

COMMUNITY SIZE AS A PREDICTOR OF DEVELOPMENT OF COMMUNICATION APPREHENSION: REPLICATION AND EXTENSION

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Over the past decade the study of communication apprehension (CA), an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons, has expanded greatly. Much is now known about the correlates and effects of CA,¹ but very little is known about what causes the development of CA.

Any search for "the" cause of CA is likely to be futile, since there probably are a number of causative agents which interact to produce CA in an individual. Most previous writers have turned to conditioning and reinforcement patterns in childhood as the major suspect cause.² However, there is also reason to suspect that inborn predispositions are partially responsible.³

If we accept the theoretical position that differential reinforcement patterns

are a principal causative agent, we still must inquire as to why such patterns exist. To note simply that parents differ is certainly not enough, because extremely different CA levels can be found among children in the same family, even when the children are close to each other in age. Randolph and McCroskey sought to explain differential CA levels of children within the same family as a function of birth order and family size.⁴ While the data they collected in a preliminary study were supportive of their theory, more extensive data, collected in an effort to provide a major test of the theory, was not supportive.⁵ At this point, therefore, we have no satisfactory explanation of the variance in CA levels among children in the same family, unless that variance is a function, as Daly suggests, of inborn predispositions.⁶

Other researchers have sought causal agents among differences between families. Phillips and Butt, for example, found that a significant percentage of 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 (1977), 78-96.

² See, for example, McCroskey.

³ John A. Daly, "The Development of Social Communicative Anxiety: A Review," paper presented at the annual convention of the International Communication Association, Berlin, West Germany, 1977.

⁴ 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 Association, New York, 1977.

⁵ Fred L. Randolph and James C. McCroskey, "The Causes of Oral Communication Apprehension," paper presented at the annual convention of the Eastern Communication Apprehension, Boston, 1978.

⁶ Daly.

college students they identified as "reticent" were from first and second generation ethnic families.⁷ "Reticence" or "shyness," of course, is not exactly the same thing as C.A.⁸ Reticence and shyness refer to the tendency of many people to avoid or withdraw from communication with others. While CA has been demonstrated to be one of the major factors leading to such avoidance and withdrawal behaviors,⁹ it is not the only factor. Thus, the behaviors observed by Phillips and Butt may have resulted from the ethnic-cultural orientations of their subjects and not been associated with CA at all.¹⁰ On the other hand, children from ethnic environments often have difficulty developing communication skills comparable to those of children from the general society. Their accent and dialect, and sometimes the grammatical forms they employ, are often noticeably different from other children's. It is reasonable to suspect, therefore, that they may receive less positive reinforcement for communicating than do other children and thus be more likely to develop higher levels of CA. The validity of this theoretical speculation, however, remains to be verified empirically.

A more direct cause of differences between families has been postulated by Phillips.¹¹ He argues that the attitude of parents toward communication may result in differential CA levels of children. If parents use communication as a

weapon against each other and/or the child, the child may be conditioned to avoid communication to escape such abuse. Bernstein has stressed that differences in parental orientation have substantial impact on the language skills developed by children.¹² He notes that children from position-oriented families, the type most likely to use communication as a weapon, are more likely to develop a restricted language code. On the other hand, children from person-oriented families, where communication is open, are more likely to develop elaborated language codes, the type most likely to generate reinforcement from others. At this point, it would seem reasonable to speculate that parental orientations toward communication have an impact on the development of CA in children, but there are no empirical data available as yet to test this speculation.

Grutzeck studied the communication of urban and rural children in an attempt to identify invariant characteristics of reticent children.¹³ While she was unable to determine that rural children were consistently more reticent than urban children, she did find rural children had more difficulty than others in communicating according to the norms of expectancy of their schools. As a follow-up to the Grutzeck research, Richmond and Robertson speculated that children from rural environments would develop higher levels of CA than children from urban environments.¹⁴ This speculation

⁷ Gerald R. Phillips and David Butt, "Reticence Re-Visited," *Pennsylvania Speech Annual*, 23 (1966), 40-57.

