

COMMUNICATION APPREHENSION OF ELEMENTARY AND SECONDARY STUDENTS AND TEACHERS

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Over the past decade, a substantial amount of research literature has developed concerning oral communication apprehension (CA). Most of the empirical work in this area has focused on the correlates, effects, and treatments for CA.¹ However, causal explanations for the development of CA have received much less attention.

The most commonly employed theoretical explanation of CA development has been framed within a reinforcement paradigm.² As McCroskey has suggested, "If a child is reinforced for being silent and is not reinforced for communicating, the probable result is a quiet child. In addition, if the child not only is not reinforced for communicating but often experiences some aversive experience (parent shouting, big brother hitting) when attempting to communicate, the quiet child result is even

more probable."³ Evidence from case study analyses,⁴ research on CA treatment,⁵ and research on social anxiety⁶ has clearly supported such a reinforcement explanation.

No other potentially causal mechanism in the development of CA has received more than limited empirical validation, although potential hereditary influence on CA development has received some attention. After reviewing the literature on infant sociability, social apprehension, and physical attractiveness, Daly concluded that genetic factors may influence the development of CA.⁷ In extending this possible relationship, Andersen and Singleton found body type (which is primarily genetically determined) to predict CA in women.⁸ While hereditary factors must be considered a possible contributing element in CA development, even ardent proponents of social biology stress the

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¹ For a summary of this research, see James C. McCroskey, "Oral Communication Apprehension: A Summary of Recent Theory and Research," *Human Communication Research*, 4 (Fall 1977), 78-96.

² See, for example, William K. Ickes, "A Classical Conditioning Model for 'Reticence,'" *Western Speech*, 35 (Winter 1971), 48-55; John A. Daly and Gustav W. Friedrich, "The Development of Communication Apprehension: A Retrospective Analysis of Some Contributory Correlates," Paper presented at the annual SCA convention, Minneapolis, 1978; and McCroskey.

³ McCroskey, p. 80.

⁴ Gerald M. Phillips, "Reticence: Pathology of the Normal Speaker," *Speech Monographs*, 35 (March 1968), 39-49.

⁵ James C. McCroskey, "The Implementation of a Large-Scale Program of Systematic Desensitization for Communication Apprehension," *Speech Teacher*, 21 (Nov. 1972), 255-64.

⁶ See, for example, John A. Daly, "The Development of Social-Communicative Anxiety," Paper presented at the annual convention of the ICA, Berlin, West Germany, 1977; and Daly and Friedrich.

⁷ Daly.

⁸ Peter A. Andersen and George W. Singleton, "The Relationship between Body Type and Communication Avoidance," Paper presented at the annual convention of the Eastern Communication Assn., Boston, 1978.

environment in altering genetically determined predispositions. We are left, then, with some indication that hereditary elements may contribute to CA development but with most available data that points toward reinforcement patterns as the primary causal agent.

Evidence on reinforcement as a causal force in communication apprehension suggests two potentially influential environments, the home and the school. Research by Giffin and Heider provides evidence that early experiences in the home environment explain adult anxiety.⁹ Other developmental literature supports this position.¹⁰ Daly and Friedrich note research findings which point to differences in the home environment, such as amount of family talk and style of parent-child interaction, as predictive of children's communication behaviors. Furthermore, they found that college students' recollections of early experiences in the home environment were predictive of communication apprehension.¹¹ Randolph and McCroskey advanced a theory of family size (based upon presumed differential reinforcement patterns) to predict communication apprehension. Early results were promising, but replication with a larger sample failed to demonstrate a relationship between family size and communication apprehension.¹² McCroskey and Richmond

found that children from families in rural environments were more likely to be highly communication apprehensive.¹³

The school environment has also been discussed as a causal force in the development of communication apprehension. Phillips' analysis of case studies of reticent individuals points to the first few years of school as important to the development of communication reticence.¹⁴ Also employing case studies, Davey found a large number of high reticents in the early grade school years.¹⁵ Daly and Friedrich found that college students' recollections of grade school environments were predictive of current apprehension.¹⁶ Furthermore, Porter found recollections of early school experiences to be more relevant to communication apprehension development than recollections of preschool home experiences.¹⁷ He cites developmental theories which support the important influence of the school environment on child personality and social development.

