AN EXPERIMENTAL STUDY OF THE RELATIONSHIP BETWEEN EMPATHY AND ATTITUDE CHANGE

by

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TABLE OF CONTENTS

Chapter 1

BACKGROUND AND RATIONALE

Most experimental literature concerned with attitude change and its relationship to sex of the subject has shown women to be more easily persuaded than men. A fraction of the available studies suggest that there are no significant differences, and interestingly enough, only one researcher has found men to shift attitudes more than women. Montgomery and Burgoon (1977) sum it up:

> In many areas of persuasion, the empirical data are so overwhelming and contradictory that the derivation of law covering statements and the construction of sound theory is difficult if not impossible. This is especially true in the sex and persuasibility literature which is replete with reports of confusing and often contradictory findings. (p. 130)

As early as the 1930's, researchers were comparing the attitude change of men and women after the subjects had listened to a short persuasive speech. Knower (1935) asked: "Is there any difference in the effect of an argument on the change of an attitude in persons of different sexes?" (p. 317).

In order to answer this question, Knower selected a topic on which people "might be expected to have a fairly definite opinion" (p. 308).

Based on the doctorial thesis of Turtletaub at the University of Minnesota, Knower chose the topic prohibition. Four speeches were prepared. Two were "dry" speeches in favor of prohibition, and two were "wet" speeches opposed to prohibition. One speech from each category used factual and logical appeals. The two other remaining speeches were constructed primarily with emotional appeals which Knower called "persuasive" appeals.

The manuscripts of the four speeches were submitted to ten university teachers who rated the persuasiveness of the speeches. Although Knower did not mention the criteria used for rating the speeches, he did state that "the rating scale scores returned by these teachers not only showed that the speeches were typical of the type they were designed to represent, but also that the opposing logical and persuasive speeches on each side of the question represented approximately equal degrees of extremeness of typicality of the type in question" (p. 320).

Instead of a tape recording of the speeches or a manuscript in the actual testing, live speakers delivered the persuasive messages to the subjects. A total of 607 experimental subjects were used, and 300 additional subjects served as controls. All of the subjects were university students.

The Smith and Thurstone "Attitude Toward Prohibition" scale was used to measure attitudes toward prohibition. The time elapsing between the first and second administration of the attitude test varied from two to six weeks.

Knower concluded that "changes of attitude in women occurred to a greater extent and in greater numbers than occurred in the case of men subjects. About one-third of the women made a statistically significant change of attitude as compared with one-fifth of the men" (p. 343).

Scheidel (1963) concurred with the results of Knower. Scheidel tested attitude change in 242 college students using an attitude scale constructed by himself. Two randomized forms of the scale were prepared and called forms A and B. The entire testing was conducted within a single class period. Form A was completed by the subjects and then they listened to an eleven minute persuasive speech written by the experimenter on the expansion of federal powers. Immediately after hearing the speech, Form B was administered to measure post-test attitudes. A test for retention was also administered. Scheidel concluded that "women, as compared with men, are significantly more persuasible, significantly more inclined to transfer the persuasive appeal, and significantly less retentive" (p. 354).

Other researchers who found women to be more easily persuaded included Knower (1936) in a second study, Willis (1940), Bateman and Remmers (1941), Haiman (1949), Paulson (1954), Sikkink (1956), Janis and Field (1959), Furbay (1965), and Burgoon and Stewart (1975).

The controversy is launched by researchers who report no sex differences in attitude change. Bostrom and Kemp (1969), for example, conducted a study similar to those completed by Knower and Scheidel, but Bostrom and Kemp found no sex differences.

Bostrom and Kemp used two taped speeches. One was pro-Negro, and the other was anti-Negro. A panel of six judges consisting of graduate students and faculty at a university rated the persuasive effectiveness of the speeches on a seven-point scale. A rating of 7.0 was very pro-Negro, and a rating of 1.0 was very anti-Negro. The pro-Negro speech averaged a rating of 6.33, and the anti-Negro speech averaged a rating of 3.00.

At the beginning of the semester, the subjects were given an attitude test. Eight weeks later subjects were randomly assigned to experimental groups where they listened to a taped recording of one of the two speeches. The post-test of attitudes was taken, and sex differences in persuasibility did not occur.

Miller and Cherrington (1933); Kirkpatrick and Stryker (1952); Diggory (1953); Utterback (1954); Abelson and Lesser (1959); Eagly (1969); Glass, Lavin, Hency, Gordon, Mayhew, and Donohoe (1969); and Miller and McReynolds (1973) also found no differences in persuasibility between the sexes.

Somewhere between the extremes of research which reports sex differences and research which does not report sex differences, lies the work of researchers who have attempted to answer the question of sex and attitude change by isolating intervening variables.

Jenks (1978) believed sex differences would only surface through issue content; i. e. women would change attitudes more on topics such as sports and busing, but less than men on religion and "right to die" speeches. "Contrary to expectation, a main effect for sex was also found with the males changing less than the females. No significant interaction was found between sex and issue" (p. 283).

Yet, the variable of issue content is clouded when reviewing Warner's study (1975). Warner found that "females seem to be more persuasible and retain less information when the topic is male-oriented but not when it is female-oriented" (p. 33). Warner was the only researcher to report results in which men changed attitudes more than women when listening to a speech. The men significantly changed their attitudes more than women on the female-oriented topic of breast feeding.

The procedures used by Jenks and Warner were not strikingly different, yet the results were inconsistent. Perhaps the inconsistent results between the Warner and Jenks study were produced by variations in speech effectiveness. Warner used two speeches. One was on rotary engines, which was the male-oriented topic, and the other speech on breast feeding, was the female-oriented topic. Jenks used a total of four speeches. The two female-oriented speeches were on religion and euthanasia. The two male-oriented speeches were on busing and sports.

An examination of the scripts used in Warner's rotary engine and breast feeding speeches indicated that for the most part, these speeches relied on logical appeals. This excerpt, for example, was taken from the rotary engine speech.

> In addition to its small size, it is economical. There are fewer pieces to the rotary engine, 600 as compared to over 1,000 in a V-8, and there are only two moving parts. A simpler engine, containing fewer parts, will obviously require less money spent on repairs. (p. 41)

Logical appeals were also used in the breast feeding speech although not as frequently as in the rotary engine speech. It is important to note that the emotional appeals in the breast feeding speech were very low-keyed. Here is an example of the appeals used in the breast feeding speech.

> Nature prepares her formula to fit the child's needs. Cow's milk, in comparison, has smaller amounts of the essential vitamins A, C, and E than breast milk. An infant who is not breast fed will require vitamin supplements very soon after birth to ensure adequate nutrition. (p. 38)

Although scripts for the speeches used in the Jenks study were unavailable, it is possible that the religion and euthanasia speeches relied heavily on value and emotional arguments. The inconsistency in results between the Jenks and Warner studies could have been produced by differences in persuasive appeals within the speeches.

It is also possible that these speeches varied widely in their abilities to change attitudes. The speeches were not pre-tested on a group of subjects, and therefore, it was unknown if the speeches could produce attitude change. Perhaps Jenks' speech on busing produced more attitude change than the speech on sports because the busing speech had better construction than the speech on religion.

Assuming variation in speech effectiveness was partially responsible for the contradictory results between the Jenks and Warner studies, could the variation have been avoided?

In an effort to remove as many extraneous variables as possible, a study void of a speech and speaker was devised by Rosenfeld and Christie (1974). The study was designed to test for sex differences in attitude change, but instead of rating a speech, the subjects rated unassociated trigrams and trigrams associated with positvely and negatively evaluated nouns. Some of the trigrams used were XOM, MYV, TEJ, and WUQ. Ten randomly selected nouns were given to females and ten randomly selected nouns were given to males. The subjects evaluated the nouns on semantic differential scales such as valuable/worthless, good/bad or pleasant/unpleasant. These positive and negative nouns were later paired with the trigrams which were determined to be meaningless. A final group of subjects then studied and completed a ten-page booklet in which they learned associations between the meaningless trigrams and the positive/negative

nouns. In other words, when the subject was given the trigram he was to respond with the paired noun, and when given the noun the subject was to respond with the paired trigram.

Rosenfeld and Christie concluded "that neither sex is persuaded more than the other on the majority of comparisons when the persuasion is content and communicator-free" (p. 253). They further suggested that "(1) content-bound results should not be used to support conclusions concerning persuasibility, or (2) if earlier studies were correct concerning persuasibility in women, women are gradually growing away from the 'traditional' dependence upon others and acquiring more confidence in their own judgments" (p. 253).

If women are growing away from traditional roles, how would this affect their response to a persuasive message? As an observation of changing roles for both sexes in the American society of the 1970's, Montgomery and Burgoon (1977) conducted a study to determine whether both sexes were growing away from the traditional sex roles and if this was having an affect on attitude change.

In their study, Montgomery and Burgoon placed subjects into groups more discriminant than male and female. Using a sex role inventory constructed by Bem (1974), the researchers placed subjects into three groups: (a) traditionally sex typed males, (b) traditionally sex typed females, and (c) androgynous individuals, i.e., people possessing both masculine and feminine personality traits.

The researchers had subjects rate their attitudes on semantic differentials before and after reading a persuasive message. The results indicated that traditionally sex typed males changed their attitude less than the traditionally sex typed females. Androgynous individuals

changed their attitudes less than the traditionally sex typed females but more than the traditionally sex typed males. These results support the common impression that women are submissive and dependent while men are "supposed" to be more knowledgeable and independent than women. At the same time, it shows that changing sex roles do have an effect on attitude change and that personality traits such as assertiveness and ambition could have a bearing on attitude change.

Using sex role identification as the intervening variable has not, however, produced consistent results in the persuasion research. Eagly (1969) studied sex role identification and its relationship to attitude change. She reported that "only for females is influencibility governed by sex-specific role expectations" (p. 587). Regarding males she wrote, "sex role identification did not relate to amount of opinion change" (p. 586). Yet, according to Montgomery and Burgoon, male as well as female attitudes are influenced by sex role identification.

Studies using sex role identification were not the first to use personality traits as possible intervening variables between sex and attitude change. A number of other personality factors have been individually tested for links with attitude change. Some of these have included richness of fantasy, feelings of social inadequacy, argumentativeness, hyperaggressiveness, and authoritarianism.

Yet, the controversy of sex and persuasibility remains unsolved. Even when researchers used the same personality variable, results were contradictory. For example, research by Silverman, Ford, and Morganti (1966) indicated that in some cases males low in self-confidence are more easily persuaded than males high in self-confidence. Eagly agreed that for males there is a nonmonotonic relationship between self-confidence

and attitude change. This relationship takes on an inverted U-shape, and therefore, it is not clearly understood by researchers. As for females in the Eagly study, self-confidence and attitude change had no observable relationship.

Cox and Bauer (1964), however, reported that in some conditions women respond the same way men do. "The requisite condition may be that women be genuinely involved in the task at hand" (p. 464). Cox and Bauer also reported that women very low in self-confidence become counter-persuasible. This observation was not made by the other researchers.

With so many sex and persuasibility studies available, why is there so little agreement? A possible explanation for the inconsistent and contradictory results may lie in variations of methodology used by experimenters.

One area of methodology which could greatly affect results is the tool used to measure attitude change. An examination of measurement tools employed indicates wide variation. Although most researchers have measured attitude change with semantic differentials, other devices have included the Woodward ballot, Smith and Thurstone's "Attitude Toward Prohibition" scale, Thurstone and Droba's "Attitude Toward War" scale, a scale similar to Goldberg and Rorer's, Likert scales, and Kelley-Remmers scale. These scales were not devised specifically for the persuasion research although some researchers such as Scheidel did devise their own tools to measure change in attitudes.

The probability of these scales equally measuring attitudes is small, but even when studies used the same scale, different results were reported. This was the case with a study conducted by Haiman (1949) and one conducted by Furbay (1965). Both researchers used the Woodward ballot

to measure attitude change, however, only Haiman found women to significantly change their attitudes more than men. Similarly, Utterback (1954) and Sikkink (1956) used nine-point scales to measure attitude change. Utterback reported no significant difference in attitude change between the sexes, and Sikkink reported significant sex differences.

Using the same measurement device for attitude change did not produce consistent results, but the measurement device is not the only methodological difference between the studies. An equally important aspect of methodology is the material used to induce attitude change. Most researchers employed speeches, however, variations still existed. Some experimenters used taped speeches, while others used written speeches, and some researchers used live speakers. Bostrom and Kemp (1969), Furbay (1965), and Scheidel (1963) all used audio taped speeches to induce attitude change. Bostrom and Kemp reported no significant sex differences, but Scheidel and Furbay found females to significantly change their attitudes more than males. Even when the same communication channel was used to convey the persuasive message, differences occurred in the results.

As mentioned earlier when discussing the Jenks and Warner studies, effectiveness of the speeches or their ability to persuade might have affected results. Researchers did not always report whether the speech had been pre-tested for effectiveness, and in studies such as the one conducted by Jenks (1978) where several speeches were used, can the experimenter determine whether the speeches were equally persuasive? In addition, studies which reported no significant differences between the sexes may have been using poorly constructed speeches that could not produce enough dissonance to generate a change of attitude.