⁸ For recent discussion of these two constructs, see Gerald R. Phillips, "Rhetoric-therapy Versus the Medical Model: Dealing with Reticence," *Communication Education*, 26 (1977), 34-43; and Phillips G. Zimbardo, *Shyness: What It Is and What To Do About It*. (Reading, Mass.: Addison-Wesley, 1977).

⁹ McCroskey.

¹⁰ Phillips and Butt.

¹¹ Gerald R. Phillips, "Reticence: Pathology of the Normal Speaker," *Speech Monographs*, 35 (1968), 39-49.

¹² Basil Bernstein, "A Sociolinguistic Approach to Socialization: With Some Reference to Educability," in *Directions in Sociolinguistics*, ed. J. Gumperz and D. Hymes (New York: Holt, Rinehart and Winston, 1972), pp. 465-497.

¹³ Lynne F. Grutzeck, "A Search for Invariant Characteristics of Reticent Elementary School Children," M. A. thesis (Pennsylvania State, 1970).

¹⁴ Virginia P. Richmond and D. Lynn Robertson, "Communication Apprehension: Community Size As A Causative Agent," paper presented at the annual convention of the Western Communication Association, Phoenix, Arizona, 1977.

was based on the assumption that if a child has difficulty adapting to the communication environment of the school, the child is less likely to be reinforced for her/his communication and more likely to develop CA as a result. They also argued that the rural environment with a small population may present more demands on the child for personal communication, with attendant opportunities for success or failure, and thus increase the chances that the child will discover her/his inadequacies in communication early and develop CA as a result.

Richmond and Robertson obtained data from 813 students at the University of Nebraska—Lincoln.¹⁵ Students were classified as having lived most of their lives (1) on a farm, (2) in a small town (population <5,000), (3) in a medium sized town (5,000-50,000 population), or (4) in an urban area (population > 50,000). They also measured the subjects' level of CA, employing a 25-item version of the Personal Report of Communication Apprehension (PRCA).¹⁶ Their results indicated that college students who came from rural areas (farm or small town) had significantly higher CA than students who came from medium sized towns and urban areas. Thus, on the basis of these results, the authors concluded that community size is likely a contributing cause of the development of CA in young people.

RATIONALE FOR PRESENT STUDY

The present study was designed to replicate that of Richmond and Robertson within a different regional context

and with children at younger age levels.¹⁷ Although the results of the earlier study were clear and the sample size adequate to provide a reasonable basis for generalization, there were several threats to the external validity of the study that were serious enough that generalization from its results could lead to difficulty. We will consider each threat below.

Region of Sample. One of the primary threats to generalizability of the previous study is the restricted background of the subjects involved—virtually all from the state of Nebraska. The nature of the geography of Nebraska, towns widely separated with virtually all people not living in towns being employed in farming, makes these results difficult to generalize to other areas, particularly the east and south, as Richmond and Robertson note in their report. In these other areas of the nation, unlike in Nebraska, many people live in rural areas but are not engaged in farming. Thus, whether the results of the study would apply to rural non-farm children is not known.

Age of Sample. The subjects in the Richmond and Robertson study were all college students. While much of the previous research involving CA has employed college students and, when replicated, has been found to generalize to other population groups, in the present case knowledge about college students does not provide data which will permit examining the development of CA. Given the validity of the previous study, we know that when young people reach college age those from rural areas have higher CA than those from urban areas. But that does not give us insight as to when such a difference developed; before they entered school, during elementary

¹⁵ Richmond and Robertson.

¹⁶ James C. McCroskey, "Measures of Communication-Bound Anxiety," *Speech Monographs*, 37 (1970), 269-277; and "Validity of the PRCA As An Index of Oral Communication Apprehension," paper presented at the annual convention of the Speech Communication Association, Houston, 1975.

¹⁷ Richmond and Robertson.

school, during high school, or upon reaching the University.

Self-Selection of Sample. The only institution in Nebraska with a College of Agriculture is the University of Nebraska-Lincoln. Thus, if a young person wishes to embark on a career in agriculture, this University is the only local choice available. Previous research has found that farming is an occupation preferred significantly more by people with high CA than those with low CA.¹⁸ Since most people choosing to enter farming as a profession are raised in a rural environment, we should suspect that a disproportionate number of high CA young people from a rural environment would opt to enter this University. Thus, the observed results may simply be a function of the self-selection of the sample and have nothing to do with where the subjects were raised.

