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CHANGES IN NUTRITION ATTITUDES AND KNOWLEDGE AS  
A FUNCTION OF SIMILAR AND EXPERT COMMUNICATION  
SOURCES AMONG THE GUSII OF KENYA.

Syracuse University, Ph.D., 1974  
Psychology, social

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CHANGES IN NUTRITION ATTITUDES AND KNOWLEDGE AS A  
FUNCTION OF SIMILAR AND EXPERT COMMUNICATION  
SOURCES AMONG THE GUSII OF KENYA

by

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DISSERTATION

Submitted in partial fulfillment of the requirements for  
the degree of Doctor of Philosophy in Psychology in  
the Graduate School of Syracuse University,  
August 1974

Approved

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Date

Aug 1, 1974

## PREFACE

The writer wishes to express his gratitude to his advisor, Dr. Marshall H. Segall, for his advice and encouragement throughout the course of the investigation. The writer is also grateful to Dr. Edward J. O'Connell for his assistance with regards to the statistical and computer analysis of the data. Many thanks are extended to Dr. Clive M. Davis for his helpful advice in carrying out the study to its completion.

The writer also wishes to thank the Shell International Foundation for the Shell International Studies Research Fellowship which provided funds for travel to Kenya and a stipend for living expenses in Kenya. The writer is also grateful to the National Science Foundation for a Doctoral Dissertation Research Grant in Social Psychology (No. GS-34940), under the directorship of Dr. Marshall H. Segall, which provided funds for field research expenses and survey costs.

Appreciation is also expressed to Mr. Samuel Z. Sagero, Mr. Philip Mose, Mr. Elizaphan Getonto O'Nyaramba, and Mr. Geoffrey H. Omwenga for their valuable help in the execution of the study. Many thanks are also extended to the various Kenyan government agencies and to the numerous schools which took part in the study.

Special thanks are extended to my wife, Suzanne Laidlaw Feldman, whose abilities as a research psychologist, critic, moral supporter and friend were indispensable throughout the investigation.

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## CHAPTER I

### THEORETICAL BACKGROUND ON SIMILARITY AND EXPERTISE AS COMMUNICATOR VARIABLES INFLUENCING PERSUASION

The present study was designed to consider the impact of source expertise and source-receiver similarity on persuasiveness in a non-western culture. The study examined changes in nutrition attitudes and knowledge of Gusii secondary school students of southwestern Kenya.

Both "similarity" and "expertise" are components of the communication source. Kelman (1958, 1961) and McGuire (1969) postulate three main communication source components: credibility, attractiveness and power. The credibility of the source has itself been analyzed into two elements: expertise (the extent to which the source is perceived as knowing the correct answers) and trustworthiness (the degree of confidence in the source's intent to communicate this knowledge objectively) (Hovland, Janis and Kelley, 1953 and McGuire, 1969).

In a similar manner, McGuire has analyzed attractiveness in terms of liking, familiarity, and similarity (the extent to which the receiver perceives the source as similar to himself/herself.) Therefore, this study examined the expertise component of credibility, and the similarity component of attractiveness.

Studies of source expertise have found that respondents exposed to a message attributed to a high expert source show greater attitude change than respondents exposed to a medium expert source (Aronson, Turner and Carlsmith, 1963; Bochner and Insko, 1966) and respondents exposed to a high expert source show significantly greater attitude change than respondents exposed to a message attributed to a low expert source (Aronson and Golden, 1962; Bonchek, 1967; Johnson and Izzett, 1972; Johnson and Scileppi, 1969; Page, 1970; and Rhine and Severance, 1970).

In a communication setting where the expertise of the source is salient, the focus of the individual is on attaining the correct position on an issue.

The individual utilizes his/her perception of the source's expertise as a cue to the "correctness" of the position advocated by the source. In contrast, where source-receiver similarity is present, the focus of the individual is on maintaining attitudes in agreement with some model, whether an individual or a group. The individual utilizes his/her perception of the source's similarity as a cue that they both share common needs and goals.

In discussing source-receiver similarity it is useful to distinguish between attitudinal similarity and group-membership similarity. Similarity between source and receiver based upon commonly held attitudes has been shown to not only produce interpersonal attraction and liking for the similar person (Byrne, 1961), but also to have a positive effect upon attitude change (Berscheid, 1966). Berscheid found that a source with similar attitudes relevant to the message, produced greater attitudinal change than a source with dissimilar attitudes relevant to the message. This present study, however, focused on source-receiver similarities due

to group-membership or demography. It is presumed that the chief function of group-membership similarities is in serving as a form of indirect suggestion. Individuals receiving the message may then infer attitudinal similarities (eg. "since the speaker and I are both farmers, he must share my concern about . . .") (Simons, Berkowitz and Moyer, 1970, p. 2).

The finding in the area of source-receiver similarity among such groups as young children (Duncker, 1938), primary school boys (Burnstein, Stotland and Zander, 1961), college students (Stotland and Patchen, 1961, and Mills and Jellson, 1968), and adult paint customers (Brock, 1965) is that source communicators who are perceived to be high in similarity to their audiences tend to produce significantly greater attitude change in the direction of the source's position than source communicators who are seen as low in similarity. A problem arises when the source components of expertise and similarity are both simultaneously present in the communication source. For example, a source who is both

high in expertise and low in similarity would gain persuasiveness from his/her high expertise, but lose persuasiveness from his/her low similarity. Conversely, a source who is low in expertise and high in similarity, would gain persuasiveness from his/her similarity, but lose persuasiveness from his/her lack of expertise (McGuire, 1969). Therefore, if the source components of expertise and similarity are both present, questions arise as to which component has the greater influence on persuasiveness, and as how the two variables might interact.

A number of studies among college students in well-structured "laboratory-type" settings (Aronson, Turner, and Carlsmith, 1963; Bonchek, 1967; Haiman, 1949; Mausner, 1953; Paulson, 1954; and Whittaker and Meade, 1968) compared sources which were authorities (high in expertise, low in similarity) with college students (low in expertise, high in similarity) and found that authorities produced greater attitude change than college students. In contrast, research among non-college populations in "natural environments" have found

authorities to be less persuasive than housewives (Katz and Lazarfeld, 1955) and less persuasive than neighbors and friends (Rogers and Meyner, 1965).

The difference in the findings may be due to a difference between the natural-field and classroom-laboratory situations in the reception of a communication message. In actual social settings, sociologists (eg. Katz and Lazarfeld, 1955) have repeatedly found that people have little contact with those unlike themselves and are therefore, less exposed to authorities than to people like themselves. In contrast, the classroom-laboratory situation usually gives equal exposure to both expertise and similarity. Therefore, when the expert gets his/her message heard, (s)he has more impact than the non-expert, but in the natural community the expert is heard less than the non-expert (McGuire, 1969) and therefore, has less influence.

Field research by Rogers and Meyner (1965) adds support to this explanation. They report that in the adoption of an innovation (weed spray) among farmers

in Colombia neighbors, friends and family were more persuasive than outside experts (extension agents) during the first three stages of the adoption process (awareness, interest and evaluation). But by the fourth (trial) stage, experts were found to be more persuasive than neighbors, friends and family. Therefore, it appears that the more a population has contact with authorities, the greater the saliency of the expertise component, with the consequent reduction in the saliency and influence of the similarity component. Hence, the school environment, and especially the university environment with its strong emphasis on authorities (egs. books and instructors), would influence the greater acceptance of expert opinion.