NORMATIVE LEVELS OF COMMUNICATION APPREHENSION

The primary purpose of the present research was to provide a basis for subsequent research probing the school environment as a potential cause of increased communication apprehension

⁹ Kim Giffin and M. Heider, "The Relationship between Speech Anxiety and the Suppression of Communication in Childhood," *Psychiatric Quarterly Supplement*, part 2 (1967), 311-22.

¹⁰ See, for example, D. Thomas Porter, "Communication Apprehension Causation: Toward an Empirical Answer," Paper presented at the annual meeting of the ICA, Chicago, 1978.

¹¹ Daly and Friedrich.

¹² Fred L. Randolph and James C. McCroskey, "Oral Communication Apprehension As a Function of Family Size: A Preliminary Investigation," Paper presented at the annual convention of the Eastern Communication Assn., New York, 1977; idem., "The Cause(s) of Oral Communication Apprehension: Failure of a Theory," Paper presented at the annual con-

vention of the Eastern Communication Assn., Boston, 1978.

¹³ James C. McCroskey and Virginia P. Richmond, "Community Size As a Predictor of Development of Communication Apprehension: Replication and Extension," *Communication Education*, 27 (Sept. 1978), 212-19.

¹⁴ Phillips.

¹⁵ William G. Davey, "Communication Performance and Reticence: A Diagnostic Case Study in the Elementary Classroom," Paper presented to the annual convention of the Western Speech Communication Assn., Seattle, 1975.

¹⁶ Daly and Friedrich.

¹⁷ Porter.

in some children. Preliminary interviews with elementary school teachers clearly indicated that such teachers could recognize widely differing levels of communication apprehension among young children, even at the point when they first enter the school environment. This information suggests at least two possibilities: (1) Communication apprehension levels are well established before entering the school environment. Thus, previous research which has identified correlations between communication apprehension and recalled school experiences may infer false causation—the communication apprehension may generate either the experience or the memory of the experience, for example. (2) Communication apprehension levels are only weakly established before entering the school environment and, thus, are subject to substantial modification (either higher or lower) as a result of school experiences.

No extended longitudinal research on communication apprehension among children has been reported. Were such data available, at least one of the above possibilities could be ruled out. Either the communication apprehension level remains relatively constant through childhood and into adulthood or it doesn't. Unfortunately, we do not know the answer to this question. Only substantial longitudinal research can provide a definitive answer. Anecdotal evidence, however, is suggestive of a possible answer. Numerous, but unsystematic, discussions with college and adult students, who have been exposed to the literature on communication apprehension, have resulted in many comments to the effect that "I used to be a high communication apprehensive, but I am not anymore." Interestingly, opposite statements have been totally absent, perhaps because no one ever becomes more apprehensive, or because people

who are now high apprehensives, but were not previously, prefer to keep that information to themselves.

The anecdotal evidence, then, suggests the possibility that communication apprehension levels can change, at least in one direction—down. Hard data, however, suggest that normative communication apprehension levels in large samples of college freshmen, other adults, and even senior citizens are essentially the same.¹⁸ Unfortunately, no comparable normative data for large samples of younger children are yet available. One of the purposes of the present research, therefore, was to generate such normative data for school-age children, K-12.

Because of the limited research on communication apprehension among young children, formulation of a priori hypotheses was difficult. The only previous research which was suggestive was directed toward speech fright rather than communication apprehension. This research employed observer ratings, introspective tests, and physiological measures (GSR). The results indicated a substantial increase in speech fright between third graders and sixth graders.¹⁹ On this tenuous base, the following hypothesis was advanced:

H₁: Mean communication apprehension scores of children in grades K-3 are lower than mean communication apprehension scores of children in grades 4-6, 7-9, and 10-12.