From the preceding analysis we can conclude that the results of the previous study need to be replicated under conditions which obviate the previous threats to external validity. The present study sought answers to two research questions:

1. Can the results of the previous research be replicated under conditions where self-

selection of sample is not present and in a region where agriculture is not the predominate occupation of rural residents?

2. Presuming an affirmative answer to the first question, is the observed effect present for subjects at all school-age levels—lower elementary, upper elementary, junior high school, and senior high school?

The research hypothesis was that students from rural areas would report higher levels of CA than students from more urban areas.

METHOD

Subjects. Subjects were 5,795 elementary and secondary school students enrolled in 67 school districts in West Virginia and Ohio and Virginia counties bordering on West Virginia. All of the areas from which the subjects were drawn are mountainous, and in each area agriculture plays a very small role in the economy. Most people living in rural areas are employed in occupations other than farming. For a breakdown of sample-size by age group, see Table 1.

Measurement. The measure of residence employed by Richmond and Robertson was used in this study also.¹⁹ One minor change was made. One of the residence choices, "on a farm," was modified to read "on a farm or outside of any town." This change was made because

¹⁹ Richmond and Robertson.

¹⁸ John A. Daly and James C. McCroskey, "Occupational Choice and Desirability As A Function of Communication Apprehension," *Journal of Counseling Psychology*, 22 (1975), 309-313.

TABLE 1
MEAN APPREHENSION SCORES BY COMMUNITY SIZE LEVEL

Sample	N	Score Range on measure	Rural	Community Size			F-ratio
				5000-	50,000	Urban	
K-3	1252	14-70	32.0	33.7	31.6	32.8	2.43
4-6	1741	14-70	36.8	36.9	35.9	35.3	1.52
7-9	1752	10-50	30.0	29.3	28.2	28.1	8.72*
10-12	1050	10-50	30.2	29.6	27.8	28.0	11.25*
College**	813	25-125	77.3	78.2	74.0	72.9	5.91*

*p < .001.

**Richmond and Robertson results, included for purpose of comparison.

the concept of "farm" was not clear to many of the younger subjects.

Two measures of CA were used. For the older subjects, grades 7-12, a 10-item, short-form of the PRCA was employed.²⁰ In a previous study this instrument was found to correlate .90 with the regular PRCA and to have a reliability of .88 for students from these age groups. For the younger subjects a newer instrument, the Personal Report of Communication Fear, was employed.²¹ This is a 14-item instrument designed to be administered orally to younger children. A reliability estimate for this age group obtained previously was .76. Correlations between the PRCF and the short form of the PRCA, obtained previously, were .74 for grades 7-9, .82 for grades 10-12, and .81 for college students.

All instruments were administered to subjects by their regular instructor in their normal classroom. For the very young children, the teachers completed the residence information after talking with the individual child and examining school records. When the teacher could not determine the correct response, the instrument was left blank and the subject dropped from the study.

Data Analysis. The data for each age group were submitted to single-classification analysis of variance. The four levels of the independent variable were the various community sizes. The dependent variable in each analysis was the measure of CA. Alpha was set at $p < .05$. Power exceeded .99 for a medium effect in each analysis.²²

RESULTS

The results of the four analyses of

variance and the corresponding means are reported in Table 1. As noted in the table, significant differences were observed for the two older age groups but not for the younger groups. In both instances where significant differences were obtained, Scheffé tests indicated that the subjects from rural areas and small towns reported significantly higher CA than the subjects from medium sized and urban communities. The tests of differences between rural and small town ($t < 1$) and between medium sized city and urban ($t < 1$) were non-significant.

DISCUSSION

The results based on the data from the junior high and senior high students were a replication of the earlier study reported by Richmond and Robertson. Clearly, it can be concluded that the results of the earlier study were not simply a function of either self-selection of subjects or the specific region of origin of the subjects. Our first research question, therefore, can be answered affirmatively.

