assuming that Mischel's 0.30 cross-situational limit held for the data generated in this study, the prediction criterion for the new approach was set at 0.40. This represented an increase of from 9% to

16% of the variation accounted for and almost double the predictive power.

Phase One: Instrument Development

Since the assumption was made that individual and situational factors would be orthogonal, instruments were developed independently. The actual instrument-development went on concurrently, frequently making use of identical subject groups, but conceptually the two problems were distinct. The empirical work on this project was conducted at a large midwestern university in 1980. Development of an Individual Difference Measure: Individual test items were generated by reviewing the relevant literature (esp. Burgoon, 1976; Zimbardo, 1977; Daly, 1978) and examining freshmen rhetoric composition class essays (n=21) discussing student perceptions of when and why they felt uncomfortable communicating. Using the results of this assignment and literature search, the following list of potential individual difference dimensions was identified: mental symptoms when communicating, physical symptoms when communicating, desire to communicate, self-image as a communicator, self confidence as a communicator, and general level of self-esteem. Using this list and borrowing freely from related instruments, a list of individual difference items was generated (see Appendix A).

This set of 51 items was administered to five rhetoric classes (n=71) as a 3-4-6-8-9-8-6-4-3 forced-distribution Q-sort. Subjects were asked to rank-order the 51 items into the Q-distribution according to how strongly they agreed or disagreed with each statement. Two cases were thrown out during the statistical analysis because the nature of the errors suggested that the respondents were either answering randomly or with extreme carelessness. In the other cases of errors (n=22), an attempt was made to contact the participant and have the Q-array corrected. Where this was unsuccessful (n=3), the missing items were assigned the average item score, to the nearest integer, across all subjects. The resulting data were normalized and Q-factor analyzed using Varimax rotation, a bipolar splitting criterion of .25, and a consensus item criterion of 1.0.

The number of factors suggested by the scree test was seven. The number suggested by the common variance test was four. Humphreys' test indicated that only three of the ten factors were "meaningful." A second Q-run, forcing a four-factor extraction, seemed to confirm the three factor solution as optimal. The fourth factor contained only one case and appeared to represent the polar opposite of another factor. The third Q-run, forcing a three-factor extraction, provided a clear, easily interpretable solution. The three extracted factors accounted for 22%, 14%, and 9% of the total variance, and the number of primary loadings (which in this case is people) on each factor were 30, 26, and 13. The responses on which each Q-type was differentiated (SD>1.0) from the other types are indicated below (any item which loaded negatively on a factor has been reworded to reflect that negative loading; such rewording has been indicated by the addition of parenthetical phrases):

TYPE 1 [n=30]: I enjoy speaking in public. I don't feel nervous while speaking. I am basically very outgoing. I'm a good public speaker. I enjoy participating in group discussions. I'm the type of person who would strike up a conversation with a total stranger. If given the chance I would be a good leader. I enjoy talking. I talk too much. I like to "show off" once in awhile. I raise my hand in class when I know the answer. I'm (not) a silent type. I (do not) avoid expressing my feelings and opinions in most conversations. I (do not) talk less because I'm shy. I am (not) bashful with most strangers. I (do not) dislike to use my voice or body expressively. I (do not) feel embarrassed when asked to perform in front of other people. I would (not) rather take more tests and give fewer speeches in rhetoric.

TYPE 2 [n=26]: My feelings are easily hurt. I'm afraid that other people will laugh at me when I perform in public. I feel embarrassed when asked to perform in front of other people. I find it hard to concentrate before giving a speech. I'm not as smart or as capable as most other people. I often worry what other people are thinking about me. I tend to make mistakes when other people watch me. I worry about making mistakes when speaking. I (do) feel nervous while speaking. I'm (not) a good public speaker. If given a chance I would (not) be a good leader. I (do not) enjoy speaking in public.

TYPE 3 [n=13]: I'm a silent type. I'm bashful with most strangers. I have trouble thinking of things to say. My feelings are (not) easily hurt. I (do not) enjoy talking. I'm (not) basically very outgoing. I (do not) talk too much. I'm (not) the type of person who would strike up a conversation with a total stranger. I (am) as smart (and) as capable as most other people.

These three Q-types were a product of orthogonal rotation, which implies that despite any seeming interrelationships they are conceptually independent. On the other hand, given the computational algorithim used in the Quanal program, there will be a certain amount of overlap among factors. Also, the ipsative nature of the Q-sort procedure may affect the orthogonality of the factor solution (Hicks, 1970). An examination of the results indicated that the three extracted Q-factors were, in fact, not highly correlated. Table 1 shows the correlations among Q-types (with common variance percentages indicated in parentheses).

TABLE 1 HERE

The three Q-factors seemed to reflect three types of students: Factor 1 seemed to represent a loquacious, self-assured type (Outgoing); Factor 2, a quiet, self-doubting type (Timorous); and Factor 3, a quiet, self-assured type (Stoic). The Outgoing type tended to communicate often and seemed to reflect an inner assurance. Timorous types tended to communicate very little and their communication seemed to reflect an internal uncertainty and discomfort. Stoic students also tended to communicate very little, but their communication seemed to reflect an internal self-assurance similar to that of an Outgoing type. One receives the impression that Stoic types, out of habit or design, simply chose to communicate infrequently.

Twenty-three concensus items were identified and dropped from the program and a recomputed Q-analysis, as would be expected, showed almost no change. Instrument development was based on the remaining 28 items.[2] Given the problems associated with administering a Q-sort, a Q-instrument was developed which generated a Q-array by the use of a simple paper and pencil questionnaire (see Appendix B). Details of the instrument development process were reported elsewhere (Cirlin, 1981). The test-retest reliability figures for the three factors generated by this instrument were .924, .872, and .635.

Development of a Situational Difference Measure: Using the same student writing assignment and literature search described above, the following list of potential situational difference dimensions was generated: degree of familiarity with the situation, audience size, educational level of the audience relative to the communicator, social status of the audience relative to the communicator, authority status of the audience relative to the communicator, age of the audience, sex of the audience, degree of formality, degree of task pressure, degree of assertiveness required, degree of vulnerability felt, degree to which the communicator is the center of attention, and degree to which there is the potential for sexual intimacy in the situation. These dimensions were used to generate a set of situational difference items (see Appendix C).

This set of 60 statements were administered to the same five rhetoric classes used in developing the individual difference instrument (n=71) as a nine-point, Likert-type inventory. Subjects were asked to rate each item according to how comfortable they would feel in each situation. The resulting data were subjected to R-factor analysis[3] using Varimax rotation and Kaiser's eigenvalue criterion of 1.0 to determine the number of factors to rotate. The initial R-analysis rotated 16 factors. Scree analysis suggested several potential solutions, at 5, 7, 9, 12, 14, and 18 factors. An examination of the initial factor loading matrix suggested that at least the first five factors were interpretable as Threat, Reward, Pressure, Intimacy, and Formality. A forced five-factor extraction seemed to confirm this interpretation.

The threat dimension seemed to be nearly identical with the Daly (1978) communication-bound anxiety factor or the Siebold and McPhee (1980) performance anxiety factor. The reward dimension may be likened to the unwillingness-to-communicate reward dimension (Burgoon, 1976; Daly, 1978) or the Siebold and McPhee communication anxiety factor. The pressure dimension included items describing low pressure situations (e.g., watching a movie, watching a play, listening to

a speech, talking to a child, etc.); while high pressure items tended to load negatively on this factor. The intimacy dimension may be similar to the Siebold and McPhee social anxiety factor; items which loaded on this factor tended to make reference to interpersonal situations and/or gender (e.g., discussing problems, talking with friends, talking to males, talking to females, etc.). The final and least obvious dimension was formality; this factor tended to be made up of structured events and formal speaking situations (in different extractions, different items tended to load on this dimension).