¹⁸ See, for example, James C. McCroskey, "Measures of Communication-Bound Anxiety," *Speech Monographs*, 37 (1970), 269-77; Dennis L. Moore, "The Effects of Systematic Desensitization on Communication Apprehension in an Aged Population," Thesis Illinois State Univ. 1972; and Raymond L. Falcione, James C. McCroskey, and John A. Daly, "Job Satisfaction As a Function of Employees' Communication Apprehension, Self-Esteem, and Perceptions of Their Immediate Supervisor," in *Communication Yearbook* I, ed. Brent D. Ruben (New Brunswick, N.J.: Transaction, 1977), 363-76.

¹⁹ For a summary of this research, see Lawrence R. Wheelless, "Communication Apprehension in the Elementary School," *Speech Teacher*, 20 (Nov. 1971), 297-99.

INSTRUMENT DEVELOPMENT

The primary instrument for measuring CA in previous research is the Personal Report of Communication Apprehension (PRCA). This instrument has been demonstrated to be both reliable and valid.²⁰ However, the PRCA was developed for, and has been used almost exclusively for, measuring the CA of high school students and adults. The language level of the PRCA limits its use with young children. Thus, the PRCA could not be used with confidence for all of our student samples.

Recently, a measure designed to be administered to preliterate children has been reported. This instrument, the Measure of Elementary Communication Apprehension (MECA), is framed in language appropriate for younger children and uses various forms of smiling and frowning faces for response options.²¹ This instrument was considered appropriate for our younger student samples, but, because of the response format, the measure was not considered appropriate for junior and senior high school student samples.

As a result, a preliminary study was designed to develop a measure of CA that could be administered to all elementary and secondary school students, regardless of age level. Twenty items were written at a level believed to be understandable for children in the preliterate stage of development as well as older students. The instrument was administered orally to children below seventh grade level. For the response format employed, see Table 1. The

instrument was administered to 2,228 students in five school districts. The sample included the following numbers of subjects at the various grade levels: K-3, 248; 4-6, 462; 7-9, 762; and 10-12, 756. The instrument was also administered to 875 college students.

The data for each of the five subject groups were submitted to factor analysis to determine whether the instrument was unidimensional, as presumed initially. The results for each subject group clearly indicated the presence of two interpretable factors, although the factors when subjected to oblique rotation were correlated (from .39 to .57, depending on sample). The first factor could be labeled the "fear or anxiety" dimension, the second the "shyness or verbosity" dimension. Fourteen of the items had their primary loading on the first factor, six were loaded primarily on the second factor. Although the magnitude of the loadings varied somewhat among the five samples, the general pattern was highly consistent.

Since this preliminary study was focused on the development of an instrument (as it turned out, *two* instruments), reliability and validity were primary concerns. The obtained reliabilities for the two dimensions (split-half, internal consistency) for each grade-level grouping are reported in Table 3. Although the reliabilities were generally within a satisfactory range at all grade levels, it was decided to try to improve the instruments by adding items. Consequently, an eighteen-item version of the "fear" scale and a sixteen-item version of the "shyness" scale were prepared and administered to 705 college students. Factor analysis with oblique rotation indicated the presence of the two dimensions, with a correlation of .55 between the dimensions. Four of the items on the "fear" dimension and two on the "shyness" dimension

²⁰ McCroskey, "Measures of Communication-Bound Anxiety"; and idem, "Validity of the PRCA As an Index of Oral Communication Apprehension." *Communication Monographs*, 45 (Aug. 1978), 192-203.