Other researchers relied on panels to review the speeches and judge

whether the speech was effective in producing attitude change. This procedure was used by Knower (1935, 1936), Willis (1940), Furbay (1965), and Bostrom and Kemp (1969). However, speech effectiveness is not guaranteed because a panel of "professional" judges conclude the speech could produce attitude change. A superior approach to proving speech effectiveness would be to pre-test the speech on a group of subjects before implementing it in the actual study. A review of the available literature on attitude change and sex does not reveal any studies which have pre-tested the speech on a group of subjects.

There are yet other differences in methodology which may or may not account for the confusion in results. In terms of sample size, there was wide variation between studies. Jenks (1978) used cells as small as 18, and Paulson (1954) used cells as large as 286. Jenks found females to significantly change their attitudes more than men, but Paulson found no significant differences although females tended to shift their attitudes more than males. Scheidel (1963) used 104 men and 138 women and found significant sex differences.

Finally, in regards to methodology, there was variation in what type of subjects were used. Batemen and Remmers (1941) and King (1959) used high school students while Cox and Bauer (1964) used housewives. Most of the studies used college students, but contradictory results could have occurred due to age differences in the subjects. It is generally accepted knowledge that overall, females mature faster than males in both physical and emotional aspects of development. It is possible that because of variations in reaching emotional maturity and in socialization of the sexes, males and females may differ in persuasibility more at one age level than at another age level. To the knowledge of this writer, this idea is un-

researched and consequently, unsupported.

While there are obvious methodological differences in the persuasion research which could account for contradictory results, how do researchers explain the strikingly different results when methodology is the same?

Various theories have been developed to explain the contradictions, and long before these more recent theories were conceived, the great minds of the Classical World had already formulated ideas regarding the sexes. Plato in his Symposium described both sexes as whole beings who possessed the same basic nature and worth. He stated both sexes should receive equal education and equal respect before the law.

His later writings reflected a different perspective on the sexes. In his Timaeus, Plato writes that being a woman is a punishment and an inferior state.

> If they [men] conquered these [emotions such as love, pleasure, pain, fear, and anger] they would live righteously, and if they were conquered by them, unrighteously. He who lived well during his appointed time was to return and dwell in his native star, and there he would have a blessed and congenial existence. But if he failed in attaining this, at the second birth he would pass into a woman, and if, when in that state of being, he did not desist from evil, he would continually be changed into some brute who resembled him in the evil nature he had acquired, and would not cease from his toils and transfor-

> mations until he helped the revolution of the same and the like within him to draw in its train the turbulent mob of later accretions made up of fire and air and water and earth, and by this victory of reason over the irrational returned to the form of his first and better state. (p. 1170-1171)

Aristotle espoused the theory of female incompleteness of woman as a maimed man. He viewed woman as an infertile man and in The Generation of Animals he wrote that "we should look upon the female state as being as it were a deformity though one which occurs in the ordinary course of nature" (p. 103).

Through the centuries, the idea of woman being a defective man has had great impact on the sex theory. Theorists such as Freud, Jung, and others have expanded and added to the theories of the Classical World. Instead of addressing every psychological, biological, and sociological theory ever proposed, the following summary of theoretical approaches used in persuasion research is greatly condensed. The intent here is to provide a profile of the theories in an effort to explain the contradictions in research and not to detail every tenet of each theory.

The first of the two theoretical approaches to be discussed herein looks outside of the individual or to the environment to explain behavior. Under this theory it is stated that "behavior is controlled by its consequences," thus, in terms of persuasion, if females truly are more easily persuaded than males, little girls are being rewarded for submitting to other people's opinions while little boys are rewarded for "standing their own ground." Hovland and Janis (1959) wrote the following:

> The culture seems to demand of girls greater acquiescence in relation to prestigeful sources of information . . . with the result that girls on the whole are more susceptible to influence regardless of their personality traits. (p. 230)

Eagly explains further:

> Sex-role identification relates more strongly to influencibility in females because males lack definite role requirements concerning yielding to influence. (p. 590)

Bostrom and Kemp (1969), as well as Marcie and Friedman (1970), provide similar explanations. They add a note comparable to Bem, and Montgomery and Burgoon, that women have fluctuated in their willingness to fill cultural roles. For example, women were less likely to fulfill "feminine" roles as housewives and secretaries in the 1970's than they were in the 1950's.

Most of the outside theorists contend, however, that societal or cultural reinforcement of behavior does not fully explain how children learn appropriate sex-role behavior such as submissiveness or aggressiveness. They go on to suggest imitation as a crucial part of the theory. Tavris and Offir (1977) offer this summary:

> Parents would be kept busy twenty-four hours a day rewarding and punishing, rewarding and punishing, for each detail of behavior. Besides, most adults are not aware of the many mannerisms, gestures, and speech habits that are part of their sex roles. Such nuances, say the theorists, must

> be learned through imitation. Children do a lot of apparently spontaneous imitating; possibly they copy other people because adults have rewarded them for copying in the past, or perhaps they are simply natural mimics. (p. 165)

Whether the behavior is controlled, imitated, or both, the general conclusion remains that children imitate or model adults who are "friendly, warm, and attentive" (p. 165), as well as adults who control resources that are important to the child such as cookies or privileges to stay up late. For an in-depth discussion of this perspective, one would turn to Skinner's work on behaviorism.

The second theoretical approach discussed here involves theories which look "inside" the individual for answers to explain sex differences or lack of sex differences. These theories and their accompanying research have analyzed a variety of personality variables: self-esteem, self-confidence, social desirability, intelligence, richness of fantasy, interpersonal aggression, interest, locus of control, authoritarian aggression, cycicism, destructiveness, and many others. The available research suggests that some personality traits are more prevalent in one sex over the other sex. For example, research concerning aggression suggests males overall are more aggressive than females from pre-school on. Other personality traits cannot be so easily summarized.

The inside theories allow for individual people to differ from other individuals within their sex. This is a strength of the approach because it allows for women to differ from other women and men to differ from other men. Tavris and Offir (1977) write in The Longest War:

> To say that one sex outdoes the other on some

> test does not mean that all members of that sex do better than all members of the opposite sex. Men and women overlap in abilities and personality traits, as they overlap in physical attributes. Men on the average are taller than women, but some women are taller than most men. (p. 33)

While some inside theorists may agree with Sigmund Freud to whom the phrase "Anatomy is destiny" is attributed, many do not believe personalities are "wired in" at birth. The puzzles of "how?" and "why?" an individual's personality develops remain unsolved.

Although research on personality traits is quite diverse, some traits have received more attention than others. One personality trait which has generated a large amount of research is empathy. Much like the research on attitude, empathy research has produced conflicting results concerning sex differences. Most of the empathy research has found females to be more empathetic than males. Just like the persuasion research, there are several studies in which no empathic differences are found between the sexes. Could there be a relationship between attitude change and empathy? Before pursuing the possibility further, it is necessary to summarize the available literature on empathy. The easiest way to accomplish this task is to categorize the material by age of the subjects since research has involved age levels from infant to adult.

Beginning with research on infants, two studies have found differences in empathic responses for males and females. Simner (1971) used subjects whose age averaged 70 hours, and Sagi and Hoffman (1976) used infants averaging 34 hours in age. Simner used the cry of a female infant to provoke empathy and measured empathy by determining whether or not the infant subject cried in response. Simner found "that female

infants are somewhat more responsive than male infants in their reaction to the cry of another infant" (p. 141).

Using the same procedure, Sagi and Hoffman also found that females cried more in response to another infant's cry. They stated, however, that since the stimulus cry came from a female infant, the experiment should probably be replicated using a newborn male cry.

The question arises: Can the responsive cry of the subject truly be termed empathy? Sagi and Hoffman anticipated this argument and offered a defense of their results.

> The fact that 1-day-old infants cry selectively in response to the vocal properties of another infant's cry provides the most direct evidence to date for an inborn empathic distress reation. The possible influence of simple learning mechanisms must also be considered, however, because testing was not done immediately after birth. Vocal imitation can probably be ruled out, since the newborn's response when exposed to another infant's cry appears to be full-blown, spontaneous cry, indicative of a distressed state. Simner too (personal communication) recalls the cry as lusty, fretful, and resembling a spontaneous cry. Thus, the infants seemed not merely to be making a vocal response to a vocal stimulus. The tenability of conditioning as an explanation depends on whether it is possible in 1-day-old infants. (p. 176)

Indeed, the strength of studies such as these lies in the fact that the investigators are attempting to record evidence of empathy before there is any chance of socialization, conditioning of responses, or personality development. Sagi and Hoffman suggest that similar studies should be conducted in the delivery room to further rule out the possibility of conditioning.

The next age group researchers have dealt with is ages three to eight years. It is difficult to make conclusive statements about a particular age such as five or six because some studies used subjects from a single age while other studies used subjects from a range of ages. The process of grouping subjects may have affected the results because children develop rapidly at these early ages.

Feshbach and Feshbach (1969); Gitter, Mostofsky, and Quincy (1971); Levine and Hoffman (1975); Hoffman and Levine (1976); and Deutsch (1975) conducted studies with subjects aged three to five.

Feshbach and Feshbach (1969), using four and five year olds presented the subjects individually with a series of slides depicting situations designed to provoke different responses (i.e. happiness, sadness, fear, anger). The female experimenter read the child a story about the person in the slides.

> Each sequence consisted of three slides. There were two sequences for each of the affects of happiness, sadness, fear, and anger. In addition, two alternate sets of these eight situations were prepared, each set identical in content but different in terms of the sex of the stimulus figure. The male and female stimulus

series was randomly assigned to half of the children in each sex group. Accompanying each slide sequence was a short narration, matched for number of words over all affects, describing the events reflected in the slides. The narrations were so constructed that the use of specific or general affective labels was completely avoided. The following narration which accompanied the male, sadness slide sequence typifies the construction of the series:

> Slide 1: Here is a boy and his dog. This boy goes everywhere with his dog, but sometimes the dog tries to run away.
>
> Slide 2: Here the dog is running away again.
>
> Slide 3: This time the boy cannot find him, and he may be gone and lost forever.

In order to heighten the impact of the affective content, the two sequences depicting a particular affective situation were always presented consecutively. To reduce the residual-carry-over from one affect to another, a brief sorting task was interspersed between each of the three changes in affective categories. (p. 103)

After the slides and story, the subject was asked "How do you feel?" and

"Tell me how you feel." The responses were recorded verbatim and subjects received a score of one for each correct identification of the emotion depicted in the slides. The scores could range from 0 to 8. Responses were rated by two people with a 95% agreement.

A t-test indicated that girls were more empathetic than boys in the "sadness" sequence and to a lesser degree in the "fear" sequence although these differences were statistically borderline. Feshbach and Feshbach suggest that the difference may be a result of boys having "more difficulty than the girls in experiencing or admitting sadness" (p. 105). The researchers ruled out the possibility of the girls comprehending the language better since the total comprehension scores for the boys was 4.5 and 5.0 for the girls.

Hoffman and Levine (1976) attempted to replicate the Feshbach and Feshbach study by using four year olds. "Girls obtained higher empathy scores than boys; the difference was borderline statistically, as in Feshbach and Feshbach" (p. 557). Both the Feshbach and Feshbach, and Hoffman and Levine studies used a relatively small sample size (N = 48 and N = 77 respectively). Hoffman and Levine then combined the findings of both studies for "a more appropriate interpretation . . . The resulting difference is clearly significant. We may therefore conclude that preschool-age girls do appear to be more empathic than boys" (p. 557).

Hoffman and Levine (1975) conducted an earlier study with 38 female and 42 male four year olds using the same procedure detailed for the Feshbach and Feshbach study. The results state "the empathy scores for individual emotions differed from each other statistically . . . . The girls also obtained higher empathy scores than the boys" (p. 534).

Borke (1973) using Chinese and American children also found sex

differences in empathy. In her study, 288 Chinese and 288 American children were tested. During preliminary testing, children in each culture were asked what situations made them feel happy, sad, afraid, or angry. "Responses common to both groups were used as the basis for constructing two sets of stories" (p. 103). One set of stories described general situations in which the child might experience one of the four emotions. The other set of stories described situations in which the child being tested would hypothetically do something to cause another child to feel happy, sad, afraid, or angry.

After administering the stories to 87 Chinese and 96 American second-graders, four stories showing the highest agreement in children's responses were chosen for each of the affective categories. "Also selected were four situations which showed high agreement among children's responses in one cultural group but not in the other and three situations which showed high variability of responses for the children in both cultural groups" (p. 103).

Finally, 23 stories were given to 288 Chinese and 288 American children. Half in each group were from disadvantaged families and half from middle-class families. There were equal numbers of boys and girls. Twelve girls and twelve boys were tested every six months between the ages of three and six. They had similar socioeconomic and cultural backgrounds.

The tests were administered individually to the subjects by graduate students in the United States and senior psychology majors in Taiwan. The examiners began by asking the child to identify drawings of faces representing the four emotions. The first set of stories was then presented. Each story included a picture of a child with a blank face

performing the activity of the story. The child was asked to select the face from one of the drawn faces that best showed how the child in the story felt. The four drawn faces were presented in random order and the examiner "again identified the emotions for the youngsters" (p. 103).

