A STUDY OF THE RELATIONSHIPS BETWEEN EXTENSIONAL DEFINITION OF STUTTERING AND ATTITUDE TOWARD STUTTERING AS MANIFESTED BY SOME GRADE SCHOOL TEACHERS

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Submitted to the College of Communication Arts
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AN ABSTRACT

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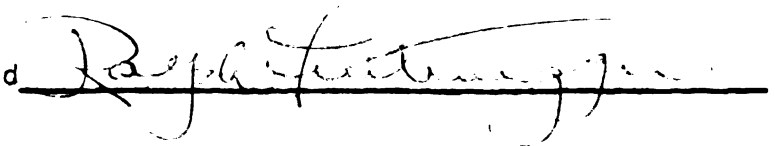
Approved 

ABSTRACT

The individuals we call stutterers do not stutter on every word they speak. Much research directed toward an understanding of stutterers has pointed up the impressive variability of "moments of stuttering". Rather than being a constant condition, stuttering, especially at the time of "onset", represents a kind of relationship between speaker and listener. The purpose of this study was to evaluate the relationships between listeners' attitudes toward stuttering and the relative amount of speech phenomena perceived as "moments of stuttering" by these listeners.

Increments of speech pathology training appears to be associated with a tendency to judge abnormal speech more severely. With specific reference to stuttering, judges trained in speech pathology count more "moments of stuttering" in a given passage of speech than do lay judges.

Speech pathology training also appears to be associated with a more tolerant attitude toward stuttering. Although speech pathologists count more stutterings in a given sample of speech than do lay judges, speech pathologists have "better" attitudes toward stuttering than do the lay individuals.

Attitude toward stuttering, and extensional definition of stuttering (countings of stutterings) appear to stand in positively correlated relationship to one another.

This was the hypothesis tested in this study: the greater the number of "moments of stuttering" designated by the listener, the more favorable will be his attitude toward stuttering.

A total of 148 elementary school teachers served as the subjects for this study. These subjects answered a questionnaire, the Iowa Attitude Test Toward Stuttering, and counted stutterings in a $3\frac{1}{2}$ minute tape recorded passage of the speech of a stutterer. The median number of stutterings counted was 30. The range extended from 8 to 87. The range of the subjects' attitude scores on the attitude scale toward stuttering extended from a low of 1.04 to a high of 2.47.

The results of this study indicate a positive relationship between extensional definition (countings) of stuttering and attitude toward stuttering (X^2 equals 35.88; 2 degrees of freedom). That is, a group of judges manifesting "good" attitudes toward stuttering will tend to count more "moments of stuttering" in a given sample of speech than will a group of judges manifesting "poor" attitudes toward stuttering.

Training in speech correction, as represented by the judges employed in this study, tends to sensitize an individual's perception of moments of stuttering. Sophisticated judges (subjects who had taken formal college course work in speech correction) counted significantly more stutterings than did naive judges (X^2 equals 10.83; 1 degree of freedom).

Sophisticated subjects not only counted significantly more moments of stuttering than did naive subjects, they also manifested significantly "better" attitudes toward stuttering (X^2 equals 27.28; 2 degrees of freedom).

The independent variables of parental status, age of subjects' children, grade level taught by subjects and career plans of subjects were not related to the dependent variables of attitude toward stuttering and extensional definition of stuttering.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Much research dealing with the speech disorder we call stuttering has been directed toward an understanding of stutterers, and to a lesser degree, stutterers' listeners. When stuttering began to receive intensive study in these directions, its impressive variability came more and more into the center of attention.

The individuals we call stutterers do not stutter on every word they speak. Stutterers report that the relative amount of stuttering they do varies from situation to situation.[1] Consequently, the problem of stuttering may be regarded in terms of recurring "moments of stuttering," rather than a more or less constant condition.

> The problem of stuttering might be approached fruitfully by concentrating on the moment of stuttering--that is to say, by dealing with the problem of stuttering as a series of stutterings, by regarding it crucially not as a more or less constant condition, but as intermittent responses.[2]

The listener's perception of stuttering also tends to vary from situation to situation.[3] Rather than being a constant

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[1] O. Bloodstein, "A rating scale study of conditions under which stuttering is reduced or absent," Journal of Speech and Hearing Disorders. 15 (1950), 29-36.

[2] W. Johnson, (Ed.) Stuttering in Children and Adults. (Minneapolis, Minn.: Minnesota Press, 1955) p. 13.

[3] C. Tuthill, "A quantitative study of extensional

condition of either speaker or listener, stuttering, especially at the time of "onset," represents a kind of relationship between speaker and listener.

> In order to understand the onset of stuttering we must appreciate the apparent dependable fact that the word stuttering, employed with comprehensive validity, refers not simply to some aspect or other of speech, but rather to a certain kind of relationship between a speaker and one or more listeners.[4]

Stuttering may be viewed as a perceptual relationship, or set of relationships, between a speaker and one or more listeners. If we accept the premise that listeners are more or less different from one another, then the relative amount of speech phenomena perceived as "moments of stuttering" will tend to vary from listener to listener.

Two empirical studies directly relevant to this problem are those by Tuthill and Boehmler. Tuthill[5] asked three groups of judges--speech pathologists, stutterers, and a group of laymen--to count the number of stutterings in a passage of recorded speech. Two-hundred and nineteen different items were marked as moments of stuttering. Only 39

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meaning with special reference to stuttering," Speech Monographs. 13 (1946), 81-98.