²¹ Karen R. Garrison and John P. Garrison, "Measurement of Communication Apprehension among Children." Paper presented at the annual convention of the ICA, Berlin, West Germany, 1977.

were dropped for subsequent use since Personal Report of Communication their loadings split between the factors. Fear (PRCF) and the Shyness Scale (SS), The resulting two scales, named the are reported in Tables 1 and 2. The

TABLE 1

PERSONAL REPORT OF COMMUNICATION FEAR (PRCF)

DIRECTIONS: The following 14 statements concern feelings about communicating with other people. Please indicate the degree to which each statement applies to you by circling your response. Mark "YES" if you strongly agree, "yes" if you agree, "?" if you are unsure, "no" if you disagree, or "NO" if you strongly disagree. There are no right or wrong answers. Work quickly; record your first impression.

YES	yes	?	no	NO	1. Talking with someone new scares me.
YES	yes	?	no	NO	2. I look forward to talking in class.
YES	yes	?	no	NO	3. I like standing up and talking to a group of people.
YES	yes	?	no	NO	4. I like to talk when the whole class listens.
YES	yes	?	no	NO	5. Standing up to talk in front of other people scares me.
YES	yes	?	no	NO	6. I like talking to teachers.
YES	yes	?	no	NO	7. I am scared to talk to people.
YES	yes	?	no	NO	8. I like it when it is my turn to talk in class.
YES	yes	?	no	NO	9. I like to talk to new people.
YES	yes	?	no	NO	10. When someone asks me a question, it scares me.
YES	yes	?	no	NO	11. There are a lot of people I am scared to talk to.
YES	yes	?	no	NO	12. I like to talk to people I haven't met before.
YES	yes	?	no	NO	13. I like it when I don't have to talk.
YES	yes	?	no	NO	14. Talking to teachers scares me.

SCORING: YES = 1, yes = 2, ? = 3, no = 4, NO = 5.

To obtain the score for the PRCF, complete the following steps:

1. Add the scores for the following items: 2, 3, 4, 6, 8, 9, and 12.
2. Add the scores for the following items: 1, 5, 7, 10, 11, 13, and 14.
3. Add 42 to the total of step 1.
4. Subtract the total of step 2 from the total of step 3.

The score should be between 14 and 70.

TABLE 2

SHYNESS SCALE (SS)

DIRECTIONS: The following 14 statements refer to talking with other people. If the statement describes you very well, circle "YES." If it somewhat describes you, circle "yes." If you are not sure whether it describes you or not, or if you do not understand the statement, circle "?." If the statement is a poor description of you, circle "no." If the statement is a very poor description of you, circle "NO." There are no right or wrong answers. Work quickly; record your first impression.

YES	yes	?	no	NO	1. I am a shy person.
YES	yes	?	no	NO	2. Other people think I talk a lot.
YES	yes	?	no	NO	3. I am a very talkative person.
YES	yes	?	no	NO	4. Other people think I am shy.
YES	yes	?	no	NO	5. I talk a lot.
YES	yes	?	no	NO	6. I tend to be very quiet in class.
YES	yes	?	no	NO	7. I don't talk much.
YES	yes	?	no	NO	8. I talk more than most people.
YES	yes	?	no	NO	9. I am a quiet person.
YES	yes	?	no	NO	10. I talk more in a small group (3-6 people) than other people do.
YES	yes	?	no	NO	11. Most people talk more than I do.
YES	yes	?	no	NO	12. Other people think I am very quiet.
YES	yes	?	no	NO	13. I talk more in class than most people do.
YES	yes	?	no	NO	14. Most people are more shy than I am.

SCORING: YES = 1, yes = 2, ? = 3, no = 4, NO = 5.

To obtain the score for the SS, complete the following steps:

1. Add the scores for the following items: 2, 3, 5, 8, 10, 13, and 14.
2. Add the scores on the following items: 1, 4, 6, 7, 9, 11, and 12.
3. Add 42 to the total of step 2.
4. Subtract the total of step 1 from the total of step 3.