The Chinese and American children were compared for the number of correct responses of happy, afraid, sad, or angry. Analysis of variance showed a significant main effect for sex at the .01 level. This was an overall effect and did not apply to the individual emotions.

> In both cultures, girls were more accurate than boys in their ability to perceive social situations. There were no significant interactions between sex and any of the other variables. (i.e. nationality, status, age, or emotion). Separate analyses of the four emotions--happy, afraid, sad, and angry--also showed no significant differences between girls and boys. (p. 106)

Borke also reported that Chinese and American children by ages three to three and one-half years were able to easily differentiate between situations that would produce happy and unhappy responses in other people. This concurs with Burns and Cavey (1957), Hamilton (1973), and others who have specifically searched for age differences in recognition of emotion.

Chinese middle-class children were more accurate in identifying fearful situations at ages three to three and one-half years than were Chinese lower-class or American lower- or middle-classes of the same age. The American middle-class three to three and one-half year olds had greater difficulty identifying fearful situations than happy, sad, and angry situations.

Chinese lower- and middle-class children between three and four years of age were more accurate in their recognition of sad situations than American lower- or middle-classes of the same age. Borke suggests this may be related to the emphasis in Chinese culture on feeling "shame" or "losing face." As the chronological age of American children increased, so did their ability to recognize sad situations.

All ages in both cultures had the greatest difficulty identifying angry situations. Anger was most often confused with sadness. Borke theorized that "conflict is associated with feeling anger in both the American and Chinese societies. There was also evidence that some individuals respond to frustration primarily by feeling angry and others by feeling sad" (p. 107).

Regarding sex differences she writes:

> In the present study, sex differences appeared as a significant variable but contributed the least to overall variance. One possible conclusion is that any significant relationship which might exist between empathic ability and sex is very small and can easily be affected by slight variations in the populations from which the samples are drawn. (p.107)

Borke's conclusion would appear to be bourne out by a number of studies which found no differences between the sexes. A study which seems especially representative of the confusion in results is one by Feshbach and Roe (1968) using six and seven year olds which employed two different scoring procedures. The experimenters found significant sex differences with one procedure but found no differences with the second scoring procedure. The first procedure was the same as that used by

Feshbach and Feshbach (1969). A series of slides were presented to the subjects. The responses were recorded verbatim and subjects received a score of one for each specific match. Replies to the question "How do you feel?" were scored only if they were specific such as "I feel mad." Responses like "not so good" were not scored. With this procedure, the "mean empathic score for girls observing girls is significantly greater than the corresponding score for boys observing boys" (p. 139).

The second scoring procedure was "broader in that empathy was scored if the affective category and verbal response were consistent in terms of their negative or positive connotations" (p. 136). Responses such as "afraid" or "scared" would have been acceptable in this scoring procedure, but not in the first. The two scoring procedures were applied to the responses of 27 subjects who were re-administered the slide series.

> Thus, the sex differences in empathic responses to same-sex stimuli, observed with the more specific empathy method, are no longer present under the second scoring method. This difference was largely due to the fewer specific empathy responses of the boys to the fear stimulus. Since the social comprehension data (second scoring procedure) indicate that the boys are no less discriminating than girls in their labeling of the affective responses of others, it may be inferred that boys are reluctant to describe themselves as afraid and tend to use more general descriptions, such as 'feel bad.' These considerations indicate that boys are no

> less empathic than girls. Further, any sex differences are subordinated to the interaction between the sex of the subject and the sex of the stimulus. (p. 143)

Other studies have also failed to find sex differences. For example, at the same time that they did their study of four and five year olds, Feshbach and Feshbach (1969) put a group of six and seven year olds through the same procedure. Girls obtained a higher mean score than boys (4.39 to 4.04), but the difference was not significant.

The absence of sex differences in empathy is supported by the research of Gitter, Mostofsky, and Quincy (1971); Hebda, Peterson, and Miller (1972); and Deutsch (1975). The first two groups of researchers tested for empathy by having children judge facial emotions on pictures. Gitter, et al. using four to six year olds reported significant age differences in the accuracy of identifying emotions, but significant sex differences were not obtained. Likewise, Hebda, et al. reported that "sex of subject was not a differentiating factor" in eight year olds (p. 85).

Deutsch's method of testing differed somewhat from that of Gitter, et al., and Hebda et al., but her conclusions were the same as those obtained in the other two studies. In her procedure, Deutsch presented three and four year olds with three-card stories. Three stories were with male peer characters and three were with female peer characters.

> The first and third cards portrayed the primary character alone in a context, whereas the second card portrayed both of the characters in a context. Each story represented an incongruous

> account, that is, Card 2 presented a negative interpersonal interaction between the primary and secondary characters and was followed by Card 3 depicting a positive affective response by the primary character. After responding to a story sequence, each subject indicated how the child looked at the end of the story by pointing to Card 1 or Card 3 and why the child looked a certain way by pointing to a card from a set of two cards which depicted reasons for the primary character's final affective state. (p. 112)

If the subject accurately verbalized about the character's affective response and interpersonal behavior prior to the first card and after the third card, he was given a score of +1. A score of zero was given for silence or irrelevant verbalization. The subject received a score of -1 for an inaccurate answer.

Although Deutsch did not find differences between the sexes, she does report an important interaction between sex of the subject and sex of the peer character.

> There was a significant interaction between sex and sex of the character, . . . tests indicated that there was more accurate performance for all four measures on stories with same-sex characters than on stories with opposite-sex characters . . . . The present results indicate that children performed better on same-sex than on

> cross-sex stories regardless of age and mental ability. (p. 112)

Empathy studies dealing with adults have been less concerned with proving or disproving sex differences. Largely, their focus has been on the interaction of situational variables with individual differences like birth order or altruism. Yet, observations on sex differences have been recorded. Craig and Lowry (1969), for example, employed galvanic skin response and heart rate tests to measure subjects' empathy provoked by watching a model receive an electrical shock while a) anticipating they too would go through the model's task, and b) assured that they would not go through the model's task. Two other conditions were a) simply watching the model move instead of being shocked, or b) not seeing the model move or be shocked. In addition to the galvanic skin response and heart rate measurements, the subjects reported how they felt when they saw a model receive a shock. The results showed that females exhibited less GSR than the males, but females reported their feelings as significantly more painful than did males.

Hoffman (1977) pointed out that physiological indices such as GSR are extremely difficult to interpret. The males' increased GSR could have been triggered by actually enjoying the model being shocked. Hoffman also stated that the physiological response could have been the result of other non-empathetic responses.

> The observer's physiological response may also reflect a startle reaction to the victim's bodily movements, an emotional response to the noxious stimulus of the sound of the victim's scream, or the fear that what happened to the

other person might also happen to oneself. (p. 713)

Other researchers have measured altruistic responses based on the assumption that altruism is triggered by empathy. Most of the studies using adults have shown no sex differences. (eg. Rosenbaum and Blake (1955), Blake, Rosenbaum, and Duryea (1955), Berkowitz, Klanderman, and Harris (1964), and Bryan and Test (1967).) However, a series of studies including Schopler (1965), Schopler and Bateson (1965), Schopler and Matthews (1965), and Schopler and Thompson (1968) found sex differences based on altruism. These studies consistently reported females most likely to help in a low-cost situation when the solicitor for help was highly dependent. Males were more likely to help when the solicitor for help was of low dependency.

The empathy research on adults provides results as inconsistent as those obtained with children. The existence of sex differences in empathic abilities remains unconfirmed by the research. Although the results provide clear evidence for individual differences in empathy, the construction of law covering statements on sex differences would be premature.

In connection with the field of communication, it is generally accepted that empathy works two ways in the communication process. According to Samovar and Mills, the speaker must first be "able to see and to feel as the audience does" (p. 35), so the message "will elicit maximum agreement and understanding" (p. 36). Second, the audience will experience a kind of empathy as they share or feel the ideas presented by the speaker.

This two-way empathic process is crucial to effective communication.

Logically, it would follow that the more a receiver is able to empathize with a speaker, the more the receiver will change his attitude toward that proposed by the speaker. According to Hovland, Janis, and Kelley in Communication and Persuasion (1959), any person who has "difficulty in anticipating accurately the rewarding or punishing situations depicted in persuasive communication" will be relatively unpersuasible (pp. 203-204).

Persuasion theory such as this presented by Hovland, Janis, and Kelley suggests a direct relationship between empathy and attitude change. The possible existence of a direct relationship between these variables is further suggested by similarities in their research. For the most part, where sex differences have been present, women have exhibited more attitude change and more empathic abilities than men. Could it be possible that empathy is a primary variable linked with attitude change? Perhaps the differences between the sexes in persuasion research have been influenced by sex differences in empathy. If this is true, the contradictory results in attitude research are not produced by sex of the subjects but instead by the empathic abilities of the subject, and the reason many studies have shown women to change their attitudes more than men is because on the whole women have been more empathic than men. Those studies which have not reported women as more persuasible than men could have involved subjects from both sexes with similar empathy levels.

The following study was designed to investigate the relationship of empathy and attitude change.

Chapter 2

METHODOLOGY AND RESULTS

This study was designed to test the following hypothesis regarding empathy and attitude change:

H_1: After hearing a short persuasive message on a neutral topic, highly empathic individuals will change their attitudes toward the opinion expressed in the speech more than individuals low in empathy.

As a foundation for this empirical study, it is first necessary to define key terms. In particular, it is necessary to define attitude and empathy.

For purposes herein, attitude will be defined according to the definition offered by Rosenfeld and Christie (1974) which interprets attitude as a "disposition to classify objects on a favorable-unfavorable scale" (p. 247). Attitude will not be defined in accordance with Montgomery and Burgoon (1977) as "an enduring personality syndrome" (p. 130), because the subjects will be tested only once, and it would be deemed necessary to test them numerous times to determine whether their personality was such that they were similarly persuaded in a variety of settings.

Empathy, like attitude, has more than one definition from which to choose. Basically, the concept has two accepted definitions. The first

definition was offered by Dymond (1949). His definition of empathy is similar to social insight. He defines empathy as the ability of an individual to predict another person's responses, feelings, and behavior on a personality test or in some social situation. This concept is primarily cognitive.

The second use of the word empathy is the one employed in this study and was proposed by Berger (1962). This usage defines empathy as a vicarious emotional response of a perceiver to the emotional experience of a perceived object, or as Stotland (1971) wrote, "An observer reacting emotionally because he perceives that another is experiencing or about to experience an emotion" (p. 271). Katz (1963) presents these insights on the vicarious empathy definition:

> We have all had the sense of genuine participation in the experience of the other person, even if this experience takes place in our mind's eye, as it were . . . . When a person empathizes he abandons himself and relives in himself the emotions and responses of another person. He is capable of experiencing in himself a mood that is so analogous to the mood of the other person as to represent the exact feelings of the other person quite closely. He remains an individual in his own right with his own private experiences, but in moments of empathy he experiences the keenest and most vivid sense of closeness or sameness with the other person. (p. 4)

Thus, the present study will be dealing with vicarious empathy and not

predictive empathy or social insight.

With these definitions in mind, it was necessary to choose measurement instruments that would be consistent with them. Just as there are many definitions from which to choose when defining terms, there are also many measuring devices from which to choose when quantifying these terms. In keeping with the definition of attitude which was a disposition to classify objects on a favorable-unfavorable scale, semantic differential scales were chosen. The polar adjectives for the seven point scales were taken from research by Osgood, Suci, and Tannenbaum (1957) in their book The Measurement of Meaning.

The measurement tool chosen for empathy was Mehrabian and Epstein's (1972) thirty-three item empathy test. As a pen and paper test, it measures vicarious, not predictive empathy. Alternative measurement tools to the self-report pen and paper test included the Rorschach Inkblot tests and the Profile of Nonverbal Sensitivity test (PONS). The Rorschach Inkblot tests were quickly decided against because of the complicated interpretative skills required for their use even though they would have measured vicarious empathy.

The PONS test was decided against for several reasons. The primary reason was based on work done by Hall (1979) at Johns Hopkins University. Hall was testing the empathy hypothesis which states "that females' advantage in nonverbal communication skill stems from their greater empathy" (p. 48), thus, the more accurately one perceives nonverbal messages, the more empathic that person is. At the conclusion of her two studies, Hall stated that the results "suggest rather convincingly that empathy and nonverbal decoding (or encoding) are not synonymous skills . . . . Thus the hypothesis that sex differences in nonverbal

skills are determined by women's greater empathy seems not to be viable" (p. 48).

In addition, the PONS test was not used as it required the purchase or rental of the test film over which subjects' nonverbal skills are tested.

After defining terms and choosing measurement tools, the process of testing the hypothesis began. It was first necessary to select a neutral topic for the persuasive speech. A neutral topic was desirable because it is difficult, if not impossible, to change polarized attitudes using a ten-minute speech.

In order to select a topic on which people do not have strong attitudes, students in a Fall 1980 Oral Communications class at Kansas State University (N = 20) rated six topics using seven point semantic differential type scales. None of these students served as subjects in the remainder of the study. The six topics included the A to F grading scale, breast feeding, the rotary engine, noise, high fiber diets, and microwaves.

A total mean score was computed for each topic. For example, the microwaves topic was rated on semantic differential scales. A mean was determined for each of the seven scales and then these seven means were averaged producing a total mean score of 5.294. (See Table 1.)