This present study, examined the persuasibility of secondary school students in Kenya. These students have not only completed seven years of primary school, but as secondary school students are in an environment that places great emphasis on the admiration and respect for authorities. Therefore, it is predicted that

secondary school students examined in a classroom setting, would be more influenced by the expertise component than the similarity component, that is, a source of high expertise/low similarity would be more persuasive than a source of low expertise/high similarity.

One criticism of the studies cited above is that they examined only two source descriptions: high expertise/low similarity and low expertise/high similarity. Therefore, it is not possible to determine whether expertise, similarity or some interaction of the two is the reason for the difference in persuasibility. This study, however, separated the effects of expertise and similarity from the interaction of expertise and similarity.

#### Attitude Change and Knowledge Change

In describing the source's impact on his/her audience a distinction is made between the "evaluation-perception" of the message and the "learning-retention" of its content. Hovland, Janis and Kelley (1953) report that how a message is perceived and evaluated depends on



whether the source is perceived positively or negatively. A given message is judged as fairer, more factual, more thoroughly documented, its conclusions following more validly from its premises, and even more grammatical, when it is ascribed, for example, to a high credible as opposed to low credible source (McGuire, 1969).

Though ample evidence has been presented demonstrating differences in attitudinal change due to source expertise and source-receiver similarity, evidence for differential learning or recall of the message content due to the attributed source variable is sparse. The general finding is that varying the attributes of the source does not lead to differences in knowledge change (i.e., increasing the receiver's knowledge of the message content.)

The lack of significant differences in knowledge change has been reported between high and low credible sources (Anderson, 1966; Tompkins and Samovar, 1964), high and low trustworthy sources (Hovland and Weiss, 1951 and Hovland and Mandell, 1952), high and low expert

sources (Johnson and Scileppi, 1969 and Johnson and Izzett, 1972), and between high and low source-receiver similarity sources (Mills and Jellson, 1968). In all of the above mentioned studies attitude differences between groups were found (or no report of attitude change was made) at the same time that no significant knowledge differences between groups were reported.

In contrast to the findings reported in the United States, Lord (1958) found among Ethiopian students that though education had increased their knowledge of science, their attitudes still remained non-scientific. Therefore, the findings of Lord as well as the American data on knowledge and attitude change are both of interest in examining knowledge and attitude change in a non-western culture.

### Sex Differences

Individual-difference characteristics interact with the communication source in effecting attitude change. The first-order effect of the demographic

variable of sex on attitude change has been extensively studied, but the results are inconclusive. Many studies report that females are more persuasible than males. This is reported among high school students (Janis and Field, 1959 and King, 1959), college students (Haiman, 1949; Littlejohn, 1970; Whittaker, 1965a and 1965b), and among Hindi speaking Indian graduate students (Singh, 1970).

Other studies found no significant difference in attitude change scores between male and female respondents. This is reported by Andersen (1961), and Cherrington and Miller (1933), among college students; Abelson and Lesser (1959), among primary school students; and Rosenberg (1962) among five Israeli subcultures.

In a cross-cultural study, Whittaker and Meade (1967), reported that females were more persuasible than males among American adolescents and Hong Kong Chinese university students. But no significant sex differences were found among university students from the United States, Rhodesia, Brazil, Lebanon and Peru.

To explain the conflicting findings, Aronson (1972) proposed examining the topics of the communication messages. He suggested that people are more persuasible on topics that they do not care about or do not know about. Therefore, the studies which report that females are more persuasible than males may have considered topics in which men are more interested and/or more expert than women.

This present study examined nutrition attitudes. If it can be assumed that female students are more interested and/or more knowledgeable about nutrition than male students, then according to Aronson's hypothesis male students should exhibit greater attitudinal change than female students. On the other hand, a prediction that females are more persuasible than males would be based on the notion that women (in Gusi society as well as in American society) are socialized to be more submissive and less skeptical than men, and are rewarded for submissiveness rather than assertiveness. Therefore, it is one of the goals of this study to examine sex

differences as they pertain to nutrition attitudes and knowledge.

### Nutrition Studies

Nutrition knowledge and attitudes were chosen for investigation because of their central importance to the culture under study. Food and nutrition are both involved in many aspects of the life and values of the people in East Africa. Dietary practices in traditional and transitional societies<sup>1</sup> differ notably from those in western societies. In the developing nations of Africa the prevalence of malnutrition is due in part to the lack of knowledge about proper nutrition practices. The use of experts and non-experts, varying in terms of both expertise and similarity, engaged in programs to inform people about proper nutrition highlights the relevancy and importance of the research.

The paucity of studies in all cultures concerning nutrition knowledge and attitudes is striking. Boyd (1943) developed a questionnaire for measuring food

<sup>1</sup>A further discussion of the terms "traditional," "transitional" and "western" societies can be found in Dawson (1969).

practices among primary school children in Kentucky, and Doob (1972) conducted public health surveys in 1968 and 1970 among Ugandan secondary school students. Doob found students to be well informed concerning some aspects of public health and less well informed concerning mental illness. He also reported non-significant relationships between public health knowledge and sex, ethnicity, religion and acculturation.

Duncker (1938) conducted an experiment to try to modify young English children's food preferences. He found that other children were more effective persuasive agents than adults. Three studies under the direction of Kurt Lewin (1958, reprinted) reported that the group decision method was more effective than the lecture method in changing the food habits of housewives. An experiment by Bavelas, Festinger, Woodward and Zander (cited, 1955) studied the use of intestinal meats, another study by Radke and Klisurich (1947) investigated increasing the use of fresh and evaporated milk and a third experiment also by Radke and Klisurich (1947) involved persuading

mothers to supplement infant diets with orange juice and cod-liver oil.

Bennett (1955) evaluating the three Lewinian studies found that the group decision method employed in these studies differed from the lecture method not only in terms of the channel variable (the means of conveying information), but in terms of three other variables. In an extensive study of the four variables that contribute to the Lewinian group decision method, Bennett reported that two of the factors, i.e., group decision as an influence technique and public commitment, were found not to be essential to the reproduction of the results previously found by Lewin and his co-workers. However, the combination of the other two variables, the process of making a decision and the degree to which group consensus is obtained and perceived, together produced differences as large as those reported in the three Lewinian experiments. Therefore, in re-evaluating the Lewinian results in terms of Bennett's findings, the "group-decision method" defined as "decision about

individual goals in a setting of shared norms regarding such goals" (Bennett, 1955, p. 272) is more effective than the lecture method in changing the food habits of housewives.

In another study, Walbeck (1972) found among Colombian women that attendance at four weekly class meetings concerning nutrition produced significantly greater knowledge and attitude change than non-attendance at the class meetings. However, no significant differences were found between the different types of nutrition class presentations.

Due to the lack of studies, no generalization can be made concerning knowledge and attitude change that focuses on nutrition in comparison to other content areas. It is hoped that the results of this study will contribute to a better understanding of the process of knowledge and attitude change in the area of nutrition.



A Brief Description of  
The Research Design

Numerous studies investigating communication source variables and sex variables have been cited. This doctoral dissertation study examined two levels of expertise (high and low) and two levels of similarity (high and low). Each of the four experimental treatment groups received the same written message which aimed to produce nutritionally-advantageous changes in nutrition knowledge and attitudes, while a control group did not receive any nutrition message.

In addition, within each experimental treatment half the respondents received a written message attributed to a member of their own sex and half the respondents received a written message attributed to a member of the opposite sex resulting in a 2 X 2 X 2 X 2 factorial design. After receiving the written communication, a questionnaire was given to all of the respondents, experimental and control, to measure the effect of source

expertise and source-receiver similarity on nutrition knowledge and attitudes.

### Hypotheses

On the basis of the preceding discussion, the following hypotheses were proposed.