The score should be between 14 and 70

reliabilities obtained for the follow-up college sample, reported in Table 3, were in excess of .90 for both scales. Consequently, these scales were used in the later study.

TABLE 3
RELIABILITIES OF PRCF AND SS INSTRUMENTS

Grade Level	Administration			
	Preliminary Studies		Main Study	
	PRCF	SS	PRCF	SS
K-3	.60	.69	.70	.82
4-6	.62	.84	.79	.86
7-9	.71	.86	.84	.90
10-12	.84	.89	.90	.92
College	.84	.90		
College (follow-up)	.91	.92		

To assess validity of the new instrument (ultimately two instruments), the K-3 and 4-6 samples in the preliminary study were administered the MECA, and all of the samples were administered the PRCA-Short Form.²² Presuming the validity of the PRCA and MECA scales, although the case for the latter is yet to be argued empirically, the obtained correlations between the two new scales and the PRCA/MECA provided us with concurrent validity coefficients for the new scales. The raw validity coefficients and disattenuated coefficients are reported in Table 4, which indicates that the PRCF consistently obtained higher,

usually very much higher, validity coefficients than the SS. When using the PRCA as the criterion, the PRCF generated very high validity coefficients. Given the obvious language-level validity problems with the PRCA for preliterate children, the coefficient at the K-3 level was particularly encouraging.

The validity coefficients for the SS suggest this scale is not measuring CA as well as the PRCF. Rather, it likely is tapping communication behavior related to CA, but not solely caused by CA. While this type of conceptual distinction between CA and shyness has been alluded to previously,²³ this is the first empirical indication in the literature. Consequently, it was decided that it was important to include both measures in the main study of school children, even though no hypothesis about shyness originally had been proposed.

PROCEDURES AND RESULTS: STUDENTS AS SUBJECTS

Subjects in this study included 5,795 elementary and secondary school students enrolled in sixty-seven school districts in three states. The breakdown by grade level was as follows: K-3, 1,252; 4-6, 1,741; 7-9, 1,752; and 10-12, 1,050. All students were administered the

²² For a copy of this form, see McCroskey, "Validity of the PRCA."

²³ McCroskey, "Oral Communication Apprehension."

TABLE 4
VALIDITY COEFFICIENTS FOR PRCF AND SS

Grade Level	Scale	Raw	Validity Criterion		PRCA Disattenuated
			MECA Disattenuated	Raw	
K-3	PRCF	.32	.50	.37	.63
	SS	.16	.24	.33	.53
4-6	PRCF	.65	.93	.67	.98
	SS	.28	.34	.28	.48
7-9	PRCF			.74	.98
	SS			.41	.49
10-12	PRCF			.80	.95
	SS			.53	.60
College	PRCF			.71	.84
	SS			.40	.45

PRCF and SS by their regular classroom instructor. For those students under grade 7, the scales were administered orally. Obtained reliabilities for the scales are reported in Table 3. The data were submitted to single-classification (four levels) analyses of variance. Obtained means for both scales are reported in Table 5.

TABLE 5
MEAN PRCF AND SS SCORES BY GRADE-LEVEL
GROUPING

Grade Level	PRCF ^a	Scale	SS ^b
K-3	32.5		43.9
4-6	36.5		40.6
7-9	36.5		39.6
10-12	36.4		39.4

^a score range = 14-70. High score = high fear.

^b score range = 14-70. High score = highly talkative.