R. Boehmler, "A quantitative study of the extensional definition of stuttering with special reference to the audible designata," (PhD dissertation, State University of Iowa, 1953).

[4]W. Johnson, Handbook of Speech Pathology. Travis, L., Ed. (New York: Appleton-Century and Crofts, 1957) p. 909.

[5]C. Tuthill, op. cit.

items were marked in common by 75% of the judges; only 4 items were marked in common by 90% of the judges. The agreement within the group of speech pathologists was no greater than that within the group of lay judges. It was noted, however, that persons acquainted with stuttering (i.e., speech pathologists and stutterers) counted significantly more moments of stuttering than did the lay judges. Normal speaking laymen were apparently not particularly interested in stuttering and did not listen as keenly to the speech of stutterers as did the stutterers themselves, or the speech pathologists.

The second and more recent of the two investigations is a study by Boehmler,[6] which essentially duplicated the findings of the Tuthill study. Boehmler developed a recording of 600 short speech samples, each of which was judged to contain one nonfluency. Three-hundred of the samples were supplied by stutterers, 300 by non-stutterers. Three groups of judges were asked to count the number of stutterings in each of these samples. Two groups of judges were made up of speech pathologists trained at different universities; the remaining group consisted of lay individuals. The two groups of judges trained in speech pathology applied the label of stuttering to "moments of nonfluency" significantly more frequently than did the group of lay judges.

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[6] R. Boehmler, op. cit.

The Boehmler and Tuthill studies are the only empirical investigations, known to this experimenter, that are concerned with the extensional definition of stuttering, i.e., defining stuttering by "pointing to it," or demonstrating examples of it. There are, however, a few studies in other areas of speech pathology in which investigators concerned themselves with the variability of perceptions or evaluations of speech abnormalities among several listeners.

Webb[7] found that trained and experienced speech pathologists gave significantly more "severe" ratings than did naive judges when judging nasality in the recorded speech of an individual with a cleft palate. An investigation by Perrin[8] studies the "severity" of articulatory disorders as judged by speech pathologists and laymen. This study, however, failed to show a significant difference between trained and untrained listeners.

A tenable generalization that one could draw from the available data is that increments of speech pathology training appear to be associated with a tendency to judge abnormal speech more severely. With specific reference to stuttering, judges trained in speech pathology count more "moments of

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[7]C. Webb, "Selected variables in nasality judgement," (unpublished Ph.D dissertation, Pennsylvania State University, 1957).

[8]E. Perrin, "Rating of defective speech by trained and untrained observers," Journal of Speech and Hearing Disorders. 19 (1954), pp. 48-51.

stuttering" in a given passage of speech than do lay judges. This observed difference in extensional definition is probably due to the speech pathologists' "reaction sensitivity" to speech breakdowns, which is described by Cameron as:

> . . . a selective readiness to react to certain components of a situation and not others, which is the result of one's having acquired a system of related attitudes and responses.[9]

The individual trained in speech pathology has acquired special reactions, which, in relation to certain situations, gives the excitants of these reactions prepotence when such situations arise.

Speech pathology training also appears to be associated with a more tolerant attitude toward abnormal speech phenomena. Johnson[10] found, in the development of the Iowa Attitude Test Toward Stuttering, that:

> The numerical score it (the attitudes scale) yields throws some light on the respondents' attitude toward stuttering, specifically how tolerant or intolerant he is of stuttering. The scale's degree of validity was demonstrated by the results obtained when it was administered to four different groups of people having various kinds and amounts of experience with stuttering. (Stutterers, speech clinicians, university freshman and townspeople) The mean scores were found to differentiate the groups, with the clinicians showing the least unfavorable reaction to stuttering, freshmen and

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[9] N. Cameron, The Psychology of Behavior Disorders. (Cambridge, Massachusetts: Houghton and Mifflin, 1956) p. 66.

[10] W. Johnson, F. Darley, and D. Spriestersbach, Diagnostic Manual in Speech Correction. (New York: Harpers and Bros., 1952).

> stutterers a moderate reaction, and townspeople the most unfavorable reaction.[11]

It is obvious, therefore, that although speech pathologists count more stutterings in a given sample of speech than do the lay judges, speech pathologists have "better" attitudes toward stuttering than do the lay individuals.

It would appear that attitude toward stuttering is positively related to extensional definition of stuttering. This does not necessarily imply a causal relationship between the variables of extensional definition of stuttering and attitude toward stuttering. It suggests that a group of judges scoring in the "good" range on the attitude scale will count more stutterings in a given passage of speech than will another group of judges scoring in the "poor" range on the attitude scale. Common sense would tend to lead us to assume the reverse relationship, viz., individuals with "poor" attitudes toward stuttering will count more stutterings in a given sample of speech than will individuals with "good" attitudes. However, an inspection of the data related to the proposed hypothesis of positive correlation would tend to negate the plausibility of the common sense viewpoint just presented.

It has been demonstrated that listener behavior is depressed when communicating with stutterers.[12] This depression

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[11] Ibid, p. 137.

[12] A. Rosenberg and J. Curtis, "The effects of stuttering on the behavior of the listener," Journal of Abnormal and Social Psychology. 49 (1954), pp. 355-360.

is manifested in reduced bodily activity, as well as reduction in the amount of conversation. In effect stuttering tends to act as a noxious stimulus. It would not be unreasonable to postulate an effect on the perceptual process as a result of the observed depression. Research concerned with the phenomenon of perceptual defense has demonstrated the validity of this postulate.[13] Such studies vividly demonstrate the phenomenon of perceptual filtering, i.e., the differential recognition rate of unpleasant, neutral, and pleasant stimuli. Unpleasant stimuli are not recognized as rapidly as neutral or pleasant stimuli. Even when an individual is required to react to a highly structured situation, the defensive flight is operative.[14] Speech pathology training would not only sensitize one to certain abnormal speech phenomena, it would also tend to delimit whatever negative evaluations an individual might have had prior to such training.