1. Respondents receiving a message on nutrition (the sixteen experimental conditions) will exhibit attitudes significantly closer to the position advocated by the communication sources than respondents not receiving a nutrition message (the control conditions).

2. Respondents receiving a message on nutrition (the sixteen experimental conditions) will exhibit significantly greater knowledge scores than respondents not receiving a nutrition message (the control conditions).

3. Respondents in the high expertise condition will exhibit significantly greater attitude scores than respondents in the low expertise condition.

4. Respondents in the high similarity condition will exhibit significantly greater attitude scores than respondents in the low similarity condition.

5. Respondents in the high expertise/low similarity condition will exhibit significantly greater attitude scores than respondents in the low expertise/high similarity condition.

6. No significant differences are expected among experimental conditions in terms of knowledge scores.

7. If females (males) prior to receiving a message are more knowledgeable about nutrition than males (females), which would be determined by the performance of the control groups, then males (females) in the experimental conditions will exhibit significantly greater attitude scores than females (males).

8. If similarity of sex is perceived as the most salient dimension of the source, then males will be more influenced by a male source, and females will be more influenced by a female source.

9. If the sex of the nutrition expert is perceived as the most salient dimension of the source, and if nutrition experts are perceived as female, then

both males and females will be more influenced by a female source than by a male source. Comparable results will occur if nutrition experts are perceived as being male.

## CHAPTER II

### METHOD

#### Respondents

The respondents in the study were 184 female and 178 male Gusii secondary school students. Based upon a survey of secondary schools in Kisii District, it was decided that the population of the study would consist of lower-level (Form I and Form II) students from harambee (self-help) secondary schools. It was found that health science, which includes nutrition, is studied, either formally as a school subject, or informally by the students on their own time, in Forms III and IV. Therefore, the population was restricted to Forms I and II. It was also discovered that almost half of the students at government secondary schools were non-Gusii, therefore, the research did not examine students from government schools, but only at private, self-help harambee schools. Hence, the final restricted population

of Forms I and II Harambee secondary school students ensured a population of ethnically homogeneous students who had not studied nutrition.

### The Preliminary Phase of the Research

Since the content of the communication message was on nutrition, the first phase of the research was to obtain information about the nutrition practices of the Gusii of Kenya. Discussions were held with Kenya's chief nutritionist in Nairobi, and with the provincial nutritionist of Nyanza Province in western Kenya.

At the time this preliminary work was being conducted, the Institute for Development Studies, of the University of Nairobi, was forming a "Nutrition Study Group" to work on the problems of malnutrition in Kenya. This writer was invited to join the Nutrition Study Group. Discussions with doctors, nutritionists, and other nutrition researchers at meetings of the Nutrition Study Group were helpful during this stage of the research. Also at this time, the writer presented

a working paper of the proposed research (Feldman, 1973) at a seminar of the Institute for Development Studies. Discussions held at this seminar also proved to be helpful.

In Kisii District, the district of the research, meetings were held with the two government nutritionists working in the district. One of the nutritionists was working at the district hospital, and the other nutritionist was working at a rural health center. Consultations were also made with Gusii biology and health science teachers.

#### Development of Research Materials

The second phase of the research was the development of research materials. A group of 22 Gusii secondary school students in Kisii District<sup>1</sup> were asked to elicit a list of similarity and expertise characteristics. Then the researcher in conjunction with a number of Gusii research assistants greatly expanded the list of characteristics. Additional lists were also made of

<sup>1</sup>It should be noted that all phases of the research were conducted in classrooms in Kisii District among Gusii Harambee secondary school students.

attitude statements and knowledge questions about nutrition.

The expanded lists of similarity and expertise characteristics were then given to another sample of 42 Gusii students. They were asked to decide for each similarity characteristic, whether a person having this characteristic was similar or different from them. In the same fashion, for each expertise characteristic they were asked to decide whether a person having this characteristic was or was not an expert in nutrition. For each characteristic the degree of expertise and similarity was measured on a five-point scale.

#### Form of the Attitude Questionnaire

Results from this sample seemed to indicate that the respondents were having difficulty utilizing a five-point attitude scale. Therefore, another sample was chosen and given the expertise characteristics, with 19 students receiving a five-point scale and 15 students receiving a three-point scale. Sixty (60) expertise



characteristics made up each questionnaire form. With five alternatives, the expected value of each alternative is 12. It was decided that if a respondent chose an alternative 50 percent or less of the expected value, i.e., six or less times, then this was an indication that the respondent was not utilizing all of the alternatives.

Of the 19 respondents receiving the five-point scale, six respondents chose two alternatives 50 percent or less of the expected value, strongly demonstrating that they were not utilizing all of the alternatives. A seventh respondent did not choose one alternative even once out of 60 items, and an eighth respondent appeared to demonstrate a diagonal response pattern (A-B-C-D-E). Therefore, 8/19 or 42 percent of the respondents who received a five-point attitude scale demonstrated difficulty utilizing the five-point scale.

In contrast, of the 15 respondents receiving a three-point scale, only one respondent or seven percent chose one alternative 50 percent or less of the expected

value, i.e., ten or less times. It, therefore, appeared that the students have difficulty using a five-point scale. They had not experienced attitude scales and were not used to making such fine distinctions.

Examining nutrition attitudes, it was also found that the students tended to choose the "agree" response more than the other two responses, "neither agree nor disagree" or "disagree." This acquiescence or "yea-saying" may have been due to their inexperience with attitude questionnaires or to the form of the questionnaire. In an attempt to reduce this type of response bias, two forms of attitude questionnaires were administered to another sample.

Thirty-three (33) respondents received the conventional attitude form, with "a,b,c," written to the right of the attitude statement. The attitude form was balanced with 16 respondents receiving the version where "a" was "agree," "b" was "neither agree nor disagree," and "c" was "disagree" and 17 respondents receiving the balanced version where "a" was "disagree,"

"b" was "neither disagree nor agree," and "c" was "agree."

A simpler and less confusing form, especially for students who have never responded to an attitude questionnaire, was also administered. In this form each of the three possible alternatives were clearly "written-out." For example:

I like -

- (a) soda better than juice.
- (b) them both the same.
- (c) juice better than soda.

The respondent was asked to choose the letter with the sentence that (s)he most agreed with, by putting a circle around the letter a, b, or c. This attitude form was also balanced with 16 of the 31 respondents receiving the above version, and 15 of the 31 respondents receiving the version where (a) and (c) were reversed. That is,

I like -

- (a) juice better than soda.
- (b) them both the same.
- (c) soda better than juice.

Combining both balanced versions within each form over 35 questionnaire items produced different results for each questionnaire form. Excluding blanks, the "a, b, c" form results were: 460 (41 percent) agrees, 277 (25 percent) neutral, and 394 (35 percent) disagrees. Excluding blanks, the "written-out" form results were: 400 (37 percent) first/third alternative, 272 (25 percent) second (neutral) alternative, 407 (38 percent) third/first alternative. In both forms, 25 percent of the responses were the neutral or middle response. Though both forms were counter-balanced, the first form, the "a, b, c" form, produced greater "agree" responses than "disagree" responses (41 percent versus 35 percent). That is, there were slightly more "agree" responses than "disagree" responses regardless of whether "a" was "agree" or "c" was "agree." Therefore, it appears that the "a, b, c" form tends to elicit slightly greater response bias. The "written-out" form produced about an equal number of polar responses (38 percent versus 37 percent).

More importantly, in debriefing sessions with the students who had utilized the "a, b, c" form and the "written-out" form, the general opinion was that the "written-out" form was clearer, less confusing and easier to understand. A greater degree of consensus of responses was also more apparent among respondents to the "written-out" form than to the "a, b, c" form. Based on these findings, the "written-out" form was utilized in the remaining phases of the research.