The results indicated a significant effect for grade level on both the PRCF scores ($F = 87.43$, $p < .0001$) and the SS scores ($F = 69.21$, $p < .0001$). As noted in Table 5, the mean PRCF scores were virtually identical for all grade levels except K-3. As hypothesized, the scores for the K-3 group were significantly lower. Note that the hypothetical mean of the PRCF scale is 42; thus, the obtained differences are not likely to be a function of lower reliability or validity for the younger subjects. Random responses would cancel themselves out to produce *higher* rather than lower scores for the younger group.²⁴ Although no

²⁴ This only applies to *random* error. After reading an earlier draft of this paper, John Daly of the University of Texas raised the possibility that there may be a systematic error in the scores. As he correctly noted, in the typical lower-grade classroom there is a great deal of interaction, but this tends to be reduced in higher grades as classrooms become more structured with rules regarding interaction. Daly asks if it is possible that the students completed the instrument with their primary focus on the classroom in which they were students. If so, the scores may simply reflect their classroom experiences rather than general dispositions. We cannot completely discount this possibility. However, the items on the measures, par-

hypothesis was framed for the SS scores, the pattern of means on this scale indicates that the younger children are more verbal (less shy) than their older peers. Again the deviant group is the children in grades K-3.

Although the sample sizes are substantially lower, and thus the means less stable, it is interesting to consider the PRCF scores at each grade level during the early years. The means are as follows: K, 25.8; 1, 33.0; 2, 32.9; 3, 33.0; 4, 34.7; and 5, 37.1. Since our subjects completed the measures during the first semester of their reported grade, each grade level presumably reflects impact of the previous year. Notable changes appear to occur during kindergarten and grades 3 and 4. Means from that point on (to and including college) remain virtually identical.

DISCUSSION

Although we had little basis for our primary hypothesis, the results of the research provide considerable support for that hypothesis. Children in lower elementary school (K-3) report lower levels of CA than do children in upper elementary school (4-6), junior high school (7-9), or high school (10-12). The biggest change appears to occur in kindergarten during the child's first exposure to the school environment. Another substantial increase appears to occur during grades 3 and 4. Thus, before puberty, CA norms are achieved that remain relatively stable through all subsequent age groups.

While these normative data clearly indicate that some factor or factors result in increased CA among children while they are attending elementary school, they do not establish that any element in the school is the causal agent.

Particularly the Shyness Scale, appear to be so general as to preclude this as the sole explanation of the obtained results.

Indeed, biological and/or social maturational elements unrelated to the school may account for all of this variation. Nevertheless, until established otherwise, we should continue to suspect the school environment as a potential causal agent for increased levels of CA in children.

Given that we continue to suspect the school environment, and given that we may wish to alter that environment so as to remove any negative influence, our focus on the school environment should be narrowed to the factors that have the highest probability of impact, either negative or positive. Although the number of variable elements in the school environment are nearly limitless, we believe we can narrow our concern to three: (1) the physical facilities, (2) the peer environment, and (3) the teachers.

Although school facilities have an obvious relationship to the type of teaching which can occur and to the communication environment of the child, we discounted this factor as a possible cause of the differences in norms. Our data were obtained from schools with virtually every type of facilities imaginable—old and new buildings, large and small buildings, open and traditional classrooms, urban and rural schools, and so on. Supplementary analyses, which were conducted to provide feedback to the teachers who assisted us in this project, gave no indication of any pattern of differential results from school to school or area to area. In short, even though physical facilities may have a major impact on classroom communication, they are an inadequate explanation of the differential norms we observed.

The impact of peers cannot be discounted. Many children encounter their first real contact with peers when they enter kindergarten, and this contact may serve to increase a child's inhibitions

and, hence, the CA level. Future research should compare changes in CA level of children who have had little peer contact before kindergarten with those children who have. Perhaps children with early, extensive peer contact are immunized against developing CA, or they may simply develop CA earlier. In any event, such research can give us some insight as to whether children's CA is being impacted purely by peer contact or whether some other school-related element is influential.

The third element in the school environment, teachers, also is difficult to discount as a causative factor. Case studies and other anecdotal evidence regularly highlight the impact of a given teacher's behavior on children. At this point, unfortunately, we are forced to speculate as to the types of teacher behaviors that might lead to higher communication apprehension among school children. No direct observational evidence exists of teachers' behavior with children who develop higher or lower CA. Similarly, some types of teachers may be more or less likely to increase children's CA levels than other types; but, we may only speculate at this point as to what those types may be.