The answer to our second research question also is clear. The impact of community size does not appear for all age groups. While the effect found in our older age groups was comparable to that of the college students studied earlier, the younger groups did not show a similar effect.

While on the basis of statistical tests all we can say is that the difference between rural and urban environments is significant from the junior high level on, and not significant before that age level, if we visually examine the means at the younger levels, we can see what may be a pattern of development. The means in grades K-3 show no interpretable pattern. However, those for grades 4-6 are patterned just like those for older age groups, although the differences observed are not statistically reliable.

²⁰ James C. McCroskey, "Alternate Measures of Communication Apprehension," unpublished monograph (West Virginia, 1976).

²¹ McCroskey, "Alternate Measures. . . ."

²² Jacob Cohen, *Statistical Power Analysis for the Behavioral Sciences* (New York: Academic Press, 1969).

Nevertheless, it would appear that the impact of community size on CA development is not one which occurs in the pre-school period of the child's life. Rather, it appears that the impact gradually increases as the child progresses through school.

The above interpretation is reinforced when we consider the amount of variance in CA scores attributable to community size at the various age levels. While no variance is reliably predicted in grades K-3 or 4-6, 1.5 percent is predictable in grades 7-9 and 3.2 percent in grades 10-12. In addition, 4.1 percent is predictable at the college level.

The results of this study suggest that community size is significantly associated with an individual's level of CA. However, the degree of association is not large, at any age level. The importance of this association, therefore, must be considered. We believe that the degree of association should be considered theoretically meaningful (as opposed to merely statistically significant). We believe this for three reasons. First, this association is the first theoretically projected relationship between an environmental factor and CA that has been empirically verified. While this alone does not validate the theory of environmental influence on CA, it does present a good reason to continue research investigating that theory.

The second reason we believe that these results should be considered meaningful is that the variance accounted for in this study probably is a very conservative estimate of the true relationship. Since the data were collected by 145 classroom teachers in as many different environments, the probability of introducing Type II error was very high. To assume that all of these untrained "researchers" administered the instruments in the same way is not reasonable. Both the PRCA and the PRCF are trans-

parent, self-report measures which can be influenced by demand characteristics introduced by the administrator of the instrument. Since the administrators in this investigation were blind to the purpose of the study, such bias cannot be expected to produce spurious significance. Rather, such biases should be expected to be random across conditions and contribute to increased error and less variance accounted for.

Finally, the results suggest that no influence of community size should be expected during the pre-school years. However, our classification of subjects to community size conditions was based on where the student had lived "most" of her/his life. An alternate classification system could center on where the student had lived since starting school, a question we did not ask. This would permit partialing out variance attributable to pre-school years. Thus, our classifications probably resulted in a deflated estimate of the relationship between community size and CA.

While we maintain the position that these results are theoretically meaningful and probably very conservative, we must also stress that this research has not isolated "the" cause of CA. Rather, as we have noted earlier, CA is most likely the product of multiple causes, none of which should be expected to account for the majority of variance in CA among students or older people. The search for additional causal elements must continue.

POST HOC THEORETICAL CONSIDERATIONS

While the results of this study provide support for the research hypothesis, the theoretical basis for that hypothesis needs to be reexamined. The reinforcement paradigm from which the hypothesis was deduced is not challenged. However, two premises were employed independently to reach the hypothesis:

1. Children who have difficulty adapting to the communication norms of the school (rural children) will receive less reinforcement.
2. Children from a sparsely populated environment (rural children) are required to engage in more personal communication, with greater opportunities for both success and failure, and will discover communication inadequacies (via reinforcement patterns) early.

Let us consider these premises in reverse order. The second premise establishes a temporal foundation prior to entering school. Since no significant association between community size and CA was found through upper elementary school, this premise is dubious at best. While the hypothesis drawn from this premise has been validated for older age groups, the premise provides no explanatory power, since if the argument in the premise were true, the hypothesis should have been validated with younger groups as well.