#### The Empirical Determination of Similarity and Expertise

After piloting determined the optimum form of the attitude questionnaire, the next phase of the research was to determine which characteristics the students perceived as high in similarity, medium in similarity, and low in similarity to themselves. Seventy-three (73) similarity characteristics were given to a sample of 70 students. The 70 students consisted of 36 male and 34 female. The students were given the following instructions:

For each characteristic, you may feel that the person having this characteristic is:-

- (a) similar to you
- (b) a little similar and a little different to you
- (c) different to you.

Then they were asked to circle the appropriate letter for each characteristic. The questionnaire was balanced with approximately half the students receiving the above version and the remaining students receiving the alternate version with

- (a) different to you.
- (b) a little different and a little similar to you
- (c) similar to you.

In determining which similarity characteristics were perceived as being either similar, neutral, or different to the respondents, the first basic criterion was that over 50 percent of the respondents had to classify the characteristic the same. It was found that none of the characteristics were classified as neutral (a little similar and a little different) by 50 percent of the respondents. Therefore, a second criterion was utilized, which was that the characteristic had to be

classified into one category by at least 55 percent of the total respondents, with less than 20 percent of the respondents classifying the characteristic in the polar opposite category. For example, for the tribe characteristic "Gusii" to be accepted as a high similarity characteristic, more than 55 percent of the respondents would have to have classified "Gusii" as "similar" with less than 20 percent of the respondents classifying Gusii as different.

A third criterion for acceptance was that for each class of characteristics, at least one characteristic must be chosen as similar and one characteristic be chosen as different. For example, for the class, tribe, if Gusii (tribe) was chosen as similar, then another tribe (eg. Masai) would have to have met the second criterion as different (i.e., 55 percent classifying Masai as different and less than 20 percent classifying it as similar) for both Gusii and Masai to be accepted.

In order to obtain a consensus on similarity among the various groups, a fourth consensus criterion

was formulated. At least 50 percent of each group (males, females, Form I and Form II) would have to classify the characteristic alike with fewer than 25 percent classifying the characteristic in the opposite direction.

Based on these four criteria, five classes of similarity characteristics were found: tribe, religion, place of birth, language knowledge, and age.

In a similar manner, expertise characteristics were determined. Sixty (60) expertise characteristics were given to a sample of 82 students. The 82 students consisted of 40 males and 42 females. The students were given the following instructions:

For each of the characteristics listed below, how would you consider this person:-

- (a) Knows very little about human nutrition
- (b) Knows some about human nutrition
- (c) Knows very much about human nutrition.

Then they were asked to circle the appropriate letter for each characteristic. The questionnaire was balanced with half the students receiving the above version and



half the students receiving the alternative version with (a) and (c) reversed, that is.

- (a) Knows very much about human nutrition
- (b) Knows some about human nutrition
- (c) Knows very little about human nutrition.

As with the similarity characteristics, none of the expertise characteristics were classified as medium in expertise (i.e., knows some about human nutrition) by 50 percent of the respondents. Therefore, the main criterion for acceptance, was that at least 55 percent of all respondents had to classify the characteristic in one category, with less than 20 percent of the respondents classifying the characteristic in the polar opposite category. For example, if a World Health Organisation doctor was classified by more than 55 percent of the respondents as someone who knows very much about human nutrition, and was classified by fewer than 20 percent of the respondents as someone who knows very little about human nutrition, then the World Health Organisation doctor would be accepted as someone who is high in expertise.

As with the similarity characteristics, another criterion was that at least 50 percent of each group (males, females, Form I and Form II) would have to classify alike the characteristic with fewer than 25 percent classifying the characteristic in the opposite direction.

Unlike the similarity characteristics, the expertise characteristics were not grouped into classes. But, in deciding which characteristic to accept, another criterion was proposed: Since the final communication source description was to be a description of a supposedly real person, the set of characteristics making up the description had to make sense together. Therefore, expertise characteristics which fitted all of the above criteria and which together formed a coherent reasonable description were chosen.

After setting the criteria for similarity and expertise, and determining which characteristics met these criteria, a large set of characteristics was found. Four classes of similarity characteristics strongly met

the criteria, and a fifth class, age, moderately met the criteria. In determining an expertise description, groups of four or five characteristics made coherent reasonable descriptions. Therefore, two problems had to be solved: (1) Which of the accepted characteristics should be used? For example, for the tribal characteristics, 52 respondents chose Masai as different, and eight chose Masai as similar. And 49 respondents chose Kuria as different and six chose Kuria as similar. Therefore, which tribe should be used as different, Masai or Kuria? (2) Would a description consisting of five characteristics be stronger than a description consisting of four characteristics?

In order to solve these two problems, 14 similarity descriptions made up of either four or five characteristics with different combinations of tribal and religious characteristics, and eight expertise descriptions made up of either four or five different characteristics were given to another sample of 195 students. The general finding from this phase of the research, was that

descriptions containing five characteristics produced stronger results and showed greater consensus than descriptions containing four characteristics.

For example, respondents given the four characteristics of dissimilar (different) descriptions chose different as the appropriate alternative 58 percent of the time (two percent chose similar), while the respondents given five characteristics (age: over 30 years, being the fifth characteristic) of dissimilar (different) descriptions chose different as the appropriate alternative 72 percent of the time (two percent chose similar). Therefore, the number of characteristics chosen for the descriptions was five rather than four. That is, high and low, similar and expert descriptions all contained five characteristics.

The characteristics that had the strongest responses, and which were chosen for the final source descriptions are listed below. A summary table of the responses to the four source descriptions are in Appendix A.

The characteristics of the high similar source were:

Tribe: Gusii

Place of Birth and Grew Up in: Kisii District

Language: EkeGusii

Religion: Christian

Age: Under 30 years old.

The characteristics of the low similar source were:

Tribe: Masai

Place of Birth and Grew Up in: City of Nairobi

Language: Masai

Religion: not a Christian

Age: Over 30 years old.

The characteristics of the high expert source were:

- 1) World Health Organisation Doctor
- 2) Teaches human nutrition at a nutrition college
- 3) Wrote a textbook on human nutrition
- 4) Worked at Kenyatta Hospital in human nutrition
- 5) Taught human nutrition at Kenyatta Hospital

The characteristics of the low expert source were:

- 1) Clothing Shopkeeper
- 2) Helped a shopkeeper in a clothing shop
- 3) Been a trader
- 4) Been a farmer
- 5) Worked in a coffee processing factory

It should be noted that the similarity descriptions and the expertise descriptions were examined separately.

In the final phase of the study, the similarity descriptions and the expertise descriptions were combined.

### The Development of the Message

The next phase of the research was the development of a communication based on the deficiencies in the students' knowledge of proper nutrition and a message advocating nutritious foods for which the students hold negative attitudes. Therefore, a large battery of knowledge questions and attitude statements were given to samples of students.

A set of knowledge questions were given to a sample of 65 students. For a knowledge question to be accepted, at least  $2/3$  of the total sample had to answer the question incorrectly. In addition, a second criterion was formulated that at least 60 percent of each group (males, females, Form I and Form II) had to answer the question incorrectly. After selecting the questions,

it was found that only 19 percent of the selected questions were on the average answered correctly, that is, 81 percent of the selected questions were answered incorrectly or not answered.