Our extensive experience working with in-service elementary and secondary teachers caused us to suspect one element that may be a contributing factor to the kinds of normative CA level increases observed in the above study. Although previous research has indicated that normative levels of CA among elementary and secondary teachers approximate those of college student and adult groups, we have observed that an unusually large number of elementary teachers have high CA; at the same time, a very low proportion of secondary teachers have high CA. If, indeed, there are significant numbers of high CA teachers in the lower elementary grades,

this may provide at least a partial explanation for the increases in children's CA levels in these grades.

Previous research has established that people with high CA communicate less frequently and in different ways than people with low CA. Although none of this research has involved direct observation of teacher communication behavior, teachers' behavior is as likely to be impacted by CA as is behavior of persons in other occupations. For example, high CA teachers may talk less in the classroom, thus providing models of quietness that could be reinforced in a child's mind. Similarly, the high CA teacher may be more likely to reinforce withdrawn behavior than would another teacher. Thus, if a significantly larger proportion of teachers in lower elementary grades are high CA's than in other grades, a possible explanation for the differential norms we observed would center on those high CA teachers and their behavior in the classroom. On the basis of these speculations, we posed the following hypotheses:

- H₁: There is a higher proportion of teachers with high CA in the lower elementary grades (K-4) than at other grade levels.
- H₂: There is a higher proportion of teachers with high CA in the lower elementary grades (K-4) than there are teachers with low CA in those grades.

Hypothesis 1 is the expectation based on our experience with in-service teachers. If it were not confirmed, our speculation concerning the impact of high CA teachers on children obviously would be out of order. If there were the same number of high CA teachers at each level, something other than CA level of teacher would have to account for the children's increased CA during the early elementary years. Hypothesis 2 also tests the heart of our speculation. If there were an equal number of high and low CA teachers in the elementary schools,

their impact on the norms for a large number of students would be expected to cancel each other out. Thus, for our concern about the impact of high CA teachers on the development of CA in children to be worthy of additional study, both of these hypotheses must be confirmed. Any other result would indicate our concern to be misplaced.

PROCEDURE AND RESULTS: TEACHERS AS SUBJECTS

The sample studied included 573 in-service elementary and secondary school teachers from fifty-seven school districts in five states. All of the subjects were enrolled in graduate instructional communication classes taught in ten separate locations. Subjects completed the required instruments for the study on the first day of class before any discussion of the subject matter.

The subjects completed the PRCA-Short Form²⁵ and responded to two other questions. The first asked them to indicate the grade level at which they taught, and the second asked them to indicate the grade level at which they would *prefer* to teach. Approximately twenty-one percent of the teachers taught at multiple levels (music teachers, coaches, special education, etc.) and could not be classified into categories appropriate for this study. Consequently, they were classified as "others." In addition, because only 8 of the 573 teachers taught at the kindergarten level, they were added to the "others" classification. To draw conclusions concerning kindergarten teachers from such a small sample was inappropriate, although three of these teachers reported high CA while none reported low CA.

Subjects who scored more than one standard deviation above the mean for

²⁵ McCroskey, "Validity of the PRCA."

the sample were classified as high in CA, those scoring more than one standard deviation below the mean were classified as low in CA, and the remainder were classified as moderates. The estimated reliability (split-half) of the PRCA was .90. As indicated in Table 6, creating the "others" classification did not distort the remainder of the categories, since the distribution of subjects into CA levels for this group was what should be expected from a normal distribution.