A topic with a total mean score of 4.0 would have been ideal. The topic "noise" with a total mean score of 3.31 had the least intense attitude score and was used for the speech topic.

The speech was written by this author and audio taped by a male third year Kansas State University speech major. It was approximately nine minutes in length and had been successful in intercollegiate foren-

TABLE 1

TESTING OF TOPICS FOR NEUTRALITY

Topic	Mean Score of All Semantic Differentials	Distance From 4.0 Or Absolute Neutrality
Noise	3.310	.690
High Fiber Diet	4.839	.839
Rotary Engine	4.938	.938
Microwaves	5.294	1.294
The A to F Grading Scale	5.306	1.306
Breast Feeding	5.620	1.620

sics competition. The noise speech was pre-tested in a Fall 1980 Oral Communications class at Kansas State University (N = 17) to determine if it could produce significant attitude change. The t-test between the pre-test and the post-test attitude scores was significant on one of the six scales, and the change produced on the remaining five scales was in the direction advocated by the speech and approached significance. (See Table 2.) Because the lack of significance could have been caused by the small sample size and because the attitudes shifted in the desired direction, the experimenter made the decision to run the study using the noise speech. (See Appendix A.)

The sample for the actual testing of the hypothesis was composed of 75 undergraduates enrolled in Oral Communications at Kansas State University in the Fall of 1980. Fifty-five subjects were in the experimental group, and 20 were in the control group. It should be noted that initially there were potentially 125 subjects in the experimental group, and 25 subjects in the control group, but the loss of subjects was quite high in two of the experimental classes. This occurred because the instructor informed the classes he would not be at the testing, and it was the student's option to attend. In the other three classes, the testing was also optional, but the instructor held class after the test completion.

The first testing session took place during a regularly scheduled class meeting. The subjects were administered a pre-test of attitudes. (See Appendix B.) The pre-test contained the six afore mentioned topics of the A to F grading scale, breast feeding, the rotary engine, noise, high fiber diets, and microwaves. The polar adjectives on the semantic differentials were randomly reversed so positive and negative adjectives would appear on either end of the scale and discourage subjects from

TABLE 2

PRE-TEST OF NOISE SPEECH TO DETERMINE WHETHER IT CHANGED ATTITUDES

Semantic Differential Scale	Pre-Test Mean	Post-Test Mean	T-Value
Good-Bad	3.12	2.59	1.35 **
Not a Problem-Problem	3.00	2.71	.58
Comfortable-Uncomfortable	3.35	2.71	1.70 *
Therapeutic-Toxic	3.35	3.06	.78
Safe-Dangerous	3.29	2.88	1.06
Pleasurable-Painful	3.24	2.94	1.14

** Significant at the .10 level

* Significant at the .05 level

methodically checking the same point on each scale.

Of the six topics rated, only attitudes on the topic noise were of any interest to the experimenter. The semantic differentials used for rating attitudes on noise included good-bad, not a problem-problem, comfortable-uncomfortable, therapeutic-toxic, safe-dangerous, and pleasurable-painful. The other five topics were for blinding purposes.

Subjects were read the consent form and the directions for using the semantic differential scales. (See Appendix C.) It required approximately 15 minutes for this phase of the study to be completed. Questions on procedure were answered, but not on the purpose of the study. The subjects were not told the experimenter would be returning in six weeks to complete the study.

The procedure for the first testing session was identical for the experimental and control groups. The second testing session, like the first, took place during a regularly scheduled class meeting. In this phase of the study, treatment differed for the experimental and control groups.

During the second session, experimental subjects listened to the persuasive speech on noise. Immediately after hearing the speech they completed the post-test of attitudes and the empathy test.

The post-test of attitudes contained only the topic noise followed by the six semantic differentials used in the pre-test of attitudes. The directions for using the semantic differentials and the consent form were once again read to the subjects by the experimenter. The experimental subjects completed the empathy test after the post-test of attitudes. (See Appendix D.) This phase of the study including listening to the speech required approximately 20 minutes.

After the forms were collected, the subjects were briefed on the purpose of the study and the hypothesis. Any questions regarding the study were answered by the experimenter.

The second session of the study for the control group involved taking the post-test of attitudes on noise. The post-test was identical to the one used in the experimental group. The control group, however, did not listen to the persuasive speech on noise nor did they complete the empathy test.

After collection of the data was completed, the process of statistically analyzing the information began. To determine whether the pre- and post-test attitudes of the experimental group were significantly different, a t-test was used. Ideally, the t-test would have indicated a change in attitude from a neutral opinion on noise to a negative opinion on noise. However, results from the t-test indicated no significant difference in attitude between the pre- and post-tests. (See Table 3.) At first glance, it appeared that the speech on noise had been unsuccessful in changing attitudes. It seemed that the experimental group had retained its neutral opinion on noise.

Because the pre-testing of the noise speech had indicated attitude change approaching significance, it seemed odd for no attitude change to appear in the experimental group. Unlike the group on which the speech had been pre-tested, the experimental group did not even exhibit a tendency to shift attitudes. Therefore, a frequencies distribution was obtained to determine how much change was taking place and in what direction the change was occurring. The frequencies distribution indicated that subjects were indeed changing their attitudes on noise, but some subjects were agreeing with the speech and moving toward its proposed

TABLE 3

COMPARISON OF PRE-TEST AND POST-TEST ATTITUDES

IN THE EXPERIMENTAL GROUP FOR THE NOISE SPEECH

Semantic Differential Scale	Pre-Test Mean	Post-Test Mean	T-Value
Good-Bad	3.67	3.49	.67
Not a Problem-Problem	2.85	3.15	-1.07
Comfortable-Uncomfortable	3.22	3.27	- .18
Therapeutic-Toxic	3.75	3.91	- .66
Safe-Dangerous	3.25	3.36	- .42
Pleasurable-Plainful	3.80	3.53	.96

There was no significance on any of the scales.

position while other subjects were disagreeing with the speech and moving away from its proposed position. Consequently, when the changes in attitude were grouped together in order to run the t-test, the positive changers and the negative changers canceled each other out and it appeared that no change had occurred. (See Table 4.)

Analysis then continued to determine whether a relationship between empathy and attitude change existed. In order to compare high empathy individuals' attitude change against low empathy individuals' attitude change, it was necessary to group subjects into high and low empathy categories.

The empathy scores ranged from a high of 82 to a low of -34. (See Table 5.) These scores were consistent with the average scores reported by Mehrabian and Epstein in the development of the empathy test. Mehrabian and Epstein reported that with 202 subjects the mean score for males was 23 with a standard deviation of 22. The present study found males' mean score to be 19 with a standard deviation of 18. For females, Mehrabian and Epstein reported a mean score of 44 with a standard deviation of 21. In the present study, the mean female score was 36 with a standard deviation of 23.

Subjects in the top 25% of the empathy scores were classified as the high empathy group. These subjects had empathy scores greater than or equal to 45. Subjects in the bottom 25% of the empathy scores were categorized as the low empathy group. The scores in this group were less than or equal to 12. There were 14 subjects in each group.

A t-test was then run between the empathy groups and amount of attitude change. Attitude change was computed by subtracting the pre-test scores from the post-test scores on each of the six semantic differential

TABLE 4

DISTRIBUTION OF ATTITUDE SCORES

FOR THE NOISE SPEECH

Semantic Differential	Amount of Attitude Change	Frequency of the Amount
Good-Bad	-3	2
	-2	7
	-1	14
	0	19
	1	6
	2	4
	3	2
	4	1
Not a Problem-Problem	-4	1
	-3	2
	-2	5
	-1	8
	0	19
	1	6
	2	7
	3	5
	4	1
	5	1
Comfortable-Uncomfortable	-4	1
	-3	4
	-2	3
	-1	11
	0	16
	1	8
	2	9
	3	2
	4	1

Semantic Differential	Amount of Attitude Change	Frequency of the Amount
Therapeutic-Toxic	-4	1
	-2	3
	-1	16
	0	18
	1	9
	2	2
	3	2
	4	4
Safe-Dangerous	-3	2
	-2	6
	-1	11
	0	15
	1	13
	2	4
	3	2
	4	2
Pleasurable-Painful	-4	1
	-3	2
	-2	8
	-1	12
	0	19
	1	6
	2	5
	3	1
	4	1

TABLE 5

DISTRIBUTION OF THE EMPATHY SCORES

FOR THE NOISE SPEECH

N = 55

	EMPATHY SCORE	FREQUENCY OF THE SCORE
	-34	1
	-18	1
	-14	1
	-11	1
Low	- 4	1
	1	1
Empathy	3	1
	5	1
	7	2
	9	1
	11	2
	12	1
	14	1
	15	3
	16	1
	17	1
	19	1
	20	1
	23	1
	24	4
	30	1
	31	1
	32	1
	33	1
	34	4
	36	2
	37	1
	38	1
	41	1
	44	1
	45	1
	46	1
	47	3
High	48	1
	51	1
Empathy	52	1
	53	2
	59	1
	64	1
	65	1
	82	1

scales. The mean attitude scores were then compared by use of a one-tailed t-test. Inspection of the mean attitude scores indicated significance at the .05 level on four of the six semantic differentials. These scales were good-bad, safe-dangerous, not a problem-problem, and pleasurable-painful. (See Table 6.) Members of the low empathy group were negative changers, and high empathy individuals were positive changers. As used here "positive" denotes a change in attitude that agrees with the position proposed by the speech while the term "negative" denotes a change in attitude in the opposite direction of that proposed by the speech.

In the pre-test, the low empathy subjects rated noise as relatively good. On the post-test, the low empathy subjects moved their attitudes in the opposite direction proposed by the speech thereby rating noise as good or desirable when the speech was trying to convince listeners that noise is harmful.

High empathy subjects were positive changers in the sense that they had an attitude change that agreed with the position presented by the speech. On the pre-test, the high empathy subjects rated noise as relatively good or neutral just as the low empathy subjects did. Unlike the low empathy group, the high empathy group moved their attitudes toward agreement with the speech and in the post-test rated noise as bad. This change in attitude had been predicted by the hypothesis and was in the direction of change the speech was expected to produce.

A Pearson correlation was also run on the data. The purpose of this statistical test was to measure the strength of the linear relationship between empathy and attitude change. In other words, this test would help predict the probability of attitude change being high when empathy

TABLE 6

COMPARISON OF HIGH AND LOW EMPATHY

GROUP'S ATTITUDE CHANGE FOR THE NOISE SPEECH

Semantic Differential	Mean Change High Empathy	Mean Change Low Empathy	T-Value
Good-Bad	.36	- .93	-2.45 *
Not a Problem-Problem	.14	-1.07	-1.72 *
Comfortable-Uncomfortable	.29	- .50	-1.15
Therapeutic-Toxic	-.21	-1.07	-1.24
Safe-Dangerous	.29	-1.29	-3.01 *
Pleasurable-Painful	.79	- .36	-1.82 *

* Significant at the .05 level

is high. Significance was obtained on five of the six semantic differential scales at the .05 level, and there was also significance on the sixth scale at the .06 level. (See Table 7.) Thus, there was a strong linear relationship between empathy and attitude change which supported the hypothesis.

Much to the concern of the experimenter, the control group demonstrated pre-test through post-test attitude change. (See Table 8.) In addition, on only two scales were the control group and the experimental group's attitudes significantly different. (See Table 9.) These two scales were therapeutic-toxic and pleasurable-painful. In speaking with the instructor of the class used as a control group, it was learned that the instructor had lectured on the ill effects of noise. The lecture occurred at some point between the pre- and post-tests. Because the control group moved from viewing noise as good to viewing noise as bad, it is quite likely that the instructor's lecture had the same effect on the control group that the speech on noise had on the test group.

In the final analysis, the study supported the original hypothesis which predicted more attitude change in individuals who are highly empathic than individuals who are low. Highly empathic individuals significantly changed their attitudes more than low scorers on four of the six scales used to measure attitude change.

The negative attitude change on the low empathy individuals was not specifically predicted by the hypothesis, and due to its presence a subsequent study was conducted in an effort to replicate the results.

In the Spring of 1981, 81 undergraduate Oral Communication students at Kansas State University served as subjects for the subsequent study. 70 subjects were used in the experimental group, and 11 subjects were

TABLE 7

PEARSON CORRELATION TO DETERMINE THE STRENGTH OF THE LINEAR RELATIONSHIP BETWEEN EMPATHY AND ATTITUDE CHANGE FOR THE NOISE SPEECH

Semantic Differential	r	r^2
Good-Bad	.35 *	.1225
Not a Problem-Problem	.23 *	.0529
Comfortable-Uncomfortable	.26 *	.0676
Therapeutic-Toxic	.22 **	.0484
Safe-Dangerous	.41 *	.1681
Pleasurable-Painful	.43 *	.1849

** Significant at the .10 level

* Significant at the .05 level

TABLE 8

PRE-TEST THROUGH POST-TEST

ATTITUDE CHANGE OF THE CONTROL GROUP

FOR THE NOISE SPEECH

Semantic Differential	Pre-Test Mean	Post-Test Mean	T-Value
Good-Bad	3.45	4.00	-1.21
Not a Problem-Problem	3.45	3.65	- .40
Comfortable-Uncomfortable	3.35	3.65	- .67
Therapeutic-Toxic	3.35	4.35	-2.22 *
Safe-Dangerous	3.40	3.95	-1.19
Pleasurable-Painful	4.00	3.90	.25

* Significant at the .01 level

TABLE 9

A COMPARISON TO DETERMINE WHETHER SIGNIFICANT DIFFERENCES IN ATTITUDE CHANGE EXISTED BETWEEN THE CONTROL AND EXPERIMENTAL GROUPS FOR THE NOISE SPEECH

Semantic Differential Scale	Mean Change Control	Mean Change Experimental	T-Value
Good-Bad	.15	- .18	.96
Not a Problem-Problem	.20	.29	- .17
Comfortable-Uncomfortable	.20	.06	.33
Therapeutic-Toxic	- .50	.16	-1.88 *
Safe-Dangerous	.45	.11	1.05
Pleasurable-Painful	.60	- .27	2.26 *

* Significant at the .05 level

used in the control group. The groups were tested with only a two-week interval between pre- and post-testing. This represents a difference in procedure from the first study, which had a six-week time lapse between pre- and post-testing.