Attitude statements were given to a sample 70 students. For an attitude statement to be selected, fewer than 25 percent of the total sample had to agree with the statements. A second criterion was that fewer than 30 percent of each group (males, females, Form I and Form II) had to agree with the statement for it to be accepted. After selecting the statements, it was found that an average of 13 percent of the statements were agreed upon by the total sample.

After obtaining all of the acceptable knowledge questions and all of the acceptable attitude statements, the next step was to develop a communication on a single topic. That is, to develop a message on a topic which the students both lacked knowledge (as demonstrated by incorrect answers on the knowledge questions) and held negative attitudes (as demonstrated by the attitude

statements on food preferences.)

An informational (non-emotional) message was written about the vitamin content of fresh fruits and vegetables that are found in Kisii District. Another sample of 67 students received a copy of the message, to determine whether the message was readable and easy to understand. Of the 67 students, 31 students received the message together with knowledge questions about the message. Results of their post-message responses showed that 78 percent of the questions were answered correctly. The remaining 36 students did not receive the knowledge questions until they had read the written message and the message was removed from them. That is, they answered the questions without the message in view. In this condition, 71 percent of the questions were answered correctly.

It, therefore, appeared that on the average, the students were able to comprehend and learn the information of the message based upon the result that approximately 75 percent of the questions were answered correctly.



(the range of individual questions answered correctly was from 43 percent to 88 percent). It should be noted that the message was read by the students without a source associated with the message.

Minor word modifications were made in the message and a "dry-run" of the final phase of the study was conducted. This dry-run was helpful to familiarize the administrators with the final phase of the study and with the materials and the procedures.

### Materials<sup>1</sup> and Setting

A sample of 362 Form I and Form II harambee secondary school students took part in the final phase of the research. There were 331 experimental respondents and 31 control respondents. The students attended four secondary schools in Kisii District. Male and female respondents were randomly assigned to either a control group, which did not receive a communication message or to one of eight experimental treatments:

(1) high similar/high expert/male, (2) high similar/high

<sup>1</sup>The communication materials are found in Appendix B.

expert/female, (3) high similar/low expert/male, (4) high similar/low expert/female, (5) low similar/high expert/male, (6) low similar/high expert/female, (7) low similar/low expert/male and (8) low similar/low expert/female. That is, the communication source varied in terms of high or low similarity, high or low expertise, and whether the sex of the source was male or female. Each of the eight experimental treatments consisted of about 40 respondents (20 male and 20 female).<sup>1</sup> The control group of 31 respondents consisted of 15 male and 16 female respondents.

Since each source description contained both a similarity description and an expertise description, the manner in which the source was described was controlled. That is, within each of the eight experimental treatments, half of the descriptions had the similarity description first and the expertise description second while the other half had the expertise description first, and the similarity description second.

<sup>1</sup>The data for all the experimental and control respondents are found in Appendix C.

Since both attitudes and knowledge were being measured, to control for a possible primacy and/or recency effect, after reading the message, half of the respondents received the attitude statements first knowledge questions second and the remaining half of the respondents received the knowledge questions first attitude statements second. The attitude statements were presented in the "written-out" form and were balanced, that is, half of the respondents received the statements with the alternatives "(a)" and "(c)" reversed.

#### Classroom Procedure

An administrator<sup>1</sup> went into each classroom and 30 students were randomly selected: 28 experimental respondents and two control respondents. The students were spread out<sup>s</sup> as far as possible within each classroom. The administrator introduced himself and told the students that he was interested in finding out how they felt about various topics and that they were going to read some materials.

<sup>1</sup>The administrators were Gusii, males who had recently graduated from secondary school.

Then three pages were distributed to each of the 28 experimental respondents. All of the materials received by the respondents (experimental and control) were numbered. This was to enhance the students' belief that each student received a unique set of materials. On page one of the first set of materials was a short introductory statement, on page two was the description of the source, and on page three were further instructions. The two control respondents, at the same time, received either the attitude statements or the knowledge questions.

After the experimental respondents finished reading the three pages, they received a one page written message about proper nutrition. The description of the source remained with the respondents as they read the message.

After the experimental respondents read the message, both the message and the source description were collected. It took approximately ten minutes to read the message. After the message and source

description were collected the experimental respondents received either attitude statements or knowledge questions. After the experimental and control respondents finished filling out one section (either attitude or knowledge) then this section was collected. Next, they received the second section (either knowledge or attitude). Since all of the materials were numbered, this ensured that each respondent received both attitude statements and knowledge questions.

After the second section was collected, a third section, or set of materials were distributed. This third section consisted of statements of behavioral intent and background information about the respondents. In addition, the experimental respondents received statements concerning (1) their perception of the source's similarity to them, (2) their perception of the source's expertise in the area of nutrition, (3) their evaluation of the source (in terms of cleverness (i.e., how smart), likeability, honesty and believability), and (4) their evaluation of the message (in terms of

whether the message made sense and was easy to understand). These statements were presented in the "written-out" form and were balanced, that is, half of the respondents received the statements with the alternatives "(a)" and "(c)" reversed. The experimental respondents also received a set of questions intended to test whether they could correctly identify the source in terms of sex, ethnicity (similarity dimension), age (similarity dimension), present occupation (expertise dimension), and former occupation (expertise dimension).

After all of the students completed the last section, the students were thanked for taking part in the study and explained the nature of the research. Shortly after the study was completed all of the schools, including the schools which took part in the piloting and exploratory phases of the study, received a variety of books for their school libraries as a way of thanking them for taking part in the investigation.

## CHAPTER III

### RESULTS

A sample of 362 respondents (331 experimental and 31 control) received attitude statements, knowledge questions, and message and source evaluation materials. The attitude section consisted of 17 attitude statements. The possible range of scores was from 17 to 51; the obtained experimental conditions scores ranged from 21 to 51 with a mean score of 38.7 and standard deviation of 6.6. The Kuder-Richardson 20 reliability equalled .77.

The knowledge section consisted of 17 knowledge questions. The possible range of scores was from 0 to 17; the obtained scores from the experimental conditions ranged from 2 to 17 with a mean of 10.3 and a standard deviation of 3.3. The Kuder-Richardson 20 reliability equalled .71.

Experimental versus Control

To test the difference between experimental and control conditions Dunnett's  $t$  statistic (Winer, 1971, p. 201) was employed. Each comparison was made between the lowest experimental group score and the appropriate control group. For each sex there were eight experimental groups (similarity (2) by expertise (2) by sex of source (2)) and one control group. Examining attitude scores among male respondents resulted in a significant difference ( $t = 5.0$ ,  $df = 8$ ,  $p < .005$ .) The attitude difference between female experimental and control respondents was also significant with  $t = 3.2$ ,  $df = 8$ ,  $p < .005$ . The knowledge difference between male experimental and control respondents was significant with  $t = 6.9$ ,  $df = 8$ ,  $p < .005$ . The knowledge difference between experimental and control female respondents was also significant with  $t = 5.9$ ,  $df = 8$ ,  $p < .005$ . Therefore, the difference between the experimental conditions and the control conditions were significant for both male



and female respondents in both attitudes and knowledge; thus hypotheses one and two were confirmed.

### Validation of Independent Variables

The independent manipulations were source-receiver similarity, source expertise and sex of source. A chi-square analysis was employed to test whether the high similar treatment condition was perceived as higher in source-receiver similarity than the low similar treatment condition. The result was significant with  $\chi^2 = 18.2$ ,  $df = 2$ ,  $p < .001$ .<sup>1</sup>

To test whether the high expertise treatment condition was perceived as higher in source expertise than the low expertise treatment condition a chi-square analysis was used. The result was significant with  $\chi^2 = 31.6$ ,  $df = 2$ ,  $p < .001$ .<sup>2</sup>

A chi-square analysis was also employed to test whether the respondents correctly identified the sex of the source. The result was significant with  $\chi^2 = 151.4$ ,  $df = 1$ ,  $p < .001$ . Therefore, the respondents (i) perceived the high similar source higher in similarity than the low

<sup>1</sup>The high similar source was perceived higher in similarity than the low similar source.