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[13] V. Glaudin, "Speed and visual recognition of operationally defined primitive, social and neutral printed words in so-called criminal psychopaths, neurotics, and normal individuals," (unpublished Ph.D dissertation, University of Illinois, 1954).

E. McGinnis, "Emotionality and perceptual defense," Psych Review. 56 (1949) pp. 244-251.

[14] F. Cooper, Public Opinion and Propaganda. Katz, Cartwright, et al, Ed. (New York: Dryden Press, 1954), pp. 319-319.

It has been demonstrated that negative attitudes toward ethnic and racial groups can be significantly altered by acquired knowledge concerning the groups so evaluated.[15] Formal course work, selected readings, or personal contact with negatively evaluated racial groups have been shown to decrease the intensity of the negative attitudes.

Similarly, when an individual receives information concerning stuttering, a change, in the positive direction, would be expected in the individual's attitude toward stuttering. No studies have been done prior to the current one pertinent to this specific problem. The credence of the proposed hypothesis is suggested, however, in the Darley study[16] of parental attitudes. The mothers in Darley's experimental group (mothers of stutterers) rated their children's speech more severely than did the fathers. However, on the Iowa Scale of attitude Toward Stuttering, the fathers of the stuttering children, as a group, appeared to have a less tolerant attitude toward stuttering than did the mothers.

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[15]H. Remmers, "Further studies in attitude," Series III-Studies in Higher Education. 34 (1938), pp. 1-24.

A. Rose, Studies in the Reduction of Propaganda. (Chicago: American Council on Race Relations, 1947).

F. Smith, "An experiment in modifying attitudes toward the Negro," (unpublished Ph.D dissertation, Columbia University, 1943).

M. Smith, "A study in change of attitude toward the Negro," Journal of Negro Education. 8 (1939) pp. 14-70.

[16]F. Darley, Stuttering in Children and Adults, Johnson, Ed. (Minneapolis: Minnesota Press, 1955), chapter 4.

Hypotheses

Attitude toward stuttering, and extensional definition of stuttering (counts of stuttering) would appear to stand in a positively correlated relationship to one another. This, then, is the theoretic hypothesis to be tested in this study: The greater the number of "moments of stuttering" designated by the listener, the more favorable will be his attitude toward stuttering.

This study represents an initial attempt in the study of the relationships between countings of stutterings and attitude toward stuttering. It was thought wise, therefore, to evaluate the possible effects of certain independent variables upon the dependent variables of attitude and countings of stutterings.

Parents of young children and teachers of the early elementary grades usually are exposed more to the characteristically nonfluent speech of younger children than are childless married couples and teachers of the upper elementary grades respectively. Therefore, these two groups of married couples and these two groups of teachers will be compared on the attitude and stuttering-count continua. In addition it was further felt that teachers who plan to teach as a permanent career might tend to be more sensitive to speech breakdowns of their pupils than would individuals who are teaching on a temporary basis. Accordingly these two groups, "permanent career teachers" and "temporary basis teachers", will also be compared in the same fashion as the groups above.

CHAPTER II

SUBJECTS, MATERIALS AND PROCEDURE

Subjects

Elementary school teachers were selected as the empirical population for this study. An elementary teacher is defined as a person who teaches one or more of the grades kindergarten through sixth grade. Elementary school teachers were selected because they are exposed to a wide range of children's speech behavior. For this reason, and for the additional reason that a large majority of elementary school teachers consider themselves inadequately trained to deal with the problem of stuttering, this particular population was selected.[17]

The actual sampling was performed on the sub-population of elementary school teachers in the vicinity of Lansing, Michigan. A total of 148 subjects, 127 females and 21 males, participated in the experiment. Forty-nine of the subjects were currently enrolled in a formal Michigan State University

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[17]S. Ainsworth and G. Lloyd, "The classroom teachers activities and attitudes relating to speech correction," Journal of Speech and Hearing Disorders. 19 (1954), pp. 244-249.

T. Knudson, "A study of the oral recitation problems of stutterers," Journal of Speech and Hearing Disorders. 4 (1939), pp. 235-239.

class designated as Speech 470, "Speech Correction for the Classroom Teacher." At the time of the experiment, however, no materials pertaining to the problem of stuttering had been discussed. A number of individuals in this class were undergraduate students and therefore were not included in the experiment. The remainder of the subjects took part in the experiment at Jackson and Dearborn, Michigan.

Materials

The Johnson-Ammons Test of Attitude Toward Stuttering[18] was selected to measure the subjects' attitudes toward stuttering. The attitude scale responses will be grouped into three exclusive and exhaustive categories: 1.00 to 1.49 will represent the "good" range; 1.50 to 1.99 will represent the "moderate" range; and 2.00 to 2.44 will represent the "poor" attitude range. A copy of the attitude scale, a one page questionnaire and a blank sheet of paper for counting stutterings were stapled together. (See Appendix I).

A three and one-half minute tape recording, consisting of the oral reading of an individual who considers himself a stutterer, served as the stimulus material for all subjects. A passage from Thoreau's Walden was used for the reading material.