The other premise, however, stands in good stead as a result of this research. The trait of CA has never been conceived of as developing "instantly." Rather, it is presumed to develop over a period of time as a result of reinforcement patterns. Such development as a function of community size was evidenced in this study. The premise that children who have difficulty adapting to communication norms in their school environment will receive less reinforcement for communication than other children serves as a reasonable explanation of these results, given the previous research indicating that rural children have such adaptation problems.

The adaptation premise also is reinforced by an examination of the school systems from which the subjects in this study were drawn. Almost all of the subjects came from county-wide, consolidated school systems. In these systems, elementary schools (K-6) tend to be small and "neighborhood" in nature.

The students are all reasonably homogeneous. Junior high schools are typically much larger in scope, being populated by graduates of 3-6 elementary schools. The scope of senior high schools is even larger, typically serving graduates of 4-8 junior high schools and sometimes all students in a given county. Consequently the homogeneity of the students decreases with the level of the school. Even students in a town of 3,000-4,000 may not attend high school in that town; they must be bussed to some other area of the county.

This type of system causes increasing adaptation problems for rural and small-town students as they progress through the various school levels. Students from larger communities, however, face fewer changes. At each level they are merged with students from other schools very much like their own and who live nearby in their own community.

This analysis suggests that community size may not be the true causal element but simply an artifactual indicator of increasingly difficult adaptation levels forced on children. This could be tested by comparing younger children in urban environments who attend neighborhood schools with those who are bussed to other areas of the community. Ethnic origin, of course, would need to be monitored as a control variable.

The above should not be taken to suggest that the results in the present study are spurious. The school systems in which the subjects were enrolled are typical of those in many other areas of the county. Rather, we are suggesting that what we have observed in the present study may be generalizable to other circumstances where children are forced to adapt to unfamiliar communication norms, where black, inner-city children are bussed to white suburban schools, where suburban (black or white) children are bussed to inner city schools,

where a child moves from one part of the country to another.

The "principle of homophily" is one of the most firmly established empirical generalizations yet to be drawn from research in human communication.²³ It states that the more similar two people are the more likely they are to communicate effectively with each other. The reciprocal states that the more different two people are, the more likely their communication will be ineffective. When children are forced into school environments where they are dissimilar to the other students, we should expect them to have less effective communication and receive less reinforcement for

their communication. An increase in their level of CA should be the expected logical outgrowth of such circumstances.

While this post hoc theorizing remains to be validated empirically, the face validity is strong. The implication for parents and teachers at all levels is equally strong. Children forced into a new communication environment need special attention and care to ensure that their communication is reinforced and their adaptation is as rapid and painless as possible.²⁴ If such reinforcement is not forthcoming, an increase in CA level is a probable outgrowth.

²³ Everett M. Rogers and F. Floyd Shoemaker, *Communication of Innovations: A Cross-Cultural Approach* (New York: Free Press, 1971).

²⁴ Teachers and parents seeking guidance for helping such children should consult James C. McCroskey, *Quiet Children and the Classroom Teacher*, (Falls Church, Virginia: Speech Communication Association, 1978).

CALL FOR MANUSCRIPTS

The November, 1979, issue of *Communication Education* will be devoted to the theme, "Graduate Education in Speech Communication: Current Status and Future Directions." Under the guest editorship of Dr. Roderick P. Hart, this issue will include both solicited and contributed articles. Manuscripts can focus on *pedagogical implications* of newly emerging theories and philosophies of communicative behavior, on issues pertaining to *curriculum development* and redevelopment, and on matters such as: the teaching assistantship, graduate admissions, thesis and dissertation writing, terminal M.A. programs, research internships, non-academic employment opportunities, recertification programs, thesis writing and graduate minors. Potential contributors should adhere to the following groundrules:

1. Send a letter indicating an INTENTION TO SUBMIT an essay to the *guest* editor no later than November 15, 1978. This letter should indicate the general purpose of the proposed article as well as its likely scope.
2. Submit final manuscripts in triplicate not later than January 15, 1979.
3. Manuscripts should not exceed 3000 words (roughly, twelve double-spaced pages).

Manuscripts should be sent to Professor Roderick P. Hart, Department of Communication, 304 Heavilon Hall, Purdue University, West Lafayette, Indiana 47907.