<sup>2</sup>The high expert source was perceived higher in expertise than the low expert source.

similar source, (ii) perceived the high expert source higher in expertise than the low expert source and (iii) correctly identified the sex of the source. Hence, the independent variables were successfully manipulated and validated.


#### Experimental Results--Attitudes

To determine the statistical significance and contribution of each of the independent treatment variables, as well as the interaction of the variables, the general linear hypothesis model was employed. Utilizing the BMD05V program (Dixon, 1970) the following results were obtained for attitudes (see Table 1).

Sex of subject was a significant factor. Male subjects had higher attitude scores than female subjects (the male mean score was 39.6 and the female mean score was 37.8).<sup>1</sup>

Since the male students came from two predominantly male schools and the female students came from two predominantly female schools, an examination was made

<sup>1</sup> It should be noted that no significant attitude difference was found between male and female control groups,  $t < 1.0$ ,  $df = 1/29$ , n.s.

  
 Table 1  
 Summary Analysis of Attitude Change  
 General Linear Hypothesis

Variable	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u><math>\omega^2</math></u>
Similarity (A)	1	52.1	52.1	1.3	
Expertise (B)	1	69.1	69.1	1.7	
Sex of Source (C)	1	54.1	54.1	1.3	
Sex of Subject (D)	1	290.5	290.5	7.0**	.017
A X B	1	201.8	201.8	4.8*	.011
A X C	1	66.7	66.7	1.6	
A X D	1	10.4	10.4	<1.0	
B X C	1	123.5	123.5	3.0	
B X D	1	18.5	18.5	<1.0	
C X D	1	25.9	25.9	<1.0	
A X B X C	1	110.5	110.5	2.7	
A X B X D	1	19.9	19.9	<1.0	
A X C X D	1	31.0	31.0	<1.0	
B X C X D	1	136.7	136.7	3.3	
A X B X C X D	1	86.7	86.7	2.1	
Error	315	13148.2	41.7		

\*  $p < .05$

\*\*  $p < .01$

to determine whether the sex difference held across schools (see Table 2). An analysis of a school effect for attitude scores was significant,  $F = 3.2$ ,  $df = 3/327$ ,  $p < .025$ . No school effect was found for knowledge scores,  $F = 1.2$ ,  $df = 3/327$ , n.s.

No significant difference was found between the two male schools and no significant difference was found between the two female schools. The higher scoring male school was significantly different from both the female schools, and the lower scoring female school was significantly different from both the male schools. Though the lower scoring male school had a higher mean attitude score (39.2) than the higher scoring female school (38.1), the difference was not significant. Therefore, though the difference between the male and female subjects may be due to a sex difference. Therefore, the difference between the male and female subjects may be due to a sex difference or to a school difference.

The results from the general linear hypothesis model failed to confirm hypotheses three and four, that

Table 2  
 Differences in Sex-School Attitude Mean Scores  
 Tested by Duncan's New Multiple Range Test

<u>Male School-1</u>	<u>Male School-2</u>	<u>Female School-1</u>	<u>Female School-2</u>
$\bar{X} = 40.519$	$\bar{X} = 39.174$	$\bar{X} = 38.144$	$\bar{X} = 36.735$
(N=54)	(N=109)	(N=111)	(N=49)

<u>DIFFERENCE</u>	<u>Male Sch-1</u>	<u>Male Sch-2</u>	<u>Female Sch-1</u>	<u>Female Sch-2</u>
Male Sch-1	—	1.345	2.375*	3.748**
Male Sch-2		—	1.030	2.439*
Female Sch-1			—	1.409
Female Sch-2				—

\*p<.05

\*\*p<.01

is, there was neither a first-order effect for expertise nor for similarity (see Figure 1).

A similarity by expertise interaction effect, however, was evident. To determine the source of the effect Duncan's New Multiple Range Test (Kirk, 1968, p. 93) was employed to examine all pairwise comparisons among the means (see Table 3). The Low Similar/High Expert condition and the High Similar/Low Expert condition showed significantly greater mean scores than the Low Similar/Low Expert condition. Though the High Similar/High Expert condition mean score was greater than the Low Similar/Low Expert condition's mean score, it did not reach .05 level of significance. It did however reach the .10 level of significance. The relationship between these means is shown in Figure 1. The results from Duncan's test therefore failed to confirm hypothesis five, that is, there was no significant difference between the High Similar/Low Expert condition and the Low Similar/High Expert condition.

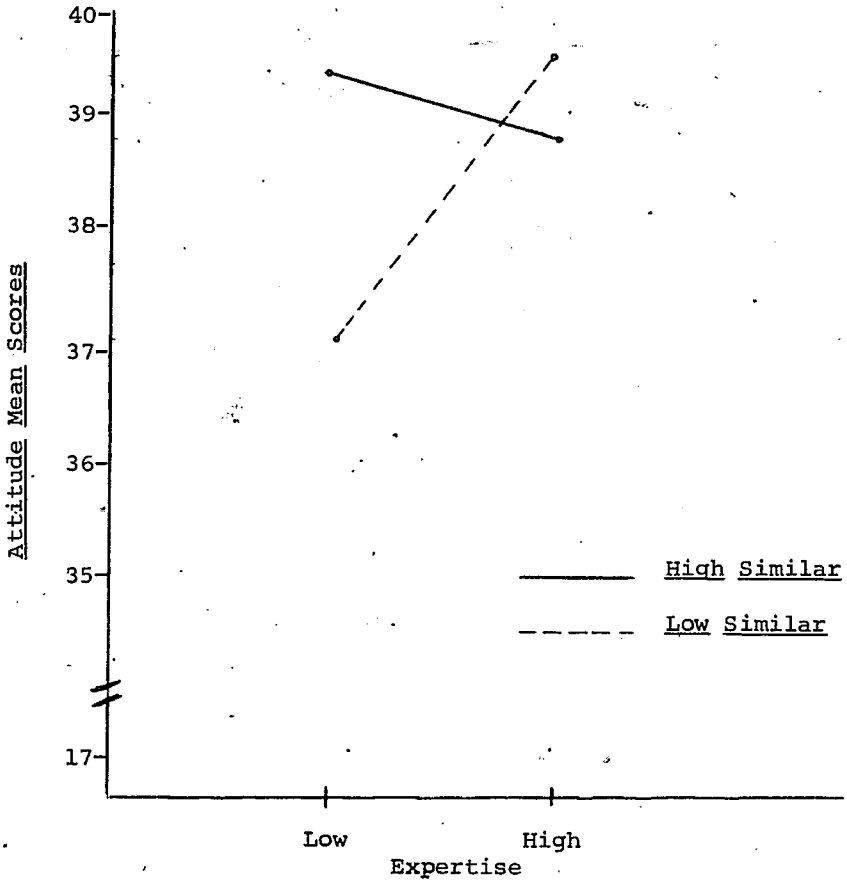


Figure 1. Attitude scores as a Function of Similarity and Expertise

Table 3

Similarity X Expertise Attitude Mean Scores

Tested by Duncan's New Multiple Range Test

<u>LoSim, HiExp</u>	<u>HiSim, LoExp</u>	<u>HiSim, HiExp</u>	<u>LoSim, LoExp</u>	
$\bar{X} = 39.488$	$\bar{X} = 39.349$	$\bar{X} = 38.776$	$\bar{X} = 37.049$	
(N=82)	(N=83)	(N=85)	(N=81)	
DIFFERENCE	<u>LoSim, HiExp</u>	<u>HiSim, LoExp</u>	<u>HiSim, HiExp</u>	<u>LoSim, LoExp</u>
LoSim, HiExp	—	0.139	0.712	2.439**
HiSim, LoExp		—	0.573	2.300**
HiSim, HiExp			—	1.727*
LoSim, LoExp				—

\*  $p < .10$

\*\*  $p < .05$



### Experimental Results--Knowledge

The general linear hypothesis model was utilized in determining knowledge score results (see Table 4). No significant results were found and hypothesis six was confirmed. It should also be noted that no significant knowledge difference was found between the male and female control groups,  $t < 1.0$ ,  $df = 1/29$ , n.s., therefore, the antecedent clause of hypothesis seven was not satisfied, and thus, it is not possible to test hypothesis seven.