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[18] W. Johnson and R. Ammons, "Studies in the psychology of stuttering: XVIII. The construction and application of a test of attitude toward stuttering," Journal of Speech Disorders. 9 (1944), pp. 39-49.

A standardized introduction was developed in an attempt to mask the purpose of the experiment. This introduction (see Appendix II) was used throughout the experiment.

Procedure and Treatment of Data

All of the subjects volunteered to participate in this study. In return for their cooperation, a panel discussion program concerned with the topic of stuttering was presented by the author and a group of stutterers. This program always took place after the experiment had been completed.

The data were gathered from several small groups of subjects, 40, 32, 44, and 38 respectively. The experiment was carried out in well lighted school rooms. Before the start of the experiment it was determined that all subjects could hear the tape recorder.

The order of presentation of the tape recording and the attitude scale was systematically balanced. This was done to delete possible bias error due to the order of presentation of the materials. Consequently, approximately one-half of the subjects reacted to the tape recording first and to the attitude scale second. The remaining subjects reacted to the attitude scale first and to the tape recording second.

The specific null hypothesis to be tested in this study is: There is no relationship between the variables

of countings of stutterings and attitude toward stuttering; these variables are independent.

If the results of the statistical analysis will allow for rejection of the null hypothesis, inferences will be drawn to one of the following alternate hypotheses: There is a relationship between the variables of countings of stutterings and attitude toward stuttering; attitude toward stuttering and countings of stutterings are positively correlated; or attitude toward stuttering and countings of stuttering are negatively correlated.

It was decided that if treatment of the data reveals a statistically significant positive correlation between the dependent variables of countings of stuttering and attitude toward stuttering, a number of additional statistical analyses will be made. This will be done to test the possible effects of certain independent variables upon the dependent variables of countings of stuttering and attitude toward stuttering. These independent variables are presented below.

1. What effect will a formal college course in speech correction have on the subjects' countings of stuttering and attitudes toward stuttering? To test the possible effects of this variable the subjects will be divided into two exclusive and exhaustive categories:

a) Those elementary school teachers who have not taken a formal college course in speech correction will be designated <u>naive</u>.

b) Those elementary school teachers who have taken one or more formal college courses in speech correction will be designated sophisticates.

2. What effect will marital status have on the subjects' countings of stuttering and attitudes toward stuttering? To test the possible effects of this variable, the subjects will be divided into two exclusive and exhaustive categories: single or married.

3. What effect will the presence or absence of children in the family have on the subjects' countings of stuttering and attitudes toward stuttering? An additional test will be made by dividing those subjects who do have children into two exclusive and exhaustive categories: those subjects who have children under four years of age, and those subjects who have children over four years of age.

4. What effect will "grade level taught" have on the subjects' countings of stuttering and attitudes toward stuttering? To test the possible effects of this variable, the subjects will be divided into two exclusive and exhaustive categories: those subjects who teach kindergarten through third grade, and those subjects who teach fourth through sixth grade.

5. What effect will "career plans" have on the subjects' countings of stuttering and attitudes toward stuttering? To test the possible effects of this variable, the subjects will be divided into two exclusive and exhaustive categories:

those subjects who consider teaching a permanent career, and those subjects who consider teaching a temporary position.

The median test[19] was chosen as the statistical test for this study. The median test was chosen because the scores under study are frequencies in discrete categories. A median countings of stutterings will be determined for the sample of subjects. Each individual subject's count of stutterings will then be treated in the following manner: if the number of stutterings counted is larger than the median, it will be replaced by a plus; if the number counted is less than the median, it will be replaced by a minus. The resulting dichotomous sets of scores will then be cast into a k x r contingency table. Those scores at the median will be distributed equally above and below the common median. The numbers in the body of the table will represent the frequencies of pluses and minuses in each of k categories. The expected frequencies will be found by dividing the column marginal totals by one-half.

Once the data are categorized as plus or minus with respect to the common median, and the resulting frequencies have been cast into a k x r table, the Chi Square test of

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[19]S. Siegal, Nonparametric Statistics for Behavioral Sciences, (New York: McGraw-Hill Book Co., 1956) p. 22.

independence will be performed. The Chi Square test of significance will be determined by the following formula:[20] $\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$ The resulting Chi Square, computed by the formula above, has a sampling distribution which is approximated by the Chi Square distribution with degrees of freedom equal to k-1. In those instances where the degrees of freedom are equal to one, the following formula, corrected for continuity, will be used:[21] $\chi^2 = \sum \frac{(f_o - f_e - .5)^2}{f_e}$

The relationship of certain independent variables to the dependent variable of attitude toward stuttering was tested by the Chi Square test of independence. In these instances the median test was not applicable. The following formula was used:[22] $\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$

The 5 percent level of confidence (two-tailed test) was selected as the cutting point for consideration of values obtained as significant.

The attitude scale responses will be grouped into three exclusive and exhaustive categories: 1.00 to 1.49 will represent the "good" range; 1.50 to 1.99 will represent the "moderate" attitude range; and 2.00 to 2.44 will represent the "poor" attitude range.

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[20] F. Cornell, The Essentials of Educational Statistics. (New York: John Wiley and Sons, Inc., 1956) p. 196.

[21] Ibid, p. 210.

[22] Ibid, p. 196.

CHAPTER III

RESULTS

The range of the subjects' countings of stutterings extended from a low of 8 to a high of 87. The median was 30. According to their particular countings of stutterings, the subjects were divided into two groups: those subjects above the median score for the combined groups and those subjects below the median. Four subjects' countings of stutterings were at the median; these "scores" were divided equally into the groups above and below the median. Including these four scores, 74 subjects counted more stutterings than the median; 74 subjects counted less than the median.