In an effort to minimize multicollinarity problems, situational difference ratings were obtained from an independent group of subjects. There is some evidence to suggest that an artificial consistency in the independent measurements results when the same set of subjects are the object of the study as well as the source of the situational assessments (cf. Hewes & Haight, 1980, Jaccard & Daly, 1980).

The situational difference instrument consisted of an assessment by an independent group of students (n=38) of the cross-situational contexts used in the comparative analysis: Occupational, Political, Performance, and Social.[4] A set of situational descriptions was generated for each context and students rated these 25 descriptions on the five different dimensions identified above. Students were asked to imagine themselves in each of these situations and rate each situation according to how threatened (rewarding, pressured, intimate, formal) each situation would make them feel (not threatened at all, slightly, moderately, very, extremely). Subjects rerated the same set of situations on each of the five dimensions (see Appendix D for the threat instrument).

Analysis of the data suggested general agreement among respondents concerning the perception of each situation on each dimension. Situational difference weights were obtained by computing the average item response for each dimension across subjects for all items within each situation. Table 2 provides a summary of

the weights on each dimension of each situation used in the comparative analysis.

TABLE 2 HERE

The average standard deviation on each item across all dimensions was 0.66.

Phase Two: Comparative Analysis

The major hypothesis of this study was tested by comparing the ability of current instruments (as represented by the SADS, PRCA, and PRCS) and the instruments developed in this study (individual difference measure, hereafter referred to as IDM; situational difference measure, SDM) to predict the same set of cross-situational data. The cross-situational prediction coefficient was defined as the average multiple regression coefficient across all situations. The alpha level was set at .05 and the power level at .95. Cohen's tables indicated a minimum sample size requirement of 58, well below the 116 cases available in this analysis.

Method: All instruments were administered to the same group of students. In another effort to minimize potential multicollinearity problems, and to provide the most realistic and conservative test of the hypothesis, the data were collected in two installments. The independent measures were administered near the beginning of the fall semester, and the dependent measure questionnaire just after the Thanksgiving break. During the first administration, subjects completed the SADS, PRCA, PRCS, and IDM. To minimize classroom intrusion (because of the time required), packets containing these forms were handed out in class, the instruments were described, and instructions for their completion reviewed. Subjects were asked to complete them outside of class and return them. After several weeks of follow-up, the final return rate was just over 48% (n=120 out of 247). Four students out of the 120 had withdrawn from the course by the time of the second data-collection installment, leaving the final number of subjects at 116.

The dependent measures were selected to adequately test the cross-situational hypothesis and, again, to minimize multicollinarity (the four situations used

in developing the SDM and again as dependent measures seemed to satisfy this requirement (cf. McCroskey, 1977; Siebold & McPhee, 1980; Cirlin, 1981). Nine dependent measures were used. The first two were classroom ratings, generated by the course instructors, the next four were situational items generated by the students, and the last three were validity checks, social situation items also generated by the students. A good deal of research had been generated which suggested that these last three items would correlate highly with the social situation score and with each other (Melnick, 1973; Christensen & Arkowitz, 1974; Twentyman & McFall, 1975; McCroskey, 1977; McCroskey & Sheahan, 1978). There is also at least one study which would support opposing expectations (Parks, Dindia, Adams, Berlin, & Larson, 1980). All subjects were asked to generate quantitative, rather than qualitative, data; items were phrased as questions of fact, rather than as questions of value. Instead of asking a subject to rate how much they enjoyed being in a certain situation, or how confident they felt in that situation, they were asked if they had been in that situation within a given period of time, or how often they had been in that situation (see Appendix E for teacher and student dependent measurement instruments). It was hoped, in this way, that subject self-perceptions, which were the basis of variation on the individual difference measures, would not significantly contribute to the variation of the dependent measures.

Results: The data generated on the SADS, PRCA, and PRCS were consistent with results reported in the literature and almost identical with Daly's 1980 summary data. Table 3 presents a summary comparison between the results obtained in this study and the results reported by Daly. With the exception of the SADS

TABLE 3 HERE

mean figure, the two sets of data are fundamentally identical. The discrepancy in the SADS means was apparently caused by differences in scoring methods and had no effect on the correlation statistics used in this study.

IDM data were subjected to Q-analysis forcing a 3-factor solution, using the Quanal program, Varimax rotation, a bipolar splitting criterion of .25, and a concensus item criterion of 1.0. The eigenvalues for the three factors which emerged were 45.2, 30.4, and 10.0. The Scree solution indicated 18 factors, the common variance test 6, Kaiser's criterion would have suggested 16, and Humphreys' test indicated that all three of the extracted factors were "meaningful." The Q-solution item responses were consistent with earlier analyses, and the subsequent coding would have been routine, except that factor 3 in this solution was 33.9% negative. Since a bipolar splitting criterion of .25 had been chosen, the variance which contributed to this factor had been split into two negatively correlated Q-types. A 4-factor solution was then extracted and when it seemed to make sense, the assumption was made that the earlier solution was the result of an insufficiently large or broad data base. All available data were then combined from all subjects who had ever taken the 28-item version of this instrument (n=225) and the four-factor solution was confirmed. The correlation matrix for this four-factor solution is reported in table 4. An

TABLE 4 HERE

examination of the factor loadings suggests that the type 4 personality is high on the tendency to communicate, but low on self-assurance. That is, an individual who tends to compensate for low self-esteem by communicating, perhaps someone covering up an inferiority complex. This type was labeled Deceptive. Despite the mathematical orthogonality, as table 4 indicates, there are obvious correlations among the four IDM types which emerged from this study. If these four types are considered to be the product of variation along two dimensions, tendency to communicate and degree of self-assurance, than an Outgoing type 1 is high on both, a Timorous type 2 is low on both, a Stoic type 3 is high on self-assurance but low on tendency to communicate, and a Deceptive type 4 is low on self-assurance but

high on tendency to communicate. If the relative proportions which emerged in this study are reflective of the actual proportions of each type in society (the above list is given in the order of decreasing percentage), then the large Timorous population suggested by this study would support the conclusions of Communication Apprehension researchers about how widespread high levels of CA are in society.

The dependent measurement data were transposed into uniform six-point frequencies to facilitate statistical treatment and interpretation. Tables 5 and 6 present the frequency data before and after transposition respectively.

TABLES 5 AND 6 HERE

The first comparative analysis which was run was to see how well the SADS, PRCA, PRCS, and IDM could predict the 9 cross-situational dependent measures. The results of this analysis are provided in table 7. It was observed that the

TABLE 7 HERE

IDM predicted as well or better than any of the current instruments across all nine situations. In some situations such as class discussions, this predictive superiority was substantial, in other situations such as performance, the predictive difference was minimal. Cross-situational prediction coefficients were computed by averaging the squared regression coefficients across all nine situations. The computed coefficients of the three contemporary instruments were: SADS, .19 (3.7%), PRCA, .28 (7.9%), and PRCS, .25 (6.2%). Used together in a multiple regression prediction they did much better, accounting for an average of 11.8% of the total variance in the data which corresponds to a cross-situational multiple regression coefficient of .34. Applying the same analysis to the IDM data produced a cross-situational multiple regression coefficient of .35 (12.3%). These results not only support the arguments of Hewes and Haight (1979) regarding Mischel's 9% ceiling, but also lend support to Siebold and McPhee's (1980) arguments that

the three contemporary instruments tap into three different, if highly related, factors. These results also suggest that the difference between the average cross-situational predictive power of the old set of instruments taken together and the IDM by itself is negligible. Certainly, the IDM was able to outperform any of the current instruments by themselves, but this only supports the argument that current instruments are artifically unidimensional. The absolute test of the interactional hypothesis, then, was to significantly improve on Mischel's ceiling by using both individual and situational data in the prediction equation.

These results necessitated a change in the statistical criterion. The .40 (16%) criterion had been based on Mischel's .30 (9%) ceiling. Since the multiple regression coefficients of the three contemporary instruments taken together and the IDM had both exceeded this figure, it was felt that a more conservative test of the hypothesis was required. Consequently, the statistical criterion was raised to .45 (20%) to maintain the desired power level.