### Degree of Association

The relationship or degree of association among the different variables was examined. The two main dependent variables under investigation were attitudes and knowledge. The Pearson correlation between attitudes and knowledge was  $r = .48$ , which was significant,  $p < .001$ . Statements concerning behavioral intent were also examined and the Pearson correlation between attitudes and behavioral intent was significant with  $r = .52$ ,  $p < .001$ .

Table 4  
 Summary Analysis of Knowledge Change  
 General Linear Hypothesis

Variable	df	SS	MS	F
Similarity (A)	1	6.4	6.4	<1.0
Expertise (B)	1	22.9	22.9	2.1
Sex of Source (C)	1	0.1	0.1	<1.0
Sex of Subject (D)	1	28.7	28.7	2.6
A X B	1	2.8	2.8	<1.0
A X C	1	25.0	25.0	2.3
A X D	1	30.4	30.4	2.8
B X C	1	4.9	4.9	<1.0
B X D	1	0.1	0.1	<1.0
C X D	1	4.0	4.0	<1.0
A X B X C	1	11.1	11.1	1.0
A X B X D	1	11.9	11.9	1.1
A X C X D	1	5.5	5.5	<1.0
B X C X D	1	30.8	30.8	2.8
A X B X C X D	1	4.8	4.8	<1.0
Error	315	3453.1	11.0	

n.s.

and the Pearson correlation between knowledge and behavioral intent was significant with  $r = .28$ ,  $p < .001$ .

In Appendix D the point-biserial correlations between attitudes and knowledge, and perception of similarity, perception of expertise, source evaluation, message evaluation, and knowledge of source are shown. The general finding is that perception of expertise, source evaluation, message evaluation, and source knowledge are all significantly and positively related to both attitude and knowledge scores. Perception of similarity, however, is not significantly related to either attitude or knowledge scores.

Appendix E presents the relationship between the independent variables (source-receiver similarity, source expertise, sex of source, and sex of subject) and the dependent variables concerned with source and message evaluation and perception (perception of similarity, perception of expertise, source evaluation, message evaluation, and knowledge of source).

As reported above in the discussion of the manipulation of the independent variables, the high similar source was perceived to be higher in similarity than the low similar source, and the high expert source was perceived to be higher in expertise than the low expert source. It was also found that the high expert source and the high similar source were evaluated higher in terms of source evaluation than the low expert source and low similar source, respectively. That is, the high expert source and the high similar source were evaluated in terms of the four-item evaluation list as being more clever (smarter), more likeable, more honest and more believable than the low expert source and the low similar source, respectively.

Perceived similarity was not related to sex of source for either male or female subjects. That is, male subjects did not perceive the male source as being more similar than the female source for all values (3) of perceived similarity,  $\chi^2 = 3.2$ ,  $df = 2$ , n.s. and for the recoded (high versus low) values,  $\chi^2 = 2.6$ ,  $df = 1$ , n.s.

Female subjects did not perceive the female source as being more similar than the male source for all values (3) of perceived similarity,  $\chi^2 = 1.3$ ,  $df = 2$ , n.s. and for the recoded (high versus low) values,  $\chi^2 = 0.6$ ,  $df = 1$ , n.s. Therefore, source-receiver similarity due to sex was not perceived as a salient dimension and the antecedent clause of hypothesis eight was not satisfied, and thus, it is not possible to test hypothesis eight.

Also, according to Appendix E, no significant relationship was found between sex of source and perceived expertise for all values of perceived expertise (3),  $\chi^2 = 0.2$ ,  $df = 2$ , n.s., and for the recoded (high versus low) values,  $\chi^2 = 0.1$ ,  $df = 1$ , n.s. That is, male sources were not perceived as knowing more about nutrition than female sources, and female sources were not perceived as knowing more about nutrition than male sources. Therefore, the sex of source was not related to nutrition expertise and the antecedent clause of hypothesis nine was not satisfied, and thus, it is not possible to test hypothesis nine.

Appendix F presents the relationship between the source and message evaluation and perception variables. The results of chi-square analyses show that all of the variables, except knowledge of source, are significantly related to each other.

#### Order and Form Effects

To control for a possible order effect, each source description was balanced. That is, half the descriptions had the similarity description first expertise description second and the remaining half had the expertise description first similarity description second. No significant difference in order effect on attitude scores was found,  $t = 0.2$ ,  $df = 329$ , n.s. Also, no significant difference in order effect on knowledge scores was evident,  $t = 0.8$ ,  $df = 329$ , n.s.

Both attitudes and knowledge were measured. To control for a possible order effect, half of the respondents received the attitude statements first knowledge questions second and the remaining half of the respondents received the knowledge questions first

attitude statements second. A significant order effect was found with attitude scores,  $t = 3.0$ ,  $df = 329$ ,  $p < .005$  and a significant order effect was found with knowledge scores,  $t = 4.1$ ,  $df = 329$ ,  $p < .005$ .

In both cases a primacy effect was found. The respondents who received the attitude statements first had higher mean attitude scores (39.8) than the respondents who received the attitude statements second (37.6). The respondents who received the knowledge questions first had higher mean knowledge scores (11.1) than the respondents who received the knowledge questions second (9.6). For all subjects the correlation between attitudes and knowledge was .48. For subjects who received attitude measure first/knowledge measure second the correlation between attitudes and knowledge was .55. For subjects who received the knowledge measure first/attitude measure second the correlation between attitudes and knowledge was .53. Testing the difference between the two independent correlations (i.e., between the attitude first/knowledge

second group and the knowledge first/attitude second group) was not significant, with  $z < 1$ . Therefore, the order of the measures did not effect the correlations between the variables.

In addition, the form of the attitude statements was balanced with half the respondents receiving the statements with the alternatives "(a)" and "(c)" reversed. No form effect was found with  $t = 1.1$ ,  $df = 329$ , n.s. Also, a third set of materials, statements concerning perception of source similarity, perception of source expertise, source evaluation, message evaluation and behavioral intent were also balanced with half of the respondents receiving the statements with the alternatives "(a)" and "(c)" reversed. None of these statements showed a form effect.

Therefore, the materials, as a whole, exhibited no form effect, and no order effect was found for source description. However, a strong attitude/knowledge order effect was found. A primacy effect was evident with higher scores on the first set of materials (either



attitudes or knowledge) than on the second set of materials.

### Other Results

Since the respondents of the study were students from the first and second year of secondary school, an analysis was done to determine whether a significant difference existed between first and second year students in terms of mean attitude and knowledge scores. No significant difference was found for attitude scores,  $t = 0.8$ ,  $df = 329$ , n.s. and no significant difference was found for knowledge scores,  $t = 0.5$ ,  $df = 329$ , n.s.