The range of the subjects' attitude scores on the Iowa Scale of Attitude Toward Stuttering extended from a low of 1.04 ("good" attitude) to a high of 2.47 ("poor" attitude).

Order of Presentation

The data relating to the order of presentation of materials is summarized in Table I. The subjects reacted to the experimental situation in the following order: eighty subjects answered the attitude scale first and then counted stutterings; these tasks were performed in the

opposite order by the remaining sixty eight subjects. According to the statistical analysis the difference between the two groups was not significant (X^2 equals .42).

TABLE I

DISTRIBUTION OF THE OBTAINED AND EXPECTED FREQUENCIES OF THE MEASURES REPRESENTING EXTENSIONAL DEFINITION OF STUTTERING FOR ALL SUBJECTS ACCORDING TO ORDER OF PRESENTATION OF THE EXPERIMENTAL MATERIALS

Order of Presentation of Materials

	Attitude scale-Tape recording	Tape recording, Attitude scale	Totals
Number of subjects whose count of moments of stuttering exceeded the common median number of stutterings	42 (40)	32 (34)	74
Number of subjects whose count of moments of stuttering was less than the common median number of moments of stuttering	38 (40)	36 (34)	74
Totals	80	68	148

df = 1 X^2 = .42 P > .05

Extensional Definition of Stuttering and Attitude Toward Stuttering

The data relating attitude to extensional definition are summarized in Table 2. The obtained X^2 value of 38.08 with two degrees of freedom indicates, beyond the .05 level of confidence, that the relationship between attitude and

extensional definition is not due to chance. Therefore, the null hypothesis is rejected at the .05 level. Inspection of the individual cells of Table 2 indicates a positive relationship between attitude and extensional definition.

TABLE 2

DISTRIBUTION OF OBTAINED AND EXPECTED FREQUENCIES OF MEASURES REPRESENTING EXTENSIONAL DEFINITION OF STUTTERING FOR ALL SUBJECTS ACCORDING TO ATTITUDE CATEGORY

	Attitude			
	1.00--1.49	1.50--1.99	2.00--2.49	Total
Number of subjects whose count of moments of stuttering exceeded the common median number of moments of stuttering	41 (25)*	24 (27.5)	9 (21.5)	74
Number of subjects whose count of moments of stuttering was less than the common median number of moments of stuttering	9 (25)	31 (27.5)	34 (21.5)	74
Total	50	55	43	148

$X^2 = 35.88$ $df = 2$ $P < .05$

*Numbers in parentheses represent the expected frequencies.

Naive versus Sophisticate

Of the total number of 148 subjects: 47 subjects reported that they had taken formal college course work in

speech correction; 101 subjects reported that they had not taken formal college course work in speech correction.

A comparison of the extensional definitions of stuttering for these two groups yielded the following difference: the sophisticate group of subjects counted significantly more stutterings than did the naive group of subjects. The obtained X^2 value of 10.30 with one degree of freedom was significant beyond the .05 level. The results are summarized in Table 3.

TABLE 3

DISTRIBUTION OF OBTAINED AND EXPECTED FREQUENCIES OF MEASURES REPRESENTING EXTENSIONAL DEFINITIONS OF STUTTERING BY NAIVE AND SOPHISTICATE SUBJECTS

	Sophisticates (took course in speech correction)	Naive (no speech correction work)	Total
Number of subjects whose count of moments of stuttering exceeded the common median number of moments of stuttering	33 (23.5)	41 (50.5)	74
Number of subjects whose count of moments of stuttering was less than the common median number of moments of stuttering	14 (23.5)	60 (50.5)	74
Total	47	101	148

$X^2 = 10.30$ df = 1 $P < .05$

An analysis of the naive and sophisticate subjects' responses to the attitude scale yielded a statistically significant difference. The sophisticate subjects, as a group, manifested a "better", i.e., more tolerant, attitude toward stuttering than did the naive subjects. The obtained X^2 value of 27.28 (df equals two) was significant beyond the .05 level. The results are summarized in Table 4.

TABLE 4

DISTRIBUTION OF OBTAINED AND EXPECTED FREQUENCIES OF MEASURES REPRESENTING ATTITUDE TOWARD STUTTERING BY NAIVE AND SOPHISTICATE SUBJECTS

	Attitude			Total
	1.00---1.49	1.50---1.99	2.00---2.49	
Naive Subjects (No speech correction work)	20 (34)*	47 (38)	34 (29)	101
Sophisticates (Took course in speech correction)	30 (16)	8 (17)	9 (14)	47
Total	50	55	43	148

$X^2 = 27.28$ df = 2 $P < .05$

*The expected frequencies were computed by the following formula:[23] $f_e = \frac{n_r \cdot n_k}{N}$

[23] Ibid, p. 211.

Marital Status

Of the total number of 148 subjects, 50 reported that they were single and 98 reported that they were married. A comparison of the countings of stutterings for these two groups failed to yield a significant difference (X^2 equals 1.32, one degree of freedom).

A comparison of the responses of the single and married subjects to the attitude scale failed to yield a significant difference (X^2 equals .102, two degrees of freedom).

In this sample of subjects Chi-Square test results provided no evidence of differences between the independent variable of marital status and the dependent variables of attitude toward stuttering and countings of stutterings.