The topic "high fiber diets" was chosen from the survey taken in Fall of 1980. Of the six topics tested for neutrality of attitude in the Fall of 1980, high fiber diets was closest to absolute neutrality after the topic of noise. (See Table 1.) A speech on high fiber diets written by a University of Wisconsin student was used. It was recorded on audio tape by the same student who did the noise speech. The ability of the high fiber diet speech to persuade was not pre-tested; however, the speech had competed successfully on the intercollegiate forensics circuit. It had placed in the top six orations at the American Forensics Association national tournament and this criterion was used to demonstrate its persuasiveness. (See Appendix E.)

Other than the difference in time between the pre- and post-testing, remaining procedures were the same for the second study.

As with the noise speech, a t-test was used to determine whether the speech on high fiber diets had produced attitude change. Results from the t-test indicated that the speech had been extremely successfully in changing attitudes. (See Table 10.) There had been a significant attitude change in the subjects from viewing high fiber diets as neutral to viewing high fiber diets as very desirable. On nine of the ten semantic differential scales, there was significance at the .01 level. The remaining scale had significance at the .05 level. The speech obviously produced attitude change.

The next step in the statistical analysis was to break the subjects

TABLE 10

COMPARISON OF PRE-TEST AND POST-TEST ATTITUDES

IN THE EXPERIMENTAL GROUP FOR THE HIGH FIBER DIET SPEECH

Semantic Differential	Pre-Test Mean	Post-Test Mean	T-Value
Good-Bad	5.36	6.03	-3.60 *
Beneficial-Harmful	5.40	6.04	-3.51 *
Superior-Inferior	4.64	5.61	-5.29 *
Tasty-Distasteful	3.96	4.39	-1.96 **
Therapeutic-Toxic	4.70	5.33	-3.72 *
Important-Unimportant	5.10	5.84	-4.01 *
Safe-Dangerous	5.21	5.71	-2.42 *
Wise-Foolish	4.96	5.79	-3.99 *
Useful-Useless	5.29	5.87	-3.26 *
Positive-Negative	5.17	5.87	-3.78 *

** Significant at the .05 level

* Significant at the .01 level

into high and low empathy groups. The range of empathy scores was quite diverse with the highest score being 97 and the lowest score being -24. (See Table 11.) This was a total range of 121 while the group of subjects used for the noise speech had a total empathy range of 116. The mean male score was 23 and the mean female score was 43. This was close to the means in the first study.

In dividing the high fiber diet group into high and low empathy sections, the top 25% began at 49 and the bottom 25% began at 18. This compared to a breakdown of 45 and 12 in the first study.

In order to determine whether the high empathy group had exhibited the most attitude change, a t-test was used. Only one semantic differential scale was statistically significant at the .05 level. (See Table 12.) The scale safe-unsafe was the only scale on which the high empathy group had more attitude change than the low empathy group. The high empathy group's mean scores on the semantic differentials were not consistently higher or lower than the low empathy group's mean scores. Thus, the hypothesis was not confirmed.

The Pearson correlation for the high fiber diet speech showed no significant linear relationship between empathy and attitude change on any of the semantic differential scales. (See Table 13.)

The experimental group showed significantly more attitude change than the control group at the .05 level on six of the ten scales. These scales included good-bad, superior-inferior, therapeutic-toxic, important-unimportant, safe-dangerous, and wise-foolish. The two groups were significantly different at the .10 level on an additional two scales, which were positive-negative and beneficial-harmful. (See Table 14.)

TABLE 11

DISTRIBUTION OF THE EMPATHY SCORES

FOR THE HIGH FIBER DIET SPEECH

N = 70

	Empathy Score	Frequency of the Score
	-24	1
	- 7	2
	- 2	1
	0	1
Low	2	1
	10	1
Empathy	11	2
	14	1
	15	2
	16	2
	17	1
	18	2
	21	2
	22	1
	23	1
	26	3
	27	3
	29	2
	30	2
	31	2
	32	3
	33	1
	34	1
	39	1
	40	2
	41	3
	44	2
	45	2
	46	1
	48	1

	Empathy Score	Frequency of the Score
	49	2
	50	2
	52	2
	55	1
	56	1
	59	2
High	61	2
	62	1
Empathy	64	1
	67	1
	74	1
	75	1
	82	1
	84	1
	97	1

TABLE 12

COMPARISON OF HIGH AND LOW EMPATHY

GROUPS' ATTITUDE CHANGE FOR THE HIGH FIBER DIET SPEECH

Semantic Differential	Mean Change High Empathy	Mean Change Low Empathy	T-Value
Good-Bad	.75	.71	.11
Beneficial-Harmful	.65	.82	- .41
Superior-Inferior	.80	1.00	- .55
Tasty-Distasteful	.30	.94	-1.21
Therapeutic-Toxic	.70	.29	1.34 **
Important-Unimportant	.60	.65	- .12
Safe-Dangerous	.10	1.18	-2.09 *
Wise-Foolish	.60	1.06	- .90
Useful-Useless	.50	.65	- .45
Positive-Negative	.55	.94	-1.01

** Significant at the .10 level

* Significant at the .05 level

TABLE 13

PEARSON CORRELATION TO DETERMINE THE STRENGTH OF THE LINEAR RELATIONSHIP BETWEEN EMPATHY AND ATTITUDE CHANGE FOR THE HIGH FIBER DIET SPEECH

Semantic Differential	r	r^2
Good-Bad	.03	.0009
Beneficial-Harmful	- .02	.0004
Superior-Inferior	- .05	.0025
Tasty-Distasteful	- .09	.0081
Therapeutic-Toxic	.08	.0064
Important-Unimportant	.05	.0025
Safe-Dangerous	- .15	.0225
Wise-Foolish	- .04	.0016
Useful-Useless	- .03	.0009
Positive-Negative	- .08	.0064

There was no significance on any of the scales.

TABLE 14

A COMPARISON OF ATTITUDE CHANGE
BETWEEN THE EXPERIMENTAL GROUP
AND THE CONTROL GROUP FOR THE HIGH FIBER DIET SPEECH

Semantic Differential Scale	Mean Change Control	Mean Change Experimental	T-Value
Good-Bad	- .36	.67	-2.02 *
Beneficial-Harmful	.001	.64	-1.57 **
Superior-Inferior	- .36	.97	-2.25 *
Tasty-Distasteful	.09	.43	- .72
Therapeutic-Toxic	.09	.63	-1.75 *
Important-Unimportant	- .09	.74	-2.30 *
Safe-Dangerous	- .46	.50	-1.96 *
Wise-Foolish	- .18	.83	-2.62 *
Useful-Useless	.18	.59	-1.09
Positive-Negative	.001	.70	-1.38 **

** Significant at the .10 level

* Significant at the .05 level

Because this study was conceived from the contradictory literature surrounding male and female attitude change, it seemed most appropriate to take this present study a step beyond the original hypothesis and compare males with females on both attitude change and empathy.

On the noise speech, women significantly changed their attitudes more than men on four out of the six scales at the .05 level of significance. These scales were problem-not a problem, good-bad, comfortable-uncomfortable, and therapeutic-toxic. On the remaining scales, safe-dangerous and pleasurable-painful, women tended to shift attitudes more than men although not significantly. (See Table 15.)

Since sex differences in attitude change were observed, an analysis of covariance was used to determine whether those differences would be eliminated when empathy was taken into account. Four of the six scales on the noise speech had shown significant sex differences with the t-test, but when empathy was covaried none of the scales indicated sex differences. Even though this finding is encouraging, empathy did not account for a large enough difference to indicate that it is the only variable affecting attitude change.

With the high fiber diet speech, there was a significant difference on one of the ten semantic differential scales. (See Table 16.) It is interesting to note, however, that men changed their attitudes more than women, although not significantly, as their mean scores in attitude change were higher on all ten scales than the mean attitude change scores of the women.

In both the noise and high fiber diet groups, the women scored significantly higher on Mehrabian and Epstein's thirty-three item empathy test. Significance was at the .01 level for the high fiber diet group and at the .01 level for the noise group. (See Table 17.)

TABLE 15

A COMPARISON OF ATTITUDE CHANGE

BY SEX OF THE SUBJECT

FOR THE NOISE SPEECH

Semantic Differential Scales	Mean Change Males	Mean Change Females	T-Value
Good-Bad	- .18	.56	1.92 *
Not a Problem-Problem	- .82	.26	2.30 *
Comfortable-Uncomfortable	- .54	.44	2.24 *
Therapeutic-Toxic	- .61	.30	2.14 *
Safe-Dangerous	- .04	- .19	- .35
Pleasurable-Painful	.14	.41	.64

* Significant at the .05 level

TABLE 16

A COMPARISON OF ATTITUDE CHANGE

BY SEX OF THE SUBJECT

FOR THE HIGH FIBER DIET SPEECH

Semantic Differential Scale	Mean Change Males	Mean Change Females	T-Value
Good-Bad	.65	.65	- .02
Beneficial-Harmful	.69	.59	.30
Superior-Inferior	1.19	.81	1.24
Tasty-Distasteful	.80	.29	1.42 **
Therapeutic-Toxic	.77	.50	1.00
Important-Unimportant	1.03	.54	1.64 *
Safe-Dangerous	.57	.45	.33
Wise-Foolish	1.15	.63	1.48 **
Useful-Useless	.69	.52	.69
Positive-Negative	.88	.59	1.04

** Significant at the .10 level

* Significant at the .05 level

TABLE 17

A COMPARISON OF EMPATHY SCORES

BETWEEN MALES AND FEMALES

ON BOTH SPEECHES

Speech	Mean Empathy Score For Males	Mean Empathy Score For Females	T-Value
Noise	18.54	35.89	-3.06 *
High Fiber Diet	22.69	43.04	-4.21 *

* Significant at the .01 level

The first speech supported the hypothesis which stated that after hearing a short persuasive message on a neutral topic, highly empathic individuals would change their attitudes more than individuals low in empathy. However, the second speech did not support the hypothesis. The following chapter will discuss the implications of the results obtained from the study.

Chapter 3

DISCUSSION

Although the hypothesis tested by this study is not clearly supported by the results, neither can the hypothesis be automatically rejected. The prediction of high empathy individuals exhibiting the most attitude change was supported by the first speech, but was not supported by the second speech in the study. The question arises as to why the first speech tended to uphold the hypothesis and the second speech did not.

The most likely explanation is differences between the speeches. In retrospect, there are several differences between the noise and the high fiber diet speeches which cumulatively could have had an effect.

First, there is a rather obvious difference in the direction in which the speeches attempted to shift attitudes. The noise speech tried to move attitudes in a negative direction while the high fiber diet speech moved attitudes in a positive direction. Perhaps it is easier to persuade individuals to accept rather than to reject ideas, and therefore, the high fiber diet speech in moving people to a positive position would have been more effective than the noise speech. Due to the greater persuasiveness of the high fiber diet speech, there would have been no differences in the amount of attitude change between high and low empathy groups, and there were no differences between the groups in the present study.

Second, the intensity of the nature of the problem differed. In our society cancer is viewed as a very real and appreciable threat. The mere

mention of the word "cancer" conjures up feelings of intense fear while the problems of hearing loss, increased blood pressure, and anxiety resulting from excessive noise do not produce the same intensity of emotion. Even though both problems would strike subjects in the future (some thirty to forty years into the future), the cancer problem is still more formidable. This is probably due to the fact that cancer is, as of yet, not easily cured while loss of hearing and high blood pressure can be successfully dealt with by the medical profession.

Third, the solutions proposed by the speeches differed in ease of implementation. The high fiber diet speech proposed an extremely simple solution of adding a few teaspoons of bran to the daily diet in order to avoid the problem of colon cancer. No appreciable personal sacrifice was demanded. Even if the subject was not totally persuaded as to the danger of colon cancer, the solution step was so easy to implement that it was worth the subject's time to add bulk or bran to his diet. No real barrier existed to accepting the solution. As a result of the simplicity of the solution, subjects could readily agree with the speech since it required no great transformation in beliefs or behaviors.