The final test of the interactional hypothesis involved transposing the four IDM factor scores and five situational difference scores into a set of 20 individual-situational scores. This was accomplished by creating a pairwise matrix of scores for each subject in each situation. For example:

Subject 1 in Situation 1

IDM Scores	SDM Scores: Threat	Reward	Pressure	Intimacy	Formality
Outgoing	O_1T_1	O_1R_1	O_1P_1	O_1I_1	O_1F_1
Timorous	T_1T_1	T_1R_1	T_1P_1	T_1I_1	T_1F_1
Stoic	S_1T_1	S_1R_1	S_1P_1	S_1I_1	S_1F_1
Deceptive	D_1T_1	D_1R_1	D_1P_1	D_1I_1	D_1F_1

Using this technique a unique set of twenty predictor variables was generated for each subject in each situation and none of the original information was lost. The information contained in these twenty predictor variables was highly redundant, but the redundancy would not effect the regression coefficient and in this form

they were capable of being used in the multiple regression analysis.

The interactional test was performed on the occupational, political, performance, and social situation dependent measures only, the two classroom ratings being dropped from this analysis for the lack of classroom SDM data. The three additional social situation items were also dropped so there would be a balance between the four test situations. The final regression problem, then, involved the prediction of 464 dependent measurements (116 subjects x 4 situations) using the twenty IDM-SDM scores as the predictors. The independent correlation coefficients between each of the twenty predictor variables and the criterion variable are reported in table 8. As can be seen, some of these IDM-SDM predictor

TABLE 8 HERE

variables, by themselves, are significantly more powerful than any of the current instruments or the IDM by itself. In fact, before the final regression coefficient was calculated, eleven of the twenty predictor variables were powerful enough by themselves to reject the null hypothesis and support the interactional hypothesis.

When the final multiple regression coefficient was calculated, as expected, the IDM-SDM scores proved highly redundant. Seven of the twenty variables were dropped from the program because of non-uniqueness. These seven were, in descending order of partial significance: Outgoing·Threat, Stoic·Pressure, Deceptive·Pressure, Deceptive·Threat, Timorous·Intimacy, Timorous·Threat, and Stoic·Reward. The remaining 13 predictor variables produced a cross-situational multiple regression coefficient of .71 (50.4%). The results of this stepwise multiple regression are reported in table 9. It is interesting to note, aside from

TABLE 9 HERE

the relative power of the interactional prediction, that the largest single predictor variable, Timorous·Pressure, is not made up of either of the two largest IDM or SDM variables, Outgoing and Threat. It is also interesting to note that the total

regression product did not exceed that of the largest variable by a substantial margin. By itself the Timorous·Pressure variable accounted for 44% of the variation and the inclusion of twelve additional variables only raised that figure by an additional 6½%.

Inspection of table 9 suggests a number of observations. For one thing, the ability to predict the communication behaviors measured in this study seems to be more a function of situational and/or interactional than of individual differences. Those variables which include information about reward and intimacy seem to be uniformly weaker predictors than those involving threat, pressure, and formality. In addition, all of the predictor variables are negatively correlated with the criterion variable except the four which include information about intimacy, and these are all positively correlated. The interpretation of these regularities is dependent upon an interpretation of what the various variables represent. Each predictor variable can be thought of as a unique combination of individual and situational information. And the criterion variable can be thought of as either the probability or the extent of individual participation in specific types of communication. In general, then, as threat, pressure, formality, or reward increases, individuals are less likely to engage in certain communication behaviors. As intimacy increases, however, individuals are more likely to engage in those behaviors.

These results are problematic in two ways. First, it seems unreasonable to expect that perceptions of reward will be negatively correlated with the probability of action, since this expectation runs counter to the vast body of research on conditioning (unless, of course, in this case reward is highly correlated with perceptions of threat and/or pressure). And second, it is difficult to reconcile the interpretation of the individual types suggested by this study with the failure to observe differential patterns of sign variation in the data reported in table 9. We might have expected that an Outoing type and a Timorous

type would produce inverse correlation patterns on at least one dimension of situation, or that a Stoic type and a Deceptive type, which were originally identified as part of a bipolar split, would correlate differentially on one or more dimensions.

The resolution of these problems may depend on purely statistical considerations. This study was not primarily concerned with matters of interpretation, but was designed to test a problem of quantification. On the other hand, the negative correlations of reward may be an artificial result of the choice of dependent measures. An inspection of the described situations suggests that there is a consistent positive correlation between threat, pressure, formality, and reward, and the weights reported in table 1 seem to support this conclusion.

The failure to observe differential regression sign coefficients between individual types may also admit of a simple explanation. It may turn out that the differences between individual types are relatively subtle. From this perspective (reminiscent of a behavioral position) most individuals are alike, and their differences are of degree rather than of kind. The data reported in table 9 tends to support this interpretation. We would expect an Outgoing type to be inhibited by situations involving threat, pressure, or formality, but less so than other types, and the Outgoing type would be most drawn to those situations involving reward and intimacy. And all the data in table 9, except those variables reflecting reward, predictors based on the Outgoing type are uniformly the least affected by threat, pressure, and formality and the most affected by intimacy; predictors based on the Timorous type are uniformly the most affected by threat, pressure, and formality and the least affected by intimacy.

One final observation can be made about the data in table 9: it will be noted that since twelve of the variables used in the multiple regression were, by themselves, good enough predictors to meet the .40 statistical criterion, this would strongly support the criticisms of current approaches which depend on individual difference measures (including communication-bound anxiety measures)

as predictors of behavior. The inability to obtain high cross-situational predictions is not the result of lack or measurement precision, as has been often claimed (cf. Mischel, 1968), but rather stems from the failure to consider situational variables which exert powerful influences on related communication behaviors. If the current measures are providing information which is capable of providing cross-situationally consistent behavioral predictions, then we would expect the Stoic type 3, who communicates little, to score high, and the Deceptive type 4, who communicates much, to score low on the PRCS, SADS, and PRCA. In fact, the observed pattern of correlations is the exact reverse. This is not surprising considering that the explicit intent of these instruments is to measure the predisposition to communicate via "confidence," "anxiety," "distress," and "apprehension." If there were a perfect positive correlation between tendency to communicate and self-image, there might be a much stronger correlation between the three contemporary measurement instruments and actual behaviors. Of course, had this been the case, factor analysis would have indicated two and not four Q-types. But, since the correlation between tendency to communicate and self-image is not perfect and is not necessarily positive, we have observed the extraction of four Q-types and the confounding of internal predispositions to communicate and external communication behaviors.

At present, having only a limited data base from which to draw conclusions, speculations about psychological or situational counterparts for the factor solutions are in a state of flux. Further research will be necessary to establish and interpret stable factor structures. A methodological consideration which may also be serving to obscure the nature of the individual and situation factors was the use of Varimax (orthogonal) rotation in the generation of the factor solutions. Orthogonal rotation was the optimal choice in generating the factors used to test the interactional hypothesis, since this form of rotation maximized the amount of independent information used to predict variations in the dependent

measures, but may have distorted an underlying structure consisting of dimensions which are intercorrelated. The individual difference factor loadings used to make the interactional test tend to support the belief that oblique rotation would provide a more realistic solution. The factor loadings indicated a high degree or orthogonality, with an average cross-factor overlap of 11% shared variance. However, the actual data generated with reference to those factors, reported in Table 4, indicate that, in practice, individual responses tended to overlap by an average of about 47%. It is reasonable to expect that a good deal of further research will be necessary before questions concerning the individual and situational factor structures which emerged in this study can be answered with any degree of confidence.

Discussion

The single most overwhelming conclusion of this study is the bottom line: an individual-situational measurement approach was able to improve the cross-situational predictions of communication behavior from 7.9% for the best of the current instruments, to 50.4%. This was even more remarkable given the exploratory nature of this project.