Children Versus No Children

Of the total number of 98 married subjects, 72 reported that they had one or more children and 26 reported that they had no children. A comparison of the countings of stutterings for these two groups failed to yield a significant difference (X^2 equals 1.68, one degree of freedom).

A comparison of the responses of these two groups of subjects to the attitude scale failed to yield a significant difference (X^2 equals .338, two degrees of freedom).

In this sample of subjects Chi Square test results

provided no evidence of differences between the independent variable of "children versus no children" and the dependent variables of attitude toward stuttering and countings of stutterings.

Age of Child

Of the total number of 72 subjects who had children, 27 had children under four years of age and 45 subjects had children over four years of age. A comparison of the countings of stutterings for these two groups failed to yield a significant difference (X^2 equals .92, one degree of freedom).

A comparison of the responses of these two groups of subjects to the attitude scale failed to yield a significant difference (X^2 equals .227, two degrees of freedom).

In this sample of subjects Chi Square test results provided no evidence of differences between the independent variable of "age of child" and the dependent variables of attitude toward stuttering and countings of stutterings.

Grade Level Taught

Of the total number of 148 subjects, 79 reported that they taught one of the grades kindergarten through third; 69 reported that they taught one of the grades fourth through sixth. A comparison of the countings of stutterings for these two groups failed to yield a significant difference (X^2 equals .46, one degree of freedom).

A comparison of the responses of these two groups of subjects to the attitude scale failed to yield a significant difference (X^2 equals 1.02, two degrees of freedom).

In this sample of subjects Chi Square test results provided no evidence of differences between the independent variable of "grade level taught" and the dependent variables of attitude toward stuttering and countings of stutterings.

Career Plans

Of the total number of 148 subjects, 45 reported that teaching, for them, was a temporary position. One-hundred and three subjects reported that teaching, for them, was a permanent career. A comparison of the countings of stutterings for these two groups failed to yield a significant difference (X^2 equals .408, one degree of freedom).

A comparison of the responses of these two groups of subjects to the attitude scale failed to yield a significant difference (X^2 equals .838, two degrees of freedom).

In this sample of subjects Chi Square test results provided no evidence of differences between the independent variable of "career plans" and the dependent variables of attitude toward stuttering and countings of stutterings.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

The results of this study indicate a positive relationship between counting of stutterings and attitude toward stuttering. That is, a group of judges manifesting "good" attitudes toward stuttering will tend to count more "moments of stuttering" in a given sample of speech, than will a group of judges manifesting "poor" attitudes toward stuttering. This concomittance, however, does not establish a causal relationship between counting of stutterings and attitude toward stuttering. Statements of cause-effect relationships between counting of stutterings and attitude toward stuttering are contingent upon further investigation.

Research, for example, might be profitably directed toward the following questions: Does a listener's attitude toward stuttering determine the number of speech phenomena he will label stuttering in a given passage of speech? Are both attitude toward stuttering and counting of stutterings determined by another variable or set of variables?

If attitude toward stuttering and counting of moments of stutterings are causally related, a change in attitude toward stuttering would be followed by a change in countings of stutterings. Two groups of subjects with equivalent attitudes toward stuttering could be asked to count moments of stuttering. One of the groups could then be exposed to a

message designed to ameliorate attitude toward stuttering. The two groups could then be asked to again count moments of stuttering. An increase in countings of stutterings for the group exposed to such a message would tend to validate the causal relation between attitude toward stuttering and counting of stutterings. Change in attitude toward stuttering could also be tested and retested in this manner.

Similar research could determine the effects of different kinds of messages on both attitude toward stuttering and counting of stutterings. For example, would operationally-defined "information" messages (messages designed to increase knowledge about stuttering) change attitude and subsequent counting of stutterings? The test-retest design, as described above, could be used to evaluate the effects of interpersonal contact with stutterers upon subjects' attitudes and countings of stutterings.

Training in speech correction, as represented by the judges employed in this study, tends to sensitize an individual's perception to moments of stuttering. Sophisticated judges (subjects who had taken formal college course work in speech correction) counted significantly more "stutterings" than did naive judges. Furthermore, an individual's attitude toward stuttering tends to "improve," i.e., become more tolerant, with training in speech correction. Sophisticated subjects not only counted more "moments of stuttering" than did naive subjects, they also manifested "better" attitudes toward stuttering.

These results would indicate the wisdom of requiring elementary teachers to take formal college course work in speech correction. Similar benefit might be realized by in-service training of the elementary school teacher by the public school speech therapist or by encouraging interpersonal contact between elementary school teachers and individuals who stutter. The attitude of an elementary school teacher might well determine whether or not a given child will begin to stutter.

The following question was raised by subjects in each of the groups tested: "How many stutterings are there really on the tape?" Using an extensional definition of stuttering (counting stutterings), the tape-recorded passage used in this experiment apparently did not contain a "real" number of stutterings. In terms of a physical definition of stuttering, however, there might be a "real" number of stutterings in the tape recorded passage of speech. A physical definition of stuttering might be operationally defined in a number of ways. For example, a normal speaker whose pitch and loudness variability were similar in nature to the "normal" speech of the stutterer could read the same passage recorded for this experiment. Both of these readings could then be subjected to a visible speech analysis. A moment of stuttering might be defined as certain observable deviations between the two voice characteristics. A

similar physical definition might be derived from a PGSR or polygraph device. Using these definitions the experimenter could determine the extent to which sophisticated subjects and naive subjects deviated in their countings from the "real" number of stutterings. It might be found, for example, that sophisticated subjects' countings of stutterings do not differ significantly from the "real" number of stutterings. Sophisticate subjects, for instance, may be realistic in their evaluation of abnormal speech. Naive subjects, perhaps, due to a perceptual defense phenomenon, might significantly "underperceive" in their countings of stutterings.