The noise speech, on the other hand, proposed a solution which demanded a sacrifice. The speech advocated behavioral changes on three levels: (a) reduction of noise produced by the subject, (b) assertiveness in the reduction of noise created by other people, and (c) isolation from unavoidable noise. The solution is relatively easy to follow; however, it presents some degree of conflict with the normal college student's lifestyle and would incur more social risks than the high fiber diet solution. For example, eating bran flakes at breakfast is not as likely to upset a roommate as asking a roommate to turn down his stereo.

Previous research suggests that the type of solution used in a speech can affect the listener's response. Janis and Field (1959) found that "a person's capacity for fantasizing anticipated rewards and punishments" would affect persuasibility (p. 62). Someone high in richness of fantasy was more likely to be persuaded than a person low in richness of fantasy. The easier it is for a person to anticipate a reward or punishment, the more he will be persuaded. Perhaps the simplicity of the high fiber diet speech's solution made it possible for all listeners to anticipate the rewards and punishments of the speech, and consequently, both the high and low empathy groups were persuaded. With the noise speech, however, the solution may have been complex enough that only those who were able to fantasize were persuaded.

A careful examination of the richness of fantasy research further suggests that the ability to fantasize and the ability to empathize may be closely related. In order to test for a direct relationship between richness of fantasy and persuasibility, Janis and Field devised a series of eleven questions. These questions were "to determine the subject's evaluation of the vividness of his daydreams, the ability to imagine future events, and the intensity of the emotional response to fictional accounts of dramatic events" (p. 63). The richness of fantasy test is nearly identical to self-report empathy tests such as the one devised by Mehrabian and Epstein (1972). Both tests are concerned with measuring an individual's ability to project himself into situations and to react emotionally to these situations.

The similarity of the tests is best illustrated by comparing some of the questions used in each. The richness of fantasy test included the following questions among others.

> When you see a good mystery show in the movies or on TV, do you get really excited by what is going on?
>
> When you read a sad story, do you ever feel really sorry for the people in the story?
>
> When you read an interesting story or novel do you ever imagine how you would feel if the events in the story were happening to you?
>
> When you read stories or novels, do you see in your mind's eye the things you are reading about? (p. 303)

These questions clearly parallel four of the thirty-three statements used in Mehrabian and Epstein's empathy test which read:

> I really get involved with the feelings of a character in a novel.
>
> Becoming involved in books or movies is a little silly.
>
> I become very involved when I watch a movie.
>
> Sometimes at the movies I am amused by the amount of crying and sniffing around me.
>
> (p. 528)

The items from both tests are clearly seeking to obtain similar information from the subject.

The difference between a simple and a complex solution seems to be a logical explanation for the contradictory results produced by the two

speeches. Perhaps the first speech upheld the hypothesis because the complex solution required more of an ability to empathize, and the second speech did not uphold the hypothesis because the simplicity of the solution did not require high empathy in order to produce attitude change.

An unexpected result of the present study was information related to the personalities of negative changers. Linton and Graham (1959) conducted a study in which they attempted "to identify variables related to change of opinion in response to persuasive communications and to describe a fundamental pattern of personality characteristics that seem to predispose a person to accept or resist persuasion, influence, suggestion, and conformity in many kinds of situations" (p. 69). Using interpretative tests such as the Rorschach Inkblot test, the human figure drawing test, Witkin's tilting-room/tilting-chair test, and a version of the Gottschaldt embedded-figures test, Linton and Graham found that negative changers do possess common personality traits that are different from the traits possessed by non-changers and positive changers.

In describing the characteristics of negative changers, Linton and Graham wrote:

> The pattern for the negative changers suggests that they are engaged in a struggle to win out over what they perceive as hostile, potentially engulfing forces . . . . They maintain an image of themselves as strong people, apparently, by projecting feeling of inadequacy and other unacceptable impulses onto physical symptoms, feared objects, and forces of chaos and hostility which they then attribute to the world and

> other people. They also seem deficient in the warmer aspects of human relationships and emotions . . . . (p. 98)

Although Linton and Graham mention the negative changer's deficiency "in the warmer aspects of human relationships and emotions," none of the tests used in the study specifically measured empathy. Instead, the tests measured perceptual-field dependence, attitudes toward authority, the subject's self-image, sources of influence, and importance of personal goals as opposed to conformity to a group. The present study suggests that negative changers are low in empathy. Further research, of course, is needed to support this conclusion, and future studies of negative changers and attitude change should include a test of empathy.

Research is needed into the relationship of different solutions to empathic abilities of the listener. It needs to be determined whether a simple solution will produce attitude change in all listeners whereas a complex solution might produce attitude change only in those people high in empathy. This relationship could be easily tested by writing a speech with two different solutions. One solution would be simple, and the other solution would be complex. Individuals would be classified as having high or low empathic abilities, and then the two groups would be compared for differences in attitude change.

The present study was conceived from persuasibility's battle of the sexes, and it is amusing to note that the results are just as contradictory as the results obtained by other researchers in the field of communication. The thrust of this study was not to pit one sex against the other, but instead to test the role of empathy as an intervening variable in attitude change. Although the results on empathy and attitude change

were not conclusive, avenues for further research have been opened, and the results suggest that empathy and attitude change are related. Only through continued questioning and testing will the riddles of persuasibility be answered.

Bibliography

Aristotle. [The generation of animals] (A. L. Peck, trans.). Cambridge: Harvard University Press, n.d.

Bateman, Richard, and Remmers, H. H. A study of the shifting attitude of high school students when subjected to favorable and unfavorable propaganda. Journal of Social Psychology, 1941, 13, 395-406.

Bem, Daryl J. Beliefs, attitudes, and human affairs. Belmont: Brooks/Cole Publishing Company, 1970.

Bem, Sandra L. The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 1974, 42, 155-162.

Berger, S. Conditioning through vicarious instigation. Psychological Review, 1962, 69, 450-466.

Berkowitz, L. Advances in experimental social psychology (Vol. 4). New York: Academic Press, 1969.

Berkowitz, L., Klanderman, S., & Harris, R. Effects of experimenter awareness and sex of subject and experimenter on reactions to dependency relationship. Sociometry, 1964, 27, 327-337.

Blake, R., Berkowitz, H., Bellamy, R., & Mouton, J. S. Volunteering as an avoidance act. Journal of Abnormal and Social Psychology, 1956, 53, 154-156.

Blake, R., Rosenbaum, M., & Duryea, R. Gift-giving as a function of group standards. Human Relations, 1955, 8, 61-73.

Bryan, J. H., & Test, M. A. Models and helping: Naturalistic studies in aiding behavior. Journal of Personality and Social Psychology, 1967, 6, 400-407.

Silverman, Irwin, Ford, LeRoy, Jr., & Morganti, John. Inter-related effects of social desiribility, sex, self-esteem, and complexity of argument on persuasibility. Journal of Personality, 1966, 34, 555-568.

Simner, Marvin L. Newborn's response to the cry of another infant. Developmental Psychology, 1971, 5, 136-150.

Stotland, Ezra, Mathews, Kenneth, Jr., Sherman, Stanley, Hansson, Robert, & Richardson, Barbara. Empathy, fantasy, and helping. Beverly Hills: Sage Publications, Inc., 1978.

Strodtbeck, Fred, & Mann, Richard. Sex role differentiation in jury deliberations. Sociometry, 1956, 19, 3-11.

Tavris, Carol, & Offir, Carole. The longest war. New York: Harcourt, 1977.

Thompson, Wayne. Quantitative research in public address and communication. New York: Random House, 1967.

Urist, Jeffrey. Some structural considerations in the relationship between M and empathy. Journal of Personality Assessment, 1976, 40, 575-578.

Utterback, William. Independent variables in the conference situation. Quarterly Journal of Speech, 1954, 40, 381-387.

Warner, Debra. An experimental study of the effect of interest in the speech topic on male and female retention and attitude change. Unpublished master's thesis, Kansas State University, 1975.

Wegrocki, Henry. The effect of prestige suggestibility on emotional attitudes. Journal of Social Psychology, 1934, 5, 384-394.

Willis, Edgar. The relative effectiveness of three forms of radio presentation in influencing attitudes. Speech Monographs, 1940, 7, 41-47.

Borgatta, Edgar, & Lambert, William (Eds.). Handbook of Personality Theory and Research. Chicago: Rand McNally and Company, 1968.

Borke, Helene. Interpersonal perception of young children: Egocentrism or empathy? Developmental Psychology, 1971, 5, 263-269.

Borke, Helene. The development of empathy in Chinese and American children between three and six years of age: A cross-cultural study. Developmental Psychology, 1973, 9, 102-108.

Bostrom, Robert, & Kemp, Alan. Type of speech, sex of speaker, and sex of subject as factors influencing persuasion. Central States Speech Journal, 1969, 20, 245-252.

Buck, Ross. Nonverbal communication of affect in children. Journal of Personality and Social Psychology, 1975, 31, 644-653.

Burns, Neal, & Cavey, Lorna. Age differences in empathic ability among children. Canadian Journal of Psychology, 1957, 11, 227-230.

Carmichael, Carl W. Frustration, sex, and persuasibility. Western Speech, 1970, 34, 300-307.

Cherrington, Ben, & Miller, L. W. Changes in attitude as the result of a lecture and of reading similar materials. Journal of Social Psychology, 1953, 4, 479-484.

Coie, John D., & Dorval, Bruce. Sex differences in the intellectual structure of social interaction skills. Developmental Psychology, 1973, 8, 261-267.

Cox, Donald F., & Bauer, Raymond. Self-confidence and persuasibility in women. Public Opinion Quarterly, 1964, 28, 453-466.

Craig, Kenneth, & Lowery, H. Jane. Heart-rate components of conditioned vicarious autonomic responses. Journal of Personality and Social Psychology, 1969, 11, 381-387.

Deckard, Barbara. The women's movement. New York: Harper and Row, 1975.

Deutsch, Francine. Effects of sex of subject and story character on preschoolers' perceptions of affective responses and intrapersonal behavior in story sequences. Developmental Psychology, 1975, 11, pp. 112-113; 115.

Diggory, James. Sex differences in the organization of attitudes. Journal of Personality, 1953, 22, 88-100.

Dymond, R. F. A scale for measurement of empathic ability. Journal of Consulting Psychology, 1949, 14, 127-133.

Eagly, Alice H. Sex differences in the relationship between self-esteem and susceptibility to social influence. Journal of Personality, 1969, 37, 581-591

Feffer, Melvin H., & Gourevitch, Vivian. Cognitive aspects of role-taking in children. Journal of Personality, 1960, 28, 383-396.

Feshbach, Norma, & Feshbach, Seymour. The relationship between empathy and aggression in two age groups. Developmental Psychology, 1969, 1, 102-107.

Feshbach, Norma, & Roe, Kiki. Empathy in six- and seven-year-olds. Child Development, 1968, 39, 133-145.

Furbay, Albert L. The influence of scattered versus compact seating on audience response. Speech Monographs, 1965, 32, 144-148.

Gitter, A. George, Mostofsky, David, & Quincy, Arthur J., Jr. Race and sex differences in the child's perception of emotion. Child Development, 1971, 42, 2071-2075.

Glass, David, Lavin, David, Hency, Thomas, Gordon, Andrew, Mayhew, Patricia, & Donohoe, Patricia. Obesity and persuasibility. Journal of Personality, 1969, 37, 407-414.

Haiman, Franklyn S. An experimental study of the effects of ethos in public speaking. Speech Monographs, 1949, 16, 190-202.

Hall, Judith. Gender roles, and nonverbal communication skills. In R. Rosenthal (Ed.), Skills in nonverbal communication. Cambridge: Oelgeschlager, Gunn and Hain, Publishers, Inc., 1979.

Hamilton, Marshall. Imitative behavior and expressive ability in facial expression of emotion. Developmental Psychology, 1973, 8, 138.

Hebda, Mary Ellen, Peterson, Rolf, & Miller, Leon. Aggression, anxiety, perception of aggressive cues, and expected retaliation. Developmental Psychology, 1972, 7, 85.

Hoffman, Martin L. Parent discipline and the child's consideration for others. Child Development, 1963, 34, 575-588.

Hoffman, Martin L. Sex differences in moral internalization and values. Journal of Personality and Social Psychology, 1975, 32, 720-729.

Hoffman, Martin L., & Levine, Laura. Early sex differences in empathy. Developmental Psychology, 1976, 12, 557-558.

Hovland, Carl, & Janis, Irving (Eds.) Personality and persuasibility. New Haven: Yale University Press, 1959.

Hovland, Carl, Janis, Irving, & Kelley, Harold. Communication and persuasion. Binghamton: Yale University Press, 1953.

Janis, Irving, & Field, Peter. Sex differences and personality factors related to persuasibility. In Carl Hovland & Irving Janis (Eds.), Personality and Persuasibility. New Haven: Yale University Press, 1959.

Jenks, Richard. Effects of sex, locus of control and issue on attitude change. Journal of Social Psychology, 1978, 106, 283-284.

Johnson, Miriam M. Sex role learning in the nuclear family. Child Development, 1963, 34, 319-333.

Katz, Robert L. Empathy: Its nature and uses. London: The Free Press, 1963.

King, Bert. Relationships between susceptibility to opinion change and childrearing practice. In I. Janis & C. Hovland (Eds.), Personality and persuasibility. New Haven: Yale University Press, 1959.