The research implications of this study apply most generally to the broad range of scholarship which is based on the "general human response" model and the "cross-situational consistency" model of behavior. Communication behaviors seem, at least within the domain included in this study, to be the product of both individual and situational variables. To research one or the other set of variables exclusively would, therefore, seem to be a limited research strategy; the conclusions thus generated would very likely be limited to the individual types or the situational contexts which served as the data base for that research. This is not to suggest that detailed individual and situational research should be eschewed, but rather, that a program of initial research should be used to establish an interactional framework as a foundation for further study. Such a

framework would provide a perspective from which to better interpret and integrate research results.

More specifically, the results of this project have certain implications for future communication-bound anxiety scholarship. At the very least, this study suggests a new line of investigation into the problem. It has also suggested that researchers should be concerned about their choice of factor analytic techniques. Some rather strong evidence was produced to suggest that the inappropriate choice of Q- or R-methodology can result in some highly misleading conclusions--conclusions which are all the more misleading since they would appear on the surface to make sense. Research into communication-bound anxiety should also be concerned with situational as well as individual differences. Given the highly conservative decisions made with regard to statistical tests, and given the magnitude of improvement suggested by those test results, it is reasonable to believe that there is at least some merit in an interactional approach, and hence some justification for further work based on that approach.

The results of this study also have implications for the treatment of communication problems. Current treatments offered as a remedy for communication-bound anxiety, for example, involve a combination of techniques to be used for relaxation and desensitization, a selection of mind sets to be adopted during the act of communicating to minimize anxiety, and/or a course in the elements of public speaking to maximize the likelihood that the communicative experience will result in positive, rather than negative, reinforcement. Where this formula reflects current theory by assuming that fear is the controlling factor, the results obtained in this study would tend to indicate that self-image may be a more important factor in influencing actual behaviors. This being the case, fear might be more the product than the cause of a poor self-image. If this is true, then treatment should be directed toward altering self-perceptions instead of dealing with fear per se. Individuals with such problems, by shifting their

focus from a self-awareness of their anxiety to a contemplation of their self-image, might do more to remove the cause of their problems then by concentrating on the symptoms.

The pedagogical implications of this study will be largely conditional on future research. The primary value for educators and those researching education lie in the opening of new lines of speculation and investigation. In general, though, teachers should be aware that their students are more complex phenomena then they might have believed. The four Q-types generated in this study support what common experience has already indicated, that the quiet student is not always the weakest communicator, and that the best communicator is not always the most confident student. The importance of the situation in predicting behaviors suggests that Q-types will interact differentially across a range of contexts and tasks, and that the pedagogue may be in a position to manipulate situational variables to facilitate learning (cf. Shaw, 1981).

Another issue which has been of considerable theoretical interest involves the ability of individual difference instruments to measure traits independent of state influences. Current measures of communication-bound anxiety have been criticized since they are conceptualized as trait measures, but have been shown to be heavily influences by state factors (e.g., Beatty, Behnke, & McCallum, 1978). The IDM, however, which is generated by the use of an ipsative, progressive selection technique will tend to reflect less variation in individual factor scores due to state fluctuation than will current measures which are generated by the use of what Hicks (1970) calls "absolute" data collection techniques. In the case of true-false or Likert-type measures, the variation in the individual state may systematically effect the subject responses. In the case of an ipsative measure, however, item responses are generated with reference to one another. This will tend to minimize score variation caused by state differences. If, for example, we were rating food preferences, using hunger level as a state variable, we might

expect individual score fluctuations. If we asked, "How much do you like bread?" or "How much do you like cake?," we might expect a hungry person to score higher than a person who was satiated. If we used an ipsative measure to ask the same questions, we might expect much less variation; a hungry person wants both, but prefers cake, the same person when satiated wants neither, but still prefers cake. We might still expect some systematic fluctuation in rank ordering with state, but the general level of state related variation would be reduced.

Given the results of this study, one major direction for future research might be the identification of stable Q- and R-factor solutions for use in the development of general individual and situational research instruments. The two instruments reported here should not be used uncritically in other research since these instruments were developed from a relatively small and homogeneous subject pool. While this pool was more than large enough to test the hypothesis under investigation, it was woefully inadequate as a foundation to make general inferences to other populations. Also, given the results of this study, it should be possible to generate a better item base for factor analysis than was possible here; this study has provided a better idea of what to include. A large-scale instrument development project will be prerequisite to systematic research along these lines.

Alan Cirlin
Indiana University Northwest
November 1985

	Type 1 (Outgoing)	Type 2 (Timorous)	Type 3 (Stoic)
Type 1 (Outgoing)	1.00	0.53 (28%)	0.36 (13%)
Type 2 (Timorous)		1.00	0.50 (25%)
Type 3 (Stoic)			1.00

Table 1 - Correlations among Q-types

	Threat	Reward	Pressure	Intimacy	Formality
Occupational	1.66	2.40	1.89	1.69	2.73
Political	2.28	2.40	2.69	1.60	3.14
Performance	2.66	3.39	3.20	2.09	3.25
Social	1.73	2.82	1.82	2.46	2.17

Table 2 - Situation-Dimension weights

(Scale: 1-5. A higher number = greater perception of threat, reward, etc.)

	Daly, 1978	Cirlin, 1985
SADS $\bar{X}$	36.95	6.70
SD	6.16	5.82
PRCA $\bar{X}$	76.15	74.47
SD	14.13	19.14
PRCS $\bar{X}$	14.82	15.14
SD	7.35	7.49
PRCS·SADS	.54	.46
PRCS·PRCA	.88	.85
SADS·PRCA	.63	.57

Table 3 - Comparative Statistics

Individual Difference Item	Typal Z's Q1	Q2	Q3	Q4
1. I am bashful with most strangers.	-1.4	0.4	0.2	0.0
2. My feelings are easily hurt.	0.0	0.2	-1.2	1.9
3. I'm the type of person who would strike up a conversation with a total stranger.	1.4	-0.5	0.2	0.2
4. I raise my hand in class when I know the answer.	1.1	0.1	1.1	-0.8
5. I worry about making mistakes when speaking.	0.3	1.5	-0.2	1.4
6. I avoid expressing my feelings and opinions in most conversations.	-1.3	0.1	-0.1	-0.4
7. I dislike using my voice or body expressively.	-0.8	0.5	-0.6	0.0
8. I enjoy talking.	1.9	0.3	0.9	0.2
9. Shyness is a desirable trait.	-0.9	-1.2	-0.5	-1.7
10. I'm a good public speaker.	0.0	-1.9	0.6	-1.5
11. I feel embarrassed when asked to perform in front of people.	-0.1	1.4	-0.3	0.4
12. I'm basically very outgoing.	1.9	-0.6	-0.5	0.8
13. I have trouble thinking of things to say.	-0.5	0.9	0.2	1.2
14. I'm a silent type.	-1.6	0.1	1.2	-1.7
15. I would rather take more tests and give fewer speeches in rhetoric.	-0.4	0.9	-0.8	-0.0
16. I usually feel tense and nervous when meeting someone for the first time.	-0.5	0.4	0.0	-0.3
17. I'm not as smart or as capable as most other people.	-1.7	-1.7	-2.6	1.5
18. I enjoy speaking in public.	0.4	-2.0	0.4	-1.7
19. I talk less because I am shy.	-1.2	0.3	0.5	-0.6
20. I'm afraid that other people will laugh at me when I perform in public.	-0.5	0.6	-1.3	0.5
21. I find it hard to concentrate before giving a speech.	0.3	0.7	0.1	-0.0
22. I often worry about what other people are thinking about me.	0.0	1.7	-1.0	2.0
23. I talk too much.	0.0	-1.0	-1.5	-1.0
24. I tend to make mistakes when other people watch me perform.	0.0	0.9	-0.7	0.6
25. I enjoy participating in group discussions.	1.5	-0.2	1.4	0.0
26. If given a chance I would be a good leader.	1.3	-0.3	1.9	-0.3
27. I like to "show off" once in awhile.	0.8	0.4	1.4	-0.3
28. I don't feel nervous while speaking.	-0.3	-1.8	1.0	-0.4