Tables 6 and 7 report the results of the study and show that the proportion of teachers with high CA was much greater in grades 1-4 than at other levels, as was the proportion of teachers who would prefer to teach in those grades. Similarly, the ratio of high to low CA teachers in grades 1-4 was approximately 4-1 for people actually teaching in those

grades and 3-1 for people preferring to teach in those grades. The chi-squares for the interaction between grade level and CA level were 34.53 ($p < .001$; $C = .27$) for actual teaching level and 30.38 ($p < .001$; $C = .24$) for preferred teaching level. Two sample-proportion tests for the first hypothesis indicated that there was a significantly higher proportion of high apprehensives teaching in grades K-4 than in either grades 5-9 ($Z = 4.32$, $p < .0001$) or grades 10-12 ($Z = 4.02$, $p < .0001$). In addition, the proportion test for the third hypothesis indicated that there was a significantly higher proportion of teachers with high CA in grades K-4 than there were teachers with low CA in those grades ($Z = 12.10$, $p < .0001$). Both hypotheses were supported by these results.

TABLE 6
FREQUENCY AND PERCENTAGE
OF TEACHERS WITH COMMUNICATION APPREHENSION
BY GRADE LEVEL TAUGHT

Grade Level	Low	Apprehension Level		Total
		Moderate	High	
1-4	13 ^a (.07) ^b	109 (.63)	52 (.30)	174
5-9	30 (.18)	117 (.71)	18 (.11)	165
10-12	23 (.22)	73 (.69)	10 (.09)	106
Others	23 (.18)	84 (.66)	21 (.16)	128

^a frequency of teachers at grade level

^b percentage of teachers at grade level

TABLE 7
FREQUENCY AND PERCENTAGE
OF TEACHERS WITH COMMUNICATION APPREHENSION
BY GRADE THEY WOULD PREFER TO TEACH

Preferred Grade Level	Low	Apprehension Level		Total
		Moderate	High	
1-4	23 ^a (.10) ^b	147 (.63)	63 (.27)	233
5-9	25 (.17)	103 (.72)	16 (.11)	144
10-12	28 (.24)	80 (.67)	11 (.09)	119
Others	13 (.17)	53 (.69)	11 (.14)	77

^a frequency of teachers at grade level

^b percentage of teachers at grade level

DISCUSSION

Care must be taken not to over interpret the positive results of this study. These results suggest that future research which investigates the behavior of highly apprehensive elementary school teachers may uncover a contributing causal element leading to increased CA among some elementary school children. This study does *not* establish that such a relationship exists, only that it is a plausible hypothesis worthy of future investigation.

On the basis of the results of this series of studies we can draw several conclusions with reasonable confidence. First, it is possible to measure CA levels of children, even preliterate children. Second, normative levels for CA change markedly during kindergarten and third and fourth grade years. Finally, some factor or combination of factors causes increases in CA during the early elementary school years that are sustained into adulthood. At this point we cannot confidently state what the factor (factors) is, but peer contact and teacher behavior may be critical causative agents.

Two lines of research need to be pursued. First, we need to obtain data on kindergarten and first grade students who have differential degrees of peer contact before entering school. If these

students differ in their level of CA, implications for intervention would be clear. We could either implement systems which would increase early peer contact, if such contact is found to be associated with lower CA, or work to modify the impact of early contact, if such contact is found to be associated with higher CA. If no meaningful differences are observed, of course, we would then be able to discount peer influence (at least of the type suggested here) in the school environment as a causal element in increased CA.

The second line of research that is indicated involves direct observation of teachers known to be high and low in CA. We need to determine whether such teachers behave differentially toward students, and, if so, whether these differential behaviors can be associated with increased or decreased CA in students. Such research would not only probe the cause of the normative changes we have observed in this series of studies, but also would isolate potential teacher behaviors that could be modified to enhance positive growth in young children. Such studies will be difficult and time consuming. However, the results of the present studies indicate that they have high potential for producing valuable insights into the development of CA in children and the prevention of such development.



"[I am] happily too busy doing science to have time to worry about philosophizing about it."

— Arno Penzias
(Nobel Prize winner, 1978)