Knower, Franklin H. Experimental studies of changes in attitudes: I. A study of the effect of oral argument on changes of attitude. Journal of Social Psychology, 1935, 6, 315-344.

Knower, Franklin H. Experimental studies of changes in attitudes--- II. Journal of Abnormal Social Psychology, 1936, 30, 522-532.

Krebs, Dennis. Altruism---An examination of the concept and a review of the literature. Psychological Bulletin, 1970, 73, 258-302.

Krebs, Dennis. Empathy and altruism. Journal of Personality and Social Psychology, 1975, 32, 1134-1146.

Kurdek, Lawrence, & Rodgon, Maris Monitz. Perceptual, cognitive, and affective perspective taking in kindergarten through sixth-grade children. Developmental Psychology, 1975, 11, 643-650.

Lesser, G., & Abelson, R. The measurement of persuasibility in children. In I. Janis & C. Hovland (Eds.), Personality and persuasibility. New Haven: Yale University Press, 1959.

Levine, Laura, & Hoffman, Martin. Empathy and cooperation in four-year-olds. Developmental Psychology, 1975, 11, 533-534.

Lips, Hilary, & Colwill, Nina. The psychology of sex differences. Englewood Cliffs: Prentice-Hall, Inc., 1978.

Lynn, David. Sex-role and parental identification. Child Development, 1962, 33, 555-564.

Marcia, James, & Friedman, Meredith. Ego identity status in college women. Journal of Personality, 1970, 38, 249-263.

McGuire, William. Persuasion, resistance, and attitude change. In I. de Sola Pool (Ed.), Handbook of communication. Chicago: Rand McNally College Publishing Company, 1973.

Mehrabian, Albert, & Epstein, Norman. A measure of emotional empathy. Journal of Personality, 1972, 40, 525-543.

Montgomery, Charles, & Burgoon, Michael. An experimental study of the interactive effects of sex and androgyny on attitude change. Communication Monographs, 1977, 44, 130-135.

Montgomery, Charles, & Burgoon, Michael. The effects of androgyny and message expectations on resistance to persuasive communication. Communication Monographs, 1980, 47, 56-67.

Osgood, Charles, Suci, George, & Tannenbaum, Percy. The measurement of meaning. Urbana: University of Illinois Press, 1957.

Paulson, Stanley. The effects of the prestige of the speaker and acknowledgement of opposing arguments on audience retention and shift of opinion. Speech Monographs, 1954, 21, 267-271.

Plato. [Symposium] (B. Jowett, trans.). In The works of Plato. New York: Tudor Publishing Company, n.d.

Rosenbaum, M., & Blake, R. Volunteering as a function of field structure. Journal of Abnormal and Social Psychology, 1955, 50, 193-196.

Rosenberg, Florence, & Simmons, Roberta. Sex differences in the self-concept in adolscence. Sex Roles, 1975, 1, 147-159.

Rosenfeld, Lawrence, & Christie, Vickie. Sex and persuasibility revisited. Western Speech, 1974, 38, 244-253.

Sagi, Abraham, & Hoffman, Martin. Empathic distress in the newborn. Developmental Psychology, 1976, 12, 175-176.

Scheidel, Thomas. Sex and persuasibility. Speech Monographs, 1963, 30, 353-358.

Schopler, J. An investigation of sex differences on the influence of dependence. Sociometry, 1967, 30, 50-63.

Schopler, J., & Bateson, N. The power of dependence. Journal of Personality and Social Psychology, 1965, 2, 247-254.

Schopler, J., & Matthews, M. The influence of perceived causal locus of partner's dependence on the use of interpersonal power. Journal of Personality and Social Psychology, 1965, 2, 609-612.

Schopler, J., & Thompson, V. The role of attribution process in mediating amount of reciprocity for a favor. Journal of Personality. and Social Psychology, 1968, 10, 243-250.

Selman, Robert L. Taking another's perspective: Role-taking development in early childhood. Child Development, 1971, 42, 1721-1734.

Sherriffs, Alex, & McKee, John. Qualitative aspects of beliefs about men and women. Journal of Personality, 1956, 25, 451-464.

Sikkink, Donald. An experimental study of the effects on the listener of anticlimax order and authority in an argumentative speech. Southern Speech Journal, 1956, 22, 73-78.

Appendix A

TEXT OF THE NOISE SPEECH

Take a moment and listen to the sounds around you . . . . Even within the walls of a supposedly quiet classroom, we are bothered by noise. Whether we are consciously aware of these sounds or not, they are polluting our environment. They are placing unnecessary stress on our mental health and they are deteriorating our physical health.

Let's examine the mental and physical effects of noise, and finally let's take a look at ways to reduce these effects.

Essentially, there are three mental effects of noise. The first of these is interference with communication. How many classes have you attended at K-State where you were distracted by the noise in the hall? Or, how many times have you been unable to hear the instructor because of noise outside? Noise breaks down our ability to concentrate, and forces us to yell ourselves hoarse in order to be heard. And to make matters worse, there seems to be no way of escaping it. Even our sleep is interrupted.

Interruption of sleep produces the second mental effect of noise. Undoubtedly, you are familiar with the fact that dreaming is a very necessary part of sleep. When noise intrudes upon sleep it interrupts the dream cycle and the mind is forced to begin the cycle again. Research indicates that even the sound of a low playing radio or the sound

of far away traffic is enough to interrupt the cycle. And, when this occurs you will awaken the next morning feeling tired and irritable.

The third effect of noise on our mental stability is the production of anxiety. We are all too familiar with the ominous feeling created by a siren in the dark of night or the shaky feeling we get from a sonic boom in the middle of the day. Or recall for a moment walking down a dimly lit corridor and clearly hearing footsteps behind you. Remember how the anxiety mounted until you thought you would nearly lose touch with reality.

U. S. News and World Report quoted a medical doctor as saying: "It is not an exaggeration to say that quite a few cases of insanity have been caused by nervous systems unable to adjust to the constant bombardment of noise."

Henry Still, in his book, In Quest of Quiet, carries this point further by citing several examples. One such example involved a New York City man whose job required him to work nights. His attempts to sleep during the day were continually frustrated by noisy children playing in the street. After weeks of pleading and even shouting for quiet he lost all control. He fired several shots from his apartment window and accidentally killed one of the boys in the street. Granted, this may be an extreme case, but I'm sure you can think of times when noise has driven you to the point of frustration and you have wanted to cram your roommate's trumpet down his throat or cut the cable on your neighbor's T.V. set.

It is relatively easy for us to identify the mental effects of noise, but it is somewhat more difficult to isolate the physical ones. But, even if we are not aware of them, the physical effects to occur.

Perhaps the most obvious of the physical effects is loss of hearing. A substantial amount of research has proven that noise can cause temporary hearing loss. A study conducted at the University of Minnesota tested hearing sensitivity of band members after a four hour music session. Total recovery of hearing took up to fifty hours.

The question as to whether temporary hearing loss eventually leads to permanent hearing loss is more difficult to answer, but an examination of primitive societies suggests that there is a relationship. Dr. Samuel Rosen, consulting ear surgeon and clinical professor at Columbia University, studied a primitive tribe in Africa. These people live in a virtually noise-free environment. Dr. Rosen found that people in their seventies and eighties had hearing equal to that of the ten year olds. Now, compare yourself to your grandparents or parents. Do they still hear as well as you do? Or do you still hear as well as your younger brothers and sisters?

Dr. Rosen summarizes the physical effects: "It is known that loud noises cause effects the recipient cannot control. The blood vessels constrict, the skin pales, the voluntary and involuntary muscles tense and adrenaline in injected into the bloodstream."

As youthful members of society, we may not feel it necessary to reduce the noise around us, but now is the time to become aware that noise can and does affect our health.

We all realize that some noise is inevitable and we understand that there is only so much noise we can control. The Federal Government has been engaged in a struggle against noise pollution since 1968 when Congress moved to make jet aircraft quieter. In 1972, the Noise Abatement Act was passed. Such laws are helpful in controlling the noise

created by planes, trains and factories but they are of little use to us in our daily lives; however, there are basic steps you can take to protect yourself mentally and physically from noise.

First, and perhaps most importantly, we must become consciously aware of the noise around us, and once we have identified those noises we can then take steps to isolate ourselves from them.

Begin with the noise you create yourself. Turn down your T.V., radio, and stereo. Teach yourself to quietly open and close doors, and when talking to friends, keep your voice low. When you find it necessary to operate such loud machinery as a lawnmower, or even a typewriter, wear a set of earplugs.

In regards to noise created by those around you, be assertive. Learn to feel comfortable when politely asking your next door neighbor to turn his stereo down or when asking people in the hall to be a bit more quiet. And the next time you're caught in traffic, and the guy behind you honks his horn in anger, don't honk back. It only adds to the confusion.

Regarding noise created by society, the best way to deal with it is to isolate your home from it. Put thick draperies on the windows, carpeting on the floors and decorate with wall hangings. Make your home a sanctuary where you can escape from the noises of the outside world. By giving yourself such a place you will be able to more effectively deal with the stress created by noise.

So take a few moments again, and listen to the sounds around you. Become aware of those noises so that you can adequately begin to deal with them and to protect yourself mentally and physically.

Appendix B

PRE-TEST OF ATTITUDES

HIGH FIBER DIET

good	_____:_____:_____:_____:_____:_____:_____	bad
beneficial	_____:_____:_____:_____:_____:_____:_____	harmful
inferior	_____:_____:_____:_____:_____:_____:_____	superior
tasty	_____:_____:_____:_____:_____:_____:_____	distasteful
toxic	_____:_____:_____:_____:_____:_____:_____	therapeutic
unimportant	_____:_____:_____:_____:_____:_____:_____	important
safe	_____:_____:_____:_____:_____:_____:_____	dangerous
foolish	_____:_____:_____:_____:_____:_____:_____	wise
useless	_____:_____:_____:_____:_____:_____:_____	useful
positive	_____:_____:_____:_____:_____:_____:_____	negative

ROTARY ENGINE

superior	_____:_____:_____:_____:_____:_____:_____	inferior
wise	_____:_____:_____:_____:_____:_____:_____	foolish
harmful	_____:_____:_____:_____:_____:_____:_____	beneficial
safe	_____:_____:_____:_____:_____:_____:_____	dangerous
unimportant	_____:_____:_____:_____:_____:_____:_____	important
useful	_____:_____:_____:_____:_____:_____:_____	useless
bad	_____:_____:_____:_____:_____:_____:_____	good

NOISE

good _____:_____:_____:_____:_____:_____:_____ bad

problem _____:_____:_____:_____:_____:_____:_____ not a problem

uncomfortable _____:_____:_____:_____:_____:_____:_____ comfortable

therapeutic _____:_____:_____:_____:_____:_____:_____ toxic

safe _____:_____:_____:_____:_____:_____:_____ dangerous

painful _____:_____:_____:_____:_____:_____:_____ pleasurable

BREAST FEEDING

harmful _____:_____:_____:_____:_____:_____:_____ beneficial

important _____:_____:_____:_____:_____:_____:_____ unimportant

foolish _____:_____:_____:_____:_____:_____:_____ wise

meaningless _____:_____:_____:_____:_____:_____:_____ meaningful

safe _____:_____:_____:_____:_____:_____:_____ dangerous

useful _____:_____:_____:_____:_____:_____:_____ useless

good _____:_____:_____:_____:_____:_____:_____ bad

MICROWAVES

useless _____:_____:_____:_____:_____:_____:_____ useful

positive _____:_____:_____:_____:_____:_____:_____ negative

unimportant _____:_____:_____:_____:_____:_____:_____ important

safe _____:_____:_____:_____:_____:_____:_____ dangerous

wise _____:_____:_____:_____:_____:_____:_____ foolish

harmful _____:_____:_____:_____:_____:_____:_____ beneficial

bad _____:_____:_____:_____:_____:_____:_____ good

THE A TO F GRADING SCALE

successful _____:_____:_____:_____:_____:_____:_____ unsuccessful

sufficient _____:_____:_____:_____:_____:_____:_____ insufficient

useless _____:_____:_____:_____:_____:_____:_____ useful

bad _____:_____:_____:_____:_____:_____:_____ good

beneficial _____:_____:_____:_____:_____:_____:_____ harmful

meaningful _____:_____:_____:_____:_____:_____:_____ meaningless

important _____:_____:_____:_____:_____:_____:_____ unimportant

Appendix C

CONSENT FORM AND DIRECTIONS

FOR USING SEMANTIC DIFFERENTIALS

This survey is being conducted under guidelines established by Kansas State University. By cooperating, you will help provide answers to important questions; however, your participation is strictly voluntary. You should omit any questions which you feel unduly invade your privacy or which are otherwise offensive to you. You may withdraw consent and participation at any time. Inquiries regarding procedure will be answered. Confidentiality is guaranteed; your name will not be associated with your answers in any public or private report of the results.

Procedure for this survey will include completing an attitude test.

I have read the above statement and have been fully advised of the procedures to be used in this survey. I understand there are no risks involved in participating in this survey.

_____ _____

Date Signature of subject

(Please Detach This Page From Your Booklet.)

On the following pages you will be asked to give your attitude toward six items. Each item will be followed by several rating scales. Each scale will list two adjectives with seven blanks between them.

Here is an example using the concept of "adoption."