	Type 1 (Outgoing)	Type 2 (Timorous)	Type 3 (Stoic)	Type 4 (Deceptive)
Type 1 (Outgoing)	1.00	-0.76 (59%)	0.55 (30%)	-0.50 (25%)
Type 2 (Timorous)		1.00	-0.66 (44%)	0.76 (59%)
Type 3 (Stoic)			1.00	-0.82 (67%)
Type 4 (Deceptive)				1.00

Table 4 - Final Q-types

(Typal Z-scores and correlations among types)

	Dependent Situation								
	1	2	3	4	5	6	7	8	9
0	16	4	4	28	60	1	2	9	9
1	27	6	9	60	21	3	4	10	21
2	29	28	22	15	17	9	1	7	15
3	18	43	21	9	16	17	6	4	12
4	17	27	45	3	1	42	2	2	12
5	9	8	15	1	1	22	3	9	10
6	-	-	-	0	-	22	1	0	2
7-9	-	-	-	-	-	-	1	5	10
10-14	-	-	-	-	-	-	13	8	14
15-24	-	-	-	-	-	-	19	20	8
25-39	-	-	-	-	-	-	16	20	3
40-59	-	-	-	-	-	-	18	13	0
60-84	-	-	-	-	-	-	13	3	0
85-124	-	-	-	-	-	-	15	3	0
125-500	-	-	-	-	-	-	3	3	0
Total	116	116	116	116	116	116	116	116	116

Table 5 - Raw frequency distribution data

	Dependent Situation								
	1	2	3	4	5	6	7	8	9
0	16	4	4	28	60	4	18	19	9
1	27	6	9	60	21	9	14	13	21
2	29	28	22	15	17	17	19	22	27
3	18	43	21	9	16	42	22	20	12
4	17	27	45	3	1	22	22	20	22
5	9	8	15	1	1	22	21	22	25
Total	116	116	116	116	116	116	116	116	116

Table 6 - Adjusted frequency distribution data

(1 = Class Discussion, 2 = Class Speech, 3 = Occupational, 4 = Political, 5 = Performance, 6 = Social, 7 = Number of Parties, 8 = Number of Dance Partners, 9 = Number of Dates.)

		PRCS	SADS	PRCA	IDM
Dependent Situation	1	.39 (15%)	.22 (5%)	.41 (18%)	.52 (27%)**
	2	.26 (7%)	.17 (3%)	.31 (10%)	.39 (15%)**
	3	.01 (0%)	.20 (4%)	.11 (1%)	.32 (10%)**
	4	.22 (5%)	.24 (6%)	.34 (12%)	.37 (14%)*
	5	.34 (12%)	.00 (0%)	.33 (11%)	.34 (12%)
	6	.20 (4%)	.22 (5%)	.29 (8%)	.39 (15%)**
	7	.01 (0%)	.18 (3%)	.03 (0%)	.19 (4%)
	8	.22 (5%)	.28 (8%)	.26 (7%)	.27 (8%)
	9	.08 (1%)	.20 (4%)	.16 (3%)	.26 (7%)*

* Best predictor by 2-5% ** Best predictor by over 5%

Table 7 - Comparative prediction coefficients

(1 = Class Discussion, 2 = Class Speech, 3 = Occupational, 4 = Political, 5 = Performance, 6 = Social, 7 = Number of Parties, 8 = Number of Dance Partners, 9 = Number of Dates.)

Variable	Multiple R	R^2	R^2 Change
Timorous-Pressure	0.66109	0.43704	0.43704
Deceptive-Reward	0.67568	0.45654	0.01950
Timorous-Formal	0.68323	0.46681	0.01027
Outgoing-Intimate	0.69445	0.48226	0.01545
Stoic-Formal	0.69850	0.48791	0.00565
Outgoing-Pressure	0.69952	0.48932	0.00142
Outgoing-Formal	0.70120	0.49168	0.00236
Stoic-Threat	0.70666	0.49937	0.00768
Deceptive-Intimate	0.70908	0.50279	0.00342
Stoic-Intimate	0.70918	0.50294	0.00015
Outgoing-Reward	0.70926	0.50305	0.00011
Deceptive-Formal	0.70936	0.50318	0.00013
Timorous-Reward	0.70968	0.50364	0.00045

Table 9 - Stepwise multiple regression summary

Correlation	Pearson r	Significance
Criterion·Outgoing-Threat	-.502 (25%)	p<.001
Criterion·Timorous-Threat	-.652 (42%)	p<.001
Criterion·Stoic-Threat	-.557 (31%)	p<.001
Criterion·Deceptive-Threat	-.637 (41%)	p<.001
Criterion·Outgoing-Formal	-.410 (17%)	p<.001
Criterion·Timorous-Formal	-.589 (35%)	p<.001
Criterion·Stoic-Formal	-.482 (23%)	p<.001
Criterion·Deceptive-Formal	-.574 (33%)	p<.001
Criterion·Outgoing-Pressure	-.536 (29%)	p<.001
Criterion·Timorous-Pressure	-.661 (44%)	p<.001
Criterion·Stoic-Pressure	-.580 (34%)	p<.001
Criterion·Deceptive-Pressure	-.646 (42%)	p<.001
Criterion·Outgoing-Reward	-.134 (2%)	p<.005
Criterion·Timorous-Reward	-.327 (11%)	p<.001
Criterion·Stoic-Reward	-.190 (4%)	p<.001
Criterion·Deceptive-Reward	-.294 (9%)	p<.001
Criterion·Outgoing-Intimate	.268 (7%)	p<.001
Criterion·Timorous-Intimate	.088 (1%)	p<.1
Criterion·Stoic-Intimate	.236 (6%)	p<.001
Criterion·Deceptive-Intimate	.141 (2%)	p<.005

Table 8 - Individual prediction coefficients
(df = 1, 462.)

Appendix A: Initial individual difference items

1. I am bashful with most strangers.
2. My feelings are easily hurt.
3. I'm the type of person who would strike up a conversation with a total stranger.
4. I'm very sensitive to the feelings of other people.
5. I find it hard to talk about myself.
6. I raise my hand in class when I know the answer.
7. I worry about making mistakes when speaking.
8. I avoid expressing my feelings and opinions in most conversations.
9. I dislike using my voice or body expressively.
10. I enjoy talking.
11. Shyness is a desirable trait.
12. My friends seek my opinions and advice.
13. I enjoy being with people.
14. I'm a good public speaker.
15. I feel embarrassed when asked to perform in front of people.
16. I'm basically very outgoing.
17. I dislike dealing with other people.
18. I'm afraid of other people.
19. I have trouble thinking of things to say.
20. I'm a silent type.
21. I'm very popular.
22. I would rather take more tests and give fewer speeches in rhetoric.
23. I can feel my heart pound when I speak in class.
24. I usually feel tense and nervous when meeting someone for the first time.
25. I prefer to do things what do not require other people.
26. I perspire a lot when giving a speech.
27. I'm not as smart or as capable as most other people.
28. I enjoy speaking in public.
29. I talk less because I am shy.
30. Other people generally don't listen to me.
31. I'm afraid that other people will laugh at me when I perform in public.
32. I am usually at ease when talking to someone of the opposite sex.
33. I find it hard to concentrate before giving a speech.
34. I often worry about what other people are thinking about me.
35. I talk too much.
36. I seek the advice and opinions of my friends.

37. I have strong opinions.
38. I feel nervous when other poeple look at work that I have done.
39. I strongly dislike being evaluated or graded.
40. I think about myself a lot.
41. I enjoy dating.
42. I think that other people are generally honest with me.
43. I try to avoid other people unless I know them well.
44. I tend to make mistakes when other poeple watch me.
45. I enjoy participating in group discussions.
46. I have physical problems when trying to give public speeches.
47. If given a chance I would be a good leader.
48. I am a good student.
49. I like to "show off" once in awhile.
50. I don't feel nervous while speaking.
51. Successful people are generally very outgoing.