It might be found, however, that both naive and sophisticate subjects differ significantly in their countings from the "real" number of stutterings: sophisticates, because they have a reaction sensitivity or "set", may significantly "overperceive" abnormal speech phenomenon; naive subjects, because of the possible "underperception" described above, may count less speech phenomenon.

On the basis of the findings of this study, recognizing that limitations may exist due to the particular population sample tested and the experimental conditions employed, the following conclusions are drawn:

1. Attitude toward stuttering and counting "moments of stuttering" are positively related.

2. Training in speech correction has an ameliorative

effect upon attitude toward stuttering. Subjects trained in speech correction manifested "better" attitudes toward stuttering than did subjects not so trained.

3. Training in speech correction tends to "sensitize one to 'moments of stuttering.'" Subjects trained in speech correction counted more moments of stuttering than did subjects not so trained.

4. The independent variables of marital status, parental status, age of subjects' children, grade level taught and career plans are not related to the dependent variables of attitude toward stuttering and extensional definition of stuttering.

5. There is no "real" number of stutterings in terms of a perceptual definition of stuttering; listener attitude is related to the number of speech phenomena that will be labeled as stuttering; the "better" one's attitude is toward stuttering, the more "moments of stuttering" that will be counted.

BIBLIOGRAPHY

Ainsworth, S. and Gretchen Lloyd, "The classroom teachers activities and attitudes relating to speech correction," Journal of Speech and Hearing Disorders. 19: 244-249, September, 1954.

Bloodstein, O., "A rating scale study of the conditions under which stuttering is reduced," Journal of Speech and Hearing Disorders. 15: 29-36, February, 1950.

Boehmler, R., "A quantitative study of the extensional definition of stuttering with special reference to the audible designata." Ph.D dissertation, State University of Iowa, 1953.

Cameron, N., The Psychology of Behavior Disorders. Cambridge, Massachusetts: Houghton and Mifflin, 1956.

Cornell, F., Essentials of Educational Statistics. New York: John Wiley and Sons, 1956.

Glaudin, V., "Speed and visual recognition of operationally defined primitive, social and neutral printed words in so-called criminal psychopaths, neurotics, and normal individuals." PhD dissertation, University of Illinois, 1954.

Johnson, W., and Robert Ammons, "Studies in the psychology of stuttering: XVIII. The construction and application of a test of attitude toward stuttering," Journal of Speech Disorders. 9: 39-49, February, 1944.

Johnson, W., F. Darley, and D. Spriestersbach, Diagnostic Manual in Speech Correction. New York: Harpers and Bros., 1952.

Johnson, W. (editor), Stuttering in Children and Adults. Minneapolis, Minnesota: Minnesota Press, 1955.

Katz, E., D. Cartwright, et al, Public Opinion and Propaganda. New York: Dryden Press, 1954.

Knudson, T., "A study of the oral recitation problems of stutters," Journal of Speech Disorders. 4: 235-239, September, 1939.

McGinnis, E., "Emotionality and Perceptual Defense," Psych Review. 56: 244-251, 1949.

Perrin, E., "Rating of defective speech by trained and untrained observers," Journal of Speech and Hearing Disorders. 19: 48-51, February, 1954.

Remmers, H. H., "Further studies in Attitude," Series III-Studies in Higher Education. 34: 1-24, 1938.

Rose, A.M., Studies in the Reduction of Propaganda. Chicago: American Council on Race Relations, 1947.

Rosenberg, A. and J. Curtiss, "The effects of stuttering on the behavior of the listener," Journal of Abnormal and Social Psychology. 49: 355-360, 1954.

Siegle, S., Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Co., 1956.

Smith, F. T., "An experiment in modifying attitudes toward the Negro," PhD dissertation, Columbia University, 1943.

Smith, M., "A study in change of attitude toward the negro," Journal of Negro Education. 8: 14-70, 1939.

Travis, L. (editor), Handbook of Speech Pathology. New York: Appleton-Century and Crofts, 1957.

Tuthill, C., "A quantitative study of extensional meaning with special reference to stuttering," Speech Monographs. 13: 81-98, 1946.

Webb, C., "Selected variables in nasality judgement," PhD dissertation, Pennsylvania State University, 1957.

Willey, Norman, "A study of listener reactions to normal versus stuttering speech," M.A. thesis, Indiana University, 1957.

APPENDIX

APPENDIX I

Purpose of the scale: This is not a test or a quiz. There are no right or wrong answers. It is a scale of attitude toward stuttering. In order to help stutterers, we must know their attitude and the attitude of other people in connection with stuttering. Please mark this questionnaire as carefully as you can. We want to know your attitude. Don't hesitate to put down what you believe.

Date_____ Sex_____ Marital status: Married____ Single___

1. If married, do you have children?_____
   a) under four years_____ over four years_____
   b) do any of them stutter? under four years_____
      over four years_____

2. Do any of your relatives stutter? yes___ no___

3. With how many stutterers other than relatives have you been acquainted?_____

4. Have you ever noticeably stuttered? yes___ no___

5. Have you ever taken a course in Speech Correction?
   yes___ no___
   a) postgraduate school____ undergraduate school____

6. Is there a speech correction service in your school?
   yes___ no___

7. What grade level do you teach? (circle correct response):
   K-1-2-3-4-5-6

8. How long have you taught at this grade level?_____

9. How long have you taught all together?_____

10. Do you plan on teaching as a: permanent career_____; or as a temporary position_____

Procedure: Now you are ready to begin marking the scale,

which begins at the top of the next page. In responding to each item, you are to circle the response which best reflects your own attitude. Work accurately and as rapidly as possible. Don't spend a great deal of time analyzing wording. Mark all statements. If you are not sure of what your attitude is, mark the best guess and go on.