If you feel that "adoption" is very good or very bad, you should place your check-mark as follows:

ADOPTION

good __X__:_____:_____:_____:_____:_____:_____ bad

OR

good _____:_____:_____:_____:_____:_____:__X__ bad

If you feel that "adoption" is quite good or quite bad (but not extremely), you should place your check-mark as follows:

ADOPTION

good _____:__X__:_____:_____:_____:_____:_____ bad

OR

good _____:_____:_____:_____:_____:__X__:_____ bad

If you feel that "adoption" is only slightly good or slightly bad (but is not really neutral), then you should check as follows:

ADOPTION

good _____:_____:__X__:_____:_____:_____:_____ bad

OR

good _____:_____:_____:_____:__X__:_____:_____ bad

If your attitude toward "adoption" is neutral or if the scale is completely irrelevant, unrelated to "adoption," then you should place your check-mark in the middle space:

ADOPTION

good _____:_____:_____: X :_____:_____:_____ bad

IMPORTANT: (1) Place your check-marks in the middle of the spaces, not on the boundaries:

THIS NOT THIS

good _____:_____:_____: X :_____:_____:_____ bad
X

(2) Be sure you check every scale for every concept---do not omit any.

(3) Never put more than one check-mark on a single scale.

(4) Work at fairly high speed through this test. Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.

Appendix D

EMPATHY TEST

On the following pages you will be asked to rate 33 statements. Here is an example of how to use the rating scale:

RATING SCALE:
+4 = very strong agreement
+3 = strong agreement
+2 = agreement
+1 = some agreement
0 = neutral; neither agreement or disagreement
-1 = some disagreement
-2 = disagreement
-3 = strong disagreement
-4 = very strong disagreement

_____ 1. It makes me sad to see a lonely stranger in a group.

If you feel the statement is very true about yourself, you will put a +4 in the blank at the left. If you feel it is very untrue about yourself, you will put a -4 in the blank at the left. However, if you feel the statement is neither true or false about yourself, put a "0" in the blank at the left. If you feel the statement ranges between the extreme and the neutral, you will put the corresponding number in the blank at the left. For example, if you feel the statement is somewhat true about yourself, you will put a +1 in the blank at the left.

+4 = very strong agreement
+3 = strong agreement
+2 = agreement
+1 = some agreement
0 = neutral, neither agreement or disagreement
-1 = some disagreement
-2 = disagreement
-3 = strong disagreement
-4 = very strong disagreement

_____ 1. It makes me sad to see a lonely stranger in a group.

_____ 2. People make too much of the feelings and sensitivity of animals.

_____ 3. I often find public displays of affection annoying.

_____ 4. I am annoyed by unhappy people who are just sorry for themselves.

_____ 5. I become nervous if others around me seem to be nervous.

_____ 6. I find it silly for people to cry out of happiness.

_____ 7. I tend to get emotionally involved with a friend's problems.

_____ 8. Sometimes the words of a love song can move me deeply.

_____ 9. I tend to lose control when I am bringing bad news to people.

_____10. The people around me have a great influence on my moods.

_____11. Most foreigners I have met seemed cool and unemotional.

_____12. I would rather be a social worker than work in a job training center.

_____13. I don't get upset just because a friend is acting upset.

_____14. I like to watch people open presents.

_____15. Lonely people are probably unfriendly.

_____16. Seeing people cry upsets me.

_____17. Some songs make me happy.

_____18. I really get involved with the feelings of the characters in a novel.

_____19. I get very angry when I see something being ill-treated.

_____20. I am able to remain calm even though those around me worry.

_____21. When a friend starts to talk about his problem, I try to steer the conversation to something else.

_____22. Another's laughter is not catching for me.

_____23. Sometimes at the movies I am amused by the amount of crying and sniffing around me.

_____24. I am able to make decisions without being influenced by people's feelings.

_____25. I cannot continue to feel OK if people around me are depressed.

_____26. It is hard for me to see how some things upset people so much.

_____27. I am very upset when I see an animal in pain.

_____28. Becoming involved in books or movies is a little silly.

_____29. It upsets me to see helpless old people.

_____30. I become more irritated than sympathetic when I see someone's tears.

_____31. I become very involved when I watch a movie.

_____32. I often find that I can remain cool in spite of the excitement around me.

_____33. Little children sometimes cry for no apparent reason.

Appendix E

TEXT OF THE HIGH FIBER DIET SPEECH

An elderly woman lives across the street in my hometown. She loves to give cookies and candies to the children, and everyone affectionately calls her Grandma. Fifteen years ago the doctors informed her she had cancer of the colon. In despair she preferred to die, but her children forced her to undergo the operation to remove the end of her colon and reposition it on the side of her abdomen. Today she has no bowel control and so must perpetually carry a pouch attached to her side.

Grandma Peterson is lucky to be alive. Mrs. Judy Larson, a high school friend of my mother's, was not so lucky. Two and a half years ago she also underwent a colostomy. After a long, painful, and hopeless struggle, this once vivacious woman died last August. Her death weight--76 pounds. And she was only 45 years old.

Cancer of the colon, heart disease, and certain digestive disorders have been analyzed. Amazingly, one common variable has been discovered--low fiber diets.

I believe Americans must learn just what fiber is, the potential health hazards resulting from a lack of it, and the fact that its addition to our diets could alleviate more anguish than all the health food fads and vitamin E gimmicks put together.

Fiber is, very simply, the indigestible part of the plant material,

and is most prevalent in whole wheat grains and in certain fruits and vegetables. But fiber is also a "largely neglected component of food, mainly because it contributes little nutritionally . . . and its gastro-intestinal functioning has not been appreciated." However, such an appreciation had better develop soon, for according to the American Cancer Society, the second deadliest malignancy in the United States is now colon-rectal cancer. This year 99,000 new cases will erupt and 49,000 people will die. Heart disease now constitutes one-third of the total deaths in the United States annually, taking 700,000 lives. And diverticular disease is the single, most common disease of the colon. In the meantime, appendicitis, constipation, and even obeisity are being linked to low-fiber foods.

The adverse effects of a low-fiber diet can be best understood by examining normal digestion. The food we ingest travels through our system until it reaches the intestines where final absorption occurs. High-fiber foods cause transit time to speed up and thus expel the waste much sooner. But with less fiber there is less indigestible content to accelerate the process. Simply, the longer it takes for the waste to be expelled, the more exposure the colon receives to cancer-causing agents.

In the case of heart disease, it is an established fact that high blood-cholesterol levels are the primary cause of heart attacks. Fiber, however, inhibits the absorption of cholesterol, and the conversion of bile into more cholesterol. Dr. David Newban, author of the book, The Save Your Life Diet, surveyed studies by seven independent researchers to conclude that "consuming a diet high in vegetable fiber has been incontrovertibly proven to increase the excretion of cholesterol from the body."

For diverticular disease Dr. Denis Burkitt of Britain's Medical Research Council and Dr. Neil Painter, the foremost world authority, explain that slow transit pressures the intestinal walls, pouches them outwards, and causes inflammation. Diverticulitis ensues, which could evolve into the fatal diverticulosis.

I am not attempting to prove that all cases of these diseases are caused by lack of fiber. But I do believe that there is sufficient evidence to support a very definite correlation. Studies collected by Dr. Reuben generate three points in proof of such a relationship. First, these ailments are virtually unknown in countries with high fiber diets. Second, they are catastrophically common where low-fiber diets are prevalent, and third, when people switch from a high to a low-fiber diet, they "gradually but relentlessly succumb."

Consider first the African and second the Western world. Dr. Burkitt noted in the British Medical Journal that in Uganda, the incidence of colon-rectal cancer is 1/3 that of the United States. Dr. Burkitt, Dr. Painter, and Dr. Hugh Trowell, a noted British physician, pointed out in 1975 that "every community in the world on a high-fiber diet has an extremely low incidence of coronary heart disease and diverticular disease." In contrast, all three of these diseases are disastrously high in the United States.

But further, the third observation was that the switch from a high to a low-fiber diet correspondingly increases disease. Fiber was isolated as the main possible causative factor by studies which demonstrated that Africans who moved to America, and Japanese who moved to Hawaii also began to contract these same diseases. And when areas of Africa industrialized and began eating traditional Western fare, health declined in proportion. Dr. Reuben summed it all up by saying: "Based on the judgments

of 500 prominent medical authorities . . . in over 600,000 medical articles and books . . . there seems little doubt that dietary fiber and roughage is an essential part of the human diet."

Now if all this evidence exists, why has so little been done? General Mills boasts the bran news about its Wheaties, and one bread manufacturer is flaunting its whole wheat product. But the vast majority of cereals, for example, concentrate only on being sugar sweetened, fruit flavored, or maybe vitamin fortified. Dr. Reuben estimates that over 90% of the 11,000 items on our supermarket shelves have had nearly every scrap of roughage removed by their refining. Plus, our tastebuds have been titallated for so long that by and large industry is willing to simply continue to advertise and deliver the same supply.

Such is the Catch-22: industry won't change its ways because there is no consumer pressure. And there is no consumer pressure because there are no government or private authorities to inform the public.

After considering this hazard being posed to our health, I recommend a three step solution. First, education and advertising should explain that our current consumption of fiber averages six grams daily but should balance between eighteen and twenty-four. The public must learn that it could simply add two teaspoons of bran, three times a day, because bran is the best possible source of fiber. Mixing bran in foods from soups to hot-dishes would increase our fiber intake without our even realizing it. And in combination with greater consumption of high-fiber fruits, vegetables, and cereals, gastro-intestinal functioning could be revolutionized.

The second step would require labelling of packaged and refined foods. The Food and Drug Administration already requires cereals to post their

percentages of vitamins and minerals. But labelling the number of grams of fiber per serving would keep shoppers from buying blindly and make manufacturers more aware of the dangers of excessive reprocessing.

The third step would require the investment of governmental money and manpower to aid in our research efforts--for private research is simply all too limited.

Why should we take the senseless risk of waiting 20 to 40 years for our own low-fiber lifestyles to prove the cause of our demise? An American Cancer Society bulletin cited no less than seven authorities in agreement with Dr. Ernest Wynder, President of the American Health Foundation, when he stated: "I don't have to know all the answers in order to make a recommendation." Fiber is their recommendation.

The choice is simple. Do we desire the re-routing of our digestive systems, knowing that over half of such patients like Judy Larson die within five years anyway? Do you even wish to be among the one out of two American males who will have at least one heart attack between the ages of 40 and 60? Do we desire to be among the 40-70% of Americans who suffer the tortures of diverticulitis?

I said that Grandma Peterson was lucky. Let's not force ourselves to rely on that kind of luck--Let's deliberately choose our own course, and live!

AN EXPERIMENTAL STUDY OF THE RELATIONSHIP BETWEEN EMPATHY AND ATTITUDE CHANGE

by

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Most research in the area of persuasibility and sex of the listener has indicated that female subjects are more easily persuaded than male subjects. Yet, some studies have indicated that there are no differences between the sexes, and one researcher has shown men to be more easily persuaded than women. An examination of these studies reveals that empathic ability of the listener has not been tested as an independent variable influencing attitude change.

It was hypothesized, therefore, that after hearing a short persuasive message on a neutral topic, highly empathic individuals would change their attitudes toward the opinion expressed in the speech more than individuals low in empathy.

In order to select a neutral topic, students in an Oral Communication class at Kansas State University rated six speech topics. The subjects had neutral attitudes toward the topics noise and high fiber diets.

The experimental subjects completed a pre-test of attitudes, and several weeks later listened to one of the persuasive speeches. Immediately after the speech, subjects completed a post-test of attitudes and an empathy test.

Results from the noise speech supported the hypothesis. High empathy individuals exhibited the most attitude change. Low empathy individuals were negative changers and moved their attitudes in the opposite direction advocated in the speech. Results from the high fiber diet speech did not support the hypothesis since there were no differences in attitude change between the low and high empathy groups.

The reason why one speech upheld the hypothesis and the other speech did not, may stem from differences in the two speeches. These differences

included the direction which the speeches attempted to shift attitudes, the intensity of the problem addressed, and complexity of the solution.

The noise speech moved attitudes from a neutral to a negative position while the high fiber diet speech moved attitudes from a neutral to a positive position. Perhaps it is easier to move attitudes in a positive direction, and consequently, there were no differences in attitude change between the empathy groups.

It is possible that the intensity of the problem in the high fiber diet speech was greater than in the noise speech. The fear in the high fiber diet speech was related to cancer while the fear of the noise speech was related to hearing loss and high blood pressure. Perhaps the high fiber diet speech produced attitude change in both empathy groups because the fear of cancer is quite strong in the American society.

The differences in solutions seems to be a logical explanation for the contradictory results produced by the two speeches. Perhaps the noise speech upheld the hypothesis because the complex solution required more of an ability to empathize, and the high fiber diet speech did not uphold the hypothesis because the simplicity of the solution did not require high empathy in order to produce attitude change. Additional research is needed into the relationship of solution complexity to empathic abilities of the listener.

An unexpected result of the study was information related to the personalities of negative changers. Results from the noise speech suggest that negative changers have low empathic abilities. Further research is needed to support this conclusion.

Although the results on empathy and attitude change were not conclusive, they suggest that empathy and attitude change are related.