Appendix B: Q-sort questionnaire

DIRECTIONS:

1) PLEASE READ EACH STATEMENT AND CIRCLE THE LETTER "A" IN THE FIRST COLUMN IF YOU AGREE WITH THAT STATEMENT. YOU SHOULD CIRCLE THE "A" FOR EVERY STATEMENT YOU AGREE WITH. WHEN YOU ARE THROUGH YOU WILL HAVE INDICATED ALL THE STATEMENTS YOU AGREE WITH IN THE COLUMN MARKED "ALL."

2) OF THE STATEMENTS YOU HAVE INDICATED, SELECT THE 10 (TEN) YOU MOST STRONGLY AGREE WITH AND MARK THESE IN THE COLUMN MARKED "10." IF YOU HAVE FEWER THAN 10 STATEMENTS, INCLUDE THOSE THAT YOU HAVE THE LEAST DISAGREEMENT WITH TO BRING THE NUMBER UP TO 10.

3) OF THE 10 STATEMENTS YOU HAVE INDICATED SELECT THE 7 (SEVEN) YOU MOST STRONGLY AGREE WITH AND MARK THESE IN THE COLUMN MARKED "7."

4) INDICATE THE 4 (FOUR) STATEMENTS IN COLUMN "4" AND THE 2 (TWO) STATEMENTS IN COLUMN "2" THAT YOU MOST STRONGLY AGREE WITH.

5) REPEAT THIS PROCEDURE FOR THOSE STATEMENTS YOU DISAGREE WITH ON THE FOLLOWING PAGE. FIRST INDICATE ALL THOSE STATEMENTS YOU DISAGREE WITH AND THEN INDICATE THE 10, 7, 4 AND 2 STATEMENTS YOU DISAGREE WITH MOST STRONGLY.

NOTE: BE SURE TO INDICATE THE EXACT NUMBER OF STATEMENTS ASKED FOR IN EACH COLUMN.

NOTE: BE SURE THAT YOUR FINAL 2 STATEMENTS ARE ALSO INCLUDED IN THE PREVIOUS 4, THAT THESE 4 APPEAR IN THE PREVIOUS 7, AND THAT THESE 7 APPEAR IN THE PREVIOUS 10.

PLEASE TURN TO THE NEXT PAGE AND BEGIN. THANK YOU.

EXAMPLE:

		ALL	10	7	4	2
1)	STATEMENT	A	A	A	A	A
2)	STATEMENT	(A)	A	A	A	A
3)	STATEMENT	(A)	(A)	(A)	(A)	A
4)	STATEMENT	A	A	A	A	A
5)	STATEMENT	A	A	A	A	A
6)	STATEMENT	A	A	A	A	A
7)	STATEMENT	(A)	(A)	A	A	A
8)	STATEMENT	(A)	(A)	(A)	A	A
9)	STATEMENT	A	A	A	A	A
10)	STATEMENT	A	A	A	A	A
11)	STATEMENT	(A)	(A)	A	A	A
12)	STATEMENT	A	A	A	A	A
13)	STATEMENT	A	A	A	A	A
14)	STATEMENT	(A)	A	A	A	A
15)	STATEMENT	A	A	A	A	A
16)	STATEMENT	(A)	(A)	(A)	(A)	(A)
17)	STATEMENT	(A)	(A)	(A)	(A)	A
18)	STATEMENT	(A)	(A)	A	A	A
19)	STATEMENT	A	A	A	A	A
20)	STATEMENT	(A)	A	A	A	A
21)	STATEMENT	A	A	A	A	A
22)	STATEMENT	A	A	A	A	A
23)	STATEMENT	(A)	(A)	(A)	A	A
24)	STATEMENT	A	A	A	A	A
25)	STATEMENT	A	A	A	A	A
26)	STATEMENT	(A)	(A)	(A)	(A)	(A)
27)	STATEMENT	(A)	(A)	(A)	A	A
28)	STATEMENT	A	A	A	A	A
		ALL	10	7	4	2

	ALL	10	7	4	2
1) I AM BASHFUL WITH MOST STRANGERS.	A	A	A	A	A
2) MY FEELINGS ARE EASILY HURT.	A	A	A	A	A
3) I'M THE TYPE OF PERSON WHO WOULD STRIKE UP A CONVERSATION WITH A TOTAL STRANGER.	A	A	A	A	A
4) I RAISE MY HAND IN CLASS WHEN I KNOW THE ANSWER.	A	A	A	A	A
5) I WORRY ABOUT MAKING MISTAKES WHEN SPEAKING.	A	A	A	A	A
6) I AVOID EXPRESSING MY FEELINGS AND OPINIONS IN MOST CONVERSATIONS.	A	A	A	A	A
7) I DISLIKE USING MY VOICE OR BODY EXPRESSIVELY.	A	A	A	A	A
8) I ENJOY TALKING.	A	A	A	A	A
9) SHYNESS IS A DESIRABLE TRAIT.	A	A	A	A	A
10) I'M A GOOD PUBLIC SPEAKER.	A	A	A	A	A
11) I FEEL EMBARRASSED WHEN ASKED TO SPEAK IN FRONT OF OTHER PEOPLE.	A	A	A	A	A
12) I AM BASICALLY VERY OUTGOING.	A	A	A	A	A
13) I HAVE TROUBLE THINKING OF THINGS TO SAY.	A	A	A	A	A
14) I'M A SILENT TYPE.	A	A	A	A	A
15) I WOULD RATHER TAKE MORE TESTS AND GIVE FEWER SPEECHES IN RHETORIC.	A	A	A	A	A
16) I USUALLY FEEL TENSE AND NERVOUS WHEN MEETING SOMEONE FOR THE FIRST TIME.	A	A	A	A	A
17) I'M NOT AS SMART OR AS CAPABLE AS MOST OTHER PEOPLE.	A	A	A	A	A
18) I ENJOY SPEAKING IN PUBLIC.	A	A	A	A	A
19) I TALK LESS BECAUSE I'M SHY.	A	A	A	A	A
20) I'M AFRAID THAT OTHER PEOPLE WILL LAUGH AT ME WHEN I PERFORM IN PUBLIC.	A	A	A	A	A
21) I FIND IT HARD TO CONCENTRATE BEFORE GIVING A SPEECH.	A	A	A	A	A
22) I OFTEN WORRY WHAT OTHER PEOPLE ARE THINKING ABOUT ME.	A	A	A	A	A
23) I TALK TOO MUCH.	A	A	A	A	A
24) I TEND TO MAKE MISTAKES WHEN OTHER PEOPLE WATCH ME PERFORM.	A	A	A	A	A
25) I ENJOY PARTICIPATING IN GROUP DISCUSIONS.	A	A	A	A	A
26) IF GIVEN A CHANCE I WOULD BE A GOOD LEADER.	A	A	A	A	A
27) I LIKE TO "SHOW OFF" ONCE IN AWHILE.	A	A	A	A	A
28) I DON'T FEEL NERVOUS WHILE SPEAKING.	A	A	A	A	A
	ALL	10	7	4	2