Remember: In responding to each item, circle the answer which best reflects your own attitude.

1. If a person at the family dinner table is about to stutter on a word, he should substitute another word for it and go on.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

2. When giving a talk before a group of friends, a person should talk more slowly and prolong sounds in order to put off saying words he thinks he is going to stutter on.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

3. A stutterer should try out for the debating team.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

4. A fellow should prefer to sit in silence rather than stutter to a girl he is with at a party.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

5. A husband who stutters whould try to have his wife answer the doorbell or telephone.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

6. If while introducing two friends, a person believes he will stutter, he should prolong the final sound of the preceding word or say "a-a-a" until he believes he can get the word out.

7. If he feels he will stutter while doing so, a father should avoid talking to his son about sex and marriage.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

8. If a girl goes for an auto ride with a young man she likes and believes she will stutter, she should speak as little as possible.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

9. When at a party you should talk as little as possible if you are a stutterer.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

10. If she stutters, a girl should not apply for a position as salesgirl in a department store.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

11. A person should not be a Boy or Girl Scout leader if he stutters.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

12. If you stutter, you should not prepare yourself to be a salesman.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

13. A person should be embarrassed if he stutters while telling a casual, chance acquaintance about a book he has read.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

14. A stutterer should not volunteer to be class secretary.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

15. You should be embarrassed if you stutter while talking before a school assembly.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

16. A boy who stutters should not run for class or school president.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

17. If you feel you are going to stutter when answering the phone, you should try to boost up your courage by trying to tell yourself you won't stutter.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

18. If one is telling a story at a party and thinks he is going to stutter on a word he should try to find an easier word to take its place.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

19. If a person believes he will stutter when applying at a certain time for a job as a janitor, he should wait until later to apply, when he believes his speech will cause him less embarrassment.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

20. When visiting a friend's house for the evening and asked what he would like to do or play, a stutterer should choose a game where he would have little talking to do.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

21. If a person stutters while talking in class, he should talk more loudly and act more confidently.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

22. A street car conductor should be embarrassed if he stutters on the name of a street he is calling out.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

23. A stuttering woman should avoid going into a store to buy a hat if she believes the saleslady will feel sorry for her or secretly laugh at her because of her stuttering.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

24. If a person stutters while answering a question in class, he should just stop and start over again.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

25. A person should not try to tell jokes to a person of the opposite sex if he is likely to stutter while doing so.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

26. A girl should feel embarrassed if she stutters saying her escort's name when introducing him to some of her friends.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

27. A stutterer should try to be hired for jobs requiring little speaking-for example, janitor or wrapping clerk.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

28. A salesgirl should be embarrassed if she stutters while trying to sell an article.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

29. A person should try to avoid leading a prayer at church or Sunday school if be believes he will stutter.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

30. A stutterer should stay at home and listen to the radio rather than go to a discussion group where he would stutter if called on to speak.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

31. If he feels he will stutter while asking a girl to go with him to a party, a fellow should put off asking, hoping that later on his speech will be more fluent.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

32. If he believes he will stutter, a husband should avoid embarrassing his wife by talking while at a dinner given by one of her close friends.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

33. At church, if a person believes he will stutter while introducing friends, he should wait until some time later when he feels less likely to stutter.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

34. A salesgirl should be embarrassed if she stutters while trying to sell a book to a man.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

35. A teacher who stutters should conceal this by substituting easy words for the hard ones he feels he will stutter on.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

36. A stutterer should not plan to be a lawyer.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

37. A wife who stutters should try to keep it from her husband's notice by speaking slowly or prolonging sounds until she thinks she can say her words better.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

38. If he stutters, a young man should not prepare himself to be a salesman.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

39. A teacher generally should not call upon a stutterer in his class for oral recitation.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

40. A stutterer should not be a bus driver.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

41. If a person stutters in one of your classes, you should feel sorry for him.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

42. If acquaintances come to visit the family, a stutterer should leave the talking to them up to non-stuttering members of the family.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

43. When asked at a party to choose between a game where he will have to talk a good deal and one where he could keep still, the stutterer should choose the one where he could keep still.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

44. A woman who stutters should avoid meeting and talking with her husband's influential friends.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

45. A barber who stutters should not stutter while giving haircuts.
Strongly agree Moderately agree Undecided
Moderately disagree Strongly disagree

APPENDIX II

INTRODUCTION USED TO THE GROUPS OF SUBJECTS

This is a study in the field of speech correction. Your assistance in this project will aid us in our clinical work. You will be asked to perform two tasks: listen to a tape recording and count the number of stutterings that you hear, and fill out a questionnaire and scale about stuttering. There are, of course, no right or wrong answers to these questions. The tape you will hear was made by a young man who considers himself to be a stutterer, and who has been clinically diagnosed as a stutterer. You may start counting the stutterings after the second click you will hear on the tape. After we have listened to the tape, and counted the number of stutterings on the blank page of the form, we will go on to the questionnaire. Does anyone have a question? (Usually someone asked the experimenter to define what he meant by "stutterings." In this instance the instructions above were repeated.)