	ALL	10	7	4	2
1) I AM BASHFUL WITH MOST STRANGERS.	D	D	D	D	D
2) MY FEELINGS ARE EASILY HURT.	D	D	D	D	D
3) I'M THE TYPE OF PERSON WHO WOULD STRIKE UP A CONVERSATION WITH A TOTAL STRANGER.	D	D	D	D	D
4) I RAISE MY HAND IN CLASS WHEN I KNOW THE ANSWER.	D	D	D	D	D
5) I WORRY ABOUT MAKING MISTAKES WHEN SPEAKING.	D	D	D	D	D
6) I AVOID EXPRESSING MY FEELINGS AND OPINIONS IN MOST CONVERSATIONS.	D	D	D	D	D
7) I DISLIKE USING MY VOICE OR BODY EXPRESSIVELY.	D	D	D	D	D
8) I ENJOY TALKING.	D	D	D	D	D
9) SHYNESS IS A DESIRABLE TRAIT.	D	D	D	D	D
10) I'M A GOOD PUBLIC SPEAKER.	D	D	D	D	D
11) I FEEL EMBARRASSED WHEN ASKED TO SPEAK IN FRONT OF OTHER PEOPLE.	D	D	D	D	D
12) I AM BASICALLY VERY OUTGOING.	D	D	D	D	D
13) I HAVE TROUBLE THINKING OF THINGS TO SAY.	D	D	D	D	D
14) I'M A SILENT TYPE.	D	D	D	D	D
15) I WOULD RATHER TAKE MORE TESTS AND GIVE FEWER SPEECHES IN RHETORIC.	D	D	D	D	D
16) I USUALLY FEEL TENSE AND NERVOUS WHEN MEETING SOMEONE FOR THE FIRST TIME.	D	D	D	D	D
17) I'M NOT AS SMART OR AS CAPABLE AS MOST OTHER PEOPLE.	D	D	D	D	D
18) I ENJOY SPEAKING IN PUBLIC.	D	D	D	D	D
19) I TALK LESS BECAUSE I'M SHY.	D	D	D	D	D
20) I'M AFRAID THAT OTHER PEOPLE WILL LAUGH AT ME WHEN I PERFORM IN PUBLIC.	D	D	D	D	D
21) I FIND IT HARD TO CONCENTRATE BEFORE GIVING A SPEECH.	D	D	D	D	D
22) I OFTEN WORRY WHAT OTHER PEOPLE ARE THINKING ABOUT ME.	D	D	D	D	D
23) I TALK TOO MUCH.	D	D	D	D	D
24) I TEND TO MAKE MISTAKES WHEN OTHER PEOPLE WATCH ME PERFORM.	D	D	D	D	D
25) I ENJOY PARTICIPATING IN GROUP DISCUSIONS.	D	D	D	D	D
26) IF GIVEN A CHANCE I WOULD BE A GOOD LEADER.	D	D	D	D	D
27) I LIKE TO "SHOW OFF" ONCE IN AWHILE.	D	D	D	D	D
28) I DON'T FEEL NERVOUS WHILE SPEAKING.	D	D	D	D	D
	ALL	10	7	4	2

Appendix C: Initial situational difference items

1. Watching a movie at home.
2. Giving a speech on a complex subject you are unfamiliar with.
3. Talking to a male.
4. Listening to a rhetoric class discussion.
5. Receiving an award in public.
6. Discussing a problem with a close friend.
7. Talking to a waitress.
8. Answering a question in class.
9. Watching a play.
10. Talking to a college professor.
11. Giving a speech to a large audience.
12. Talking to an old person.
13. Giving a speech in your rhetoric class.
14. Asking a question in class.
15. Giving a speech to an auditorium full of Rhetoric T.A.'s.*
16. Giving a speech to a small group.
17. Giving a speech to your rhetoric T.A.*
18. Watching a movie in a theatre.
19. Arguing in front of an audience at a political debate.
20. Talking to a policeman.
21. Giving a presentation on television.
22. Taking an oral examination.
23. Being alone with a first date at the end of the evening.
24. Giving a presentation over the radio.
25. Giving an ungraded speech in your rhetoric class.
26. Giving a public performance as part of an orchestra or chior.
27. Discussing an intimate problem with someone you have dated for a long time.
28. Speaking during a rhetoric class discussion.
29. Listening to a close friend discuss a problem.
30. Being called on in class to answer a question you know the answer to.
31. Giving a final rhetoric class speech worth one third of you class grade.
32. Talking to a child
33. Meeting someone for the first time.
34. Asking a stranger for directions.
35. Going out on a blind date.
36. Teaching an elementary school class.

37. Being called on to give an opinion in class.
38. Giving a speech on a simple subject you know well.
39. Talking to a female.
40. Doing door-to-door sales.
41. Being asked to give a speech in public without a chance to prepare.
42. Doing telephone sales.
43. Giving a speech to a sorority house.
44. Listening to speeches while awaiting your turn to speak.
45. Explaining your career goals to an assistant dean who is much younger than you.
46. Performing a major role in a play.
47. Discussing an intimate problem with someone on a first date.
48. Being called on in class to explain something you forgot to read.
49. Taking part in a group discussion with a group of 12-14 year old, child-genius, college seniors.
50. Listening to a class lecture.
51. Giving a speech to a faculty committee.
52. Asking a classmate of the opposite sex if they want to get together to study.
53. Telling a story or a joke to friends.
54. Getting involved in a conversation with an old man who collects your garbage.
55. Being interviewed for a job.
56. Babysitting the children of a rich neighbor.
57. While vising a high school extension course for adults you are asked to describe what college is like.
58. Listening to speeches after you have already spoken.
59. Giving a speech in a fraternity house.
60. Giving a speech to a group of retarded older people.

* T.A. = Teaching Assistant

Appendix D: Situational difference measurement instrument

Please imagine yourself in the following situations and rate each according to how threatened you would feel. (1) = not threatened at all, (2) = slightly threatened, (3) = moderately threatened, (4) = very threatened, and (5) = extremely threatened.

_____ 1. Talking to a stranger on the phone at work.

_____ 2. Talking to a stranger in person at work.

_____ 3. Giving oral presentations at work.

_____ 4. Contacting strangers as part of your work.

_____ 5. Talking to coworkers at work.

_____ 6. Circulating a petition.

_____ 7. Running for an elected position.

_____ 8. Arguing about a political issue.

_____ 9. Contacting strangers by phone as part of a political campaign.

_____ 10. Contacting strangers in person as part of a political campaign.

_____ 11. Giving public political speeches.

_____ 12. Performing with a musical group.

_____ 13. Performing solo with a musical group.

_____ 14. Participating in a public debate.

_____ 15. Competing in a high school or college speech tournament.

_____ 16. Performing a part in a movie, play, or reader's theatre.

_____ 17. Starting a conversation with a total stranger.

_____ 18. Complaining to an employee or manager about the poor quality of their service or product.

_____ 19. Complimenting an emplouee or manager on the high quality of their service or product.

_____ 20. Asking a total stranger for the time.

_____ 21. Asking a total stranger for directions.

_____ 22. Being involved in a conversation in which you are talking a lot about your personal problems.

_____ 23. Going to a party.

_____ 24. Dancing with a new partner.

_____ 25. Going out on a first date.

Appendix E: Dependent measures

Teacher Instrument

The following questionnaire is part of the project involving your students. Your responses will be kept strictly confidential. As soon as the pages are properly tagged, the students' names will be cut off and only the rating and codes will be retained. Please think about your ratings between now and the end of the semester and return them during finals week. If you have any questions, feel free to ask. Thank you again for taking part in this study.

Please rate each of the following students according to how often and how long they generally speak during class discussions:

1 = Contribute much more than average
2 = Contribute more than average
3 = Contribute slightly more than average
4 = Contribute slightly less than average
5 = Contribute less than average
6 = Contribute much less than average
DROP = If the student is no longer in your class

Name:	Rating:	Code:
_____	_____	_____
_____	_____	_____
_____	_____	_____

etc.

Please rate each of the following students according to how long they generally speak in response to assigned class speeches:

1 = Much shorter than average or never
2 = Shorter than average
3 = Slightly shorter than average
4 = Slightly longer than average
5 = longer than average
6 = Much longer than average
DROP = If the student is no longer in your class

Name:	Rating:	Code:
_____	_____	_____
_____	_____	_____
_____	_____	_____

etc.

Student Instrument

Name_____ Code_____

The following questionnaire is concerned with your occupational, political, performance and social activities during the past year. Please think back over the last 12 months when answering. If you have any questions, please ask. The answers to this questionnaire are completely confidential, this cover sheet will be removed and destroyed as soon as the questionnaire is matched up with the form you filled out earlier this semester. Thank you.

I. Occupational Activity:

Think about the last job you held. Which of the following activities were you required to perform as part of that job:

1. Talking to strangers on the phone? . . . . . Yes____ No____
2. Talking to strangers in person? . . . . . Yes____ No____
3. Giving oral presentations? . . . . . Yes____ No____
4. Contacting strangers? . . . . . Yes____ No____
5. Talking to coworkers? . . . . . Yes____ No____

II. Political Activity:

During the past year, which of the following political activities have you engaged in:

1. Circulated a petition? . . . . . Yes____ No____
2. Run for an elected position? . . . . . Yes____ No____
3. Argued about a political issue? . . . . . Yes____ No____
4. Contacted strangers by phone as part of a political campaign? . . . . . Yes____ No____
5. Contacted strangers in person as part of a political campaign? . . . . . Yes____ No____
6. Given public political speeches? . . . . . Yes____ No____

III. Public Performance:

During the past year, which of the following activities have you engaged in:

1. Performed with a musical group? . . . . . Yes____ No____
2. Performed solo with a musical group? . . . . . Yes____ No____
3. Participated in a public debate? . . . . . Yes____ No____
4. Done individual forensics events? . . . . . Yes____ No____
5. Performed a part in a movie, play, or reader's theatre? . . . . . Yes____ No____

IV. Social Activity:

During the past month, have you:

1. Starter a conversation with a total stranger? . . Yes____ No____
2. Complained to an employee or manager about the poor quality of their service or product? . . . Yes____ No____
3. Complimented an employee or manager on the high quality of their service or product? . . . Yes____ No____
4. Asked a total stranger for the time? . . . . . Yes____ No____
5. Asked a total stranger for directions? . . . . . Yes____ No__
6. Gotten involved in a conversation in which you talked a lot about your personal problems? . . Yes____ No__

NOTES

1. This study was completed before the development of the PRCA-24 (McCroskey, 1982).

2. As a follow-up procedure the individual difference data was R-factor analyzed. A forced three-factor solution could be interpreted to approximately parallel the factors reported by both Siebold and McPhee (1980) and Friedrich (1970). These results were also largely consistent with those reported by McCroskey (1970) when reporting the development of the PRCA; that is, the solution reflected a single major factor and considerably smaller secondary factors. A major difference in the results obtained here is that the secondary R-factors which emerged in this study were large enough to be considered of theoretical interest. This was probably because of the choice of test items, which were generated from a broader construct and also because the forced-distribution Q-sort procedure tends to maximize the difference among individual scores (Stephenson, 1953). There did not seem to be an obvious relationship between the Q and the R solutions, which supports the methodological arguments of both Stephenson (1953) and Kerlinger (1973).

3. In this case common perceptions and not individual differences were being analyzed, thus R-factor analysis was more appropriate than Q-factor analysis as a statistical procedure.

4. Pragmatically, while the individual difference assessment instrument could be developed independently of any considerations involving the final study, the situational difference instrument had to be developed with reference to the final regression problem. The comparative analysis would involve the prediction of a set of cross-situational communication behaviors by reference to the interaction of individual and situational measurement data. This meant that data had to be obtained on each subject and each situation involved in the final study. The subjects in that study provided data about themselves

when they completed the individual difference instrument. But the situations involved in the final regression problem were being rated by an independent group. For this reason, the situations used in the final study had to be specified before the situational difference questionnaire could be developed.

REFERENCES

Ad Hoc Committee on Evaluation of the Speech Association of America. Research notes. Spectra, 1969, 5(7), 3-4.

Allport, G. W. Personality: a psychological interpretation. New York: Holt, Reinhart and Winston, 1937.

Beatty, M. J., Behnke, R. R., & McCallum, K. Situational determinants of communication apprehension. Communication Monographs, 1978, 45, 187-191.

Burgoon, J. The unwillingness-to-communicate scale: Development and validation. Communication Monographs, 1976, 43, 60-69.

Christensen, A., & Arkowitz, H. Preliminary report on practice dating and feedback as treatment for college dating problems. Journal of Counseling Psychology, 1974, 21, 92-95.

Cirlin, A. An interactional approach to communication-bound anxiety and the cross-situational hypothesis (Doctoral dissertation, University of Iowa, 1981). Dissertation Abstracts International, 1981, 42/05A, 1848.

Cohen, J. Statistical power analysis for the behavioral sciences. New York: Academic Press, 1969.

Daly, J. A. The assessment of social-communication anxiety via self-reports: a comparison of measures. Communication Monographs, 1978, 45, 204-218.

Farber, I. E. A framework for the study of personality as a behavioral science. In Personality and personality change, Worchel, P., & Byrne, D. (eds.). New York: John Wiley and Sons, 1964, pp. 3-37.

Friedrick, G. W. An empirical explication of a concept of self-reported speech anxiety. Speech Monographs, 1970, 37, 67-72.

Gilkinson, H. Social fears as reported by students in college speech classes. Speech Monographs, 1942, 9, 141-160.

Hewes, D., & Haight, L. The cross-situational consistency of communicative behaviors: A preliminary investigation. Communication Research, 1979, 6, 243-270.

Hewes, D., & Haight, L. Multiple acts criteria in the validation of communication traits: What do we gain and what do we lose? Human Communication Research, 1980, 6, 352-366.

Hicks, L. Some properties of ipsative, normative, and forced-choice normative measures. Psychological Bulletin, 1970, 74, 167-184.

Hunt, J. M. Traditional personality theory in the light of recent evidence. American Scientist, 1965, 53, 80-96.

Jaccard, J., & Daly, J. A. Personaltiy traits and multiple-acts criteria. Human Communication Research, 1980, 6, 367-377.

Kerlinger, F. Foundations of behavioral research (2nd ed.). New York: Holt, Reinhart and Winston, 1973.

McCroskey, J. C. Measures of communication-bound anxiety. Speech Monographs, 1970, 37, 269-277.

McCroskey, J. C. Oral communication apprehension: A summary of recent theory and research. Human Communication Research, 1977, 4, 78-96.

McCroskey, J. C. Validity of the PRCA as an index of oral communication apprehension. Communication Monographs, 1978, 45, 192-203.

McCroskey, J. C. An introduction to rhetorical communication (4th ed.). New Jersey: Englewood Cliffs, 1982.

McCroskey, J. C., & Sheahan, M. E. Communication apprehension, social preference, and social behavior. Communication Quarterly, 1978, 26, 41-45.

Melnick, J. Comparison replication techniques in the modivication of minimal dating. Journal of Abnormal psychology, 1973, 81, 51-59.

Mischel, W. Personality and assessment. New York: Wiley, 1968.

Parks, M. R. A test of the cross-situational consistency of communication apprehension. Communication Monographs, 1980, 47, 220-232.

Parks, M. R., Dindia, K., Adams, J., Berlin, E., & Larson, K. Communication Quarterly, 1980, 28, 3-9.

Phillips, G. Rhetoritherapy versus the medical model: Dealing with reticence. Communication Education, 1977, 26, 34-43.

Siebold, D. R. , & McPhee, R. D. A new analysis of Daly's assessment of social-communicative anxiety via self-reports: A comparison of measures. Communicatiion Monographs, 1980, 47, 149-152.

Shaw, M. E. Group dynamics: The psychology of small group behavior (3rd ed.). New York: McGraw-Hill, 1981.

Stephenson, W. The study of behavior: Q-technique and its methodology. Illinois: University of Chicago Press, 1953.

Twentyman, C. T., & McFall, R. M. Behavioral training of social skills in shy males. Journal of Consulting and Clinical Psychology, 1975, 43, 384-395.

Watson, D., & Friend, R. Measurement of social-evaluative anxiety. Journal of Clinical Psychology, 1969, 33, 448-457.

Zimbardo, P. Shyness. Massachusetts: Addison-Wesley, 1977.