An examination was made of the contribution of all of the variables of the study in determining attitude and knowledge scores. An overall multiple regression equation for determining attitude scores using 16 variables was found to be significant,  $F = 2.65$ ,  $df = 16/314$ ,  $p < .001$ . Knowledge of source (SOURCEKN), attitude/knowledge order (ORDATKN), and sex of subject (SUBJSEX) were all found to make significant contributions (see Appendix G). The total amount of variance explained

by the multiple regression equation (total  $R$  square) equalled 0.12.

An overall multiple regression equation for determining knowledge scores using 14 variables was also found to be significant,  $F = 4.29$ ,  $df = 14/316$ ,  $p < .001$ . Attitude/knowledge order (ORDATKN), message evaluation (MESEVAL), knowledge of source (SOURCEKN), and sex of subject (SUBJSEX) were all found to make significant contributions (see Appendix H). The total amount of variance explained by the multiple regression equation (total  $R$  square) equalled 0.16.

The source and message evaluations and perceptions were recoded to binary values and new multiple regression equations were determined. Using 15 variables an overall multiple regression equation for determining attitude scores was found to be significant,  $F = 3.39$ ,  $df = 15/315$ ,  $p < .001$ . Attitude/knowledge order (ORDATKN), message evaluation (MESEVAL), sex of subject (SUBJSEX), and knowledge of source (SOURCEKN) made significant contributions (see Appendix I). The total amount of

variance explained by the multiple regression equation (total  $R^2$  square) equalled 0.14.

Using 16 variables an overall multiple regression equation for determining knowledge scores was found to be significant,  $F = 3.86$ ,  $df = 16/314$ ,  $p < .001$ . Attitude/knowledge (ORDATKN), perception of source expertise (EXPPERC), message evaluation (MESEVAL), and knowledge of source (SOURCEKN) made significant contributions (see Appendix J). The total amount of variance explained by the multiple regression equation (total  $R^2$  square) equalled 0.16. Therefore, in general, multiple regression equations for both attitudes and knowledge explain less than 20 percent of the variance.

## CHAPTER IV

### DISCUSSION

The primary object of this study was to assess the influence of source-receiver similarity and source expertise on knowledge and attitude change in a non-western society. The general findings in the area of attitude change in western societies are: (i) the greater the perceived similarity of the source to the receiver, the greater the attitudinal change toward the position advocated by the source and (ii) the greater the perceived expertise of the source, the greater the attitudinal change toward the position advocated by the source.

The results for this study report neither a main effect for similarity nor for expertise. However, a similarity-by-expertise interaction was found. A source which was both low in similarity and low in expertise induced less attitude change than sources which were either low similar/high expert, high

similar/low expert, or high similar/high expert. The failure to obtain similarity and expertise main effects does not weaken the results of the study because (i) the interaction of similarity and expertise had not been previously reported, and therefore, it was not known whether main effects would appear when both similarity and expertise characteristics were present, and (ii) the similarity-by-expertise interaction found in this study was readily interpretable and consistent with past attitudinal research.

In terms of expertise, if a low expert was also highly similar, than the source was as influential as a high expert source. That is, Gusii secondary school students were persuaded comparably by a non-expert (clothing shopkeeper) Gusii as by a doctor (whether high or low similar).

In terms of similarity, if a low similar source was at the same time an expert, than the source was as influential as a high similar source. That is, Gusii secondary school students were persuaded comparably by

a non-Gusii (Masai) doctor as by a Gusii communicator (whether high or low expert). In other words, for Gusii secondary school students an outsider was significantly influential if the outsider was an expert. If the communicator were an insider, then his/her degree of expertise was apparently irrelevant. Therefore, it appears that a source having at least one favorable attribute (i.e., high similarity and/or high expertise) is at advantage in changing the attitudes of Gusii secondary school students.

Past studies have not reported similarity-by-expertise interactions. A study by Aronson and Golden (1962), however, closely approximates a similarity-by-expertise approach. Their subjects were white sixth-grade American students. Their sources varied in terms of expertise (high -- engineer, low -- dishwasher) and race (white versus black). If it can be assumed that the white students perceived the white communicator to be more similar than the black communicator (Aronson and Golden's measure of the students' prejudice to

blacks seems to confirm this) then this study examines the similarity-by-expertise interaction.

Aronson and Golden fail to report and/or compute the results of significant tests on main effects, that is, expertise and race (similarity). However, they do mention that the engineer (high expert) induced greater attitude change than the dishwasher (low expert), but do not report whether the difference was significant.

They do report no significant differences between the high similar/high expert (white engineer) and either the high similar/low expert (white dishwasher) or the low similar/high expert (black engineer). They also report no significant difference between the high similar/low expert and the low similar/high expert. These were the same results reported in this study (see Table 3).

Significant differences were found between the low similar/low expert and the other three sources, that is, the high similar/high expert, low similar/high expert and high similar/low expert. Hence, the findings

in the Aronson and Golden study are in the same direction as this study--the significant findings in both studies were the same, however, the level of significance differed.

In conclusion, if a source has at least one favorable quality (either high similar and/or high expertise) then the source is likely to induce more attitude change than a source with no favorable qualities (low similar and/or low expertise.)

#### Degree of Association

A high degree of association between attitude change and perception of expertise, source evaluation, message evaluation, and knowledge of source was found. These results can be interpreted in terms of cognitive dissonance theory, as proposed by Festinger and Aronson (1968). Dissonance is produced when an individual receives a message discrepant from the individual's position. Alternative modes of dissonance reduction are (i) attitude change, (ii) derogation of the source, (iii) derogation of the message, (iv) changing the



source's attitudes and (v) seeking social support.

In this study, as in most attitude change studies, "changing the source's attitudes" and "seeking social support" were unavailable modes of dissonance reduction since the receivers of the message were not allowed/ unable to communicate with either the source or other people. Therefore, according to cognitive dissonance theory, the only available modes of dissonance reduction was attitude change or derogation (or devaluation).

A significant positive relation was found between attitudes and perception of expertise, source evaluation, message evaluation and knowledge of source. That is, the higher the attitude score, the higher the evaluation of the source and message. Respondents with lower post-communication attitude scores tended to evaluate both the source and the message lower than respondents with higher attitude scores. That is, the lower attitude scoring respondents, may have tended to utilize devaluation or derogation of the source and message as a mode of dissonance reduction more than the higher attitude

scoring respondents. Therefore, the relationship between attitude change scores and source and message evaluation or derogation found in this study is also consistent with a cognitive dissonance interpretation.

This relationship is also consistent with a stimulus-response-reinforcement approach. This approach views source characteristics and message content as stimuli, and attitudes as responses. Attitude change (response) occurs when the stimuli are associated with incentives. To quote Insko, "The persuasive communication may provide incentives in the form of arguments or reasons why the advocated point of view should be accepted, or the persuasive communication may arouse expectations of phenomena that are reinforcing (incentives) or that in the past have been associated with reinforcement" (1967, p. 14).

Sources which are evaluated highly (i.e., high expert and/or high similar sources), are sources which have been associated with positive reinforcement. For example, to quote Insko, "Since experts are thought of

as usually being right, and since the expectation of being right has been associated with reinforcement, conclusions advocated by expert sources will, other things being equal, be more readily accepted than conclusions advocated by nonexpert sources" (1967, p. 14). An equivalent argument could be used for similar sources. Therefore, stimulus-response theory would conclude that greater attitude change would occur with higher evaluated sources (i.e., sources associated with positive reinforcement) than lower evaluated sources. Hence, this relationship can be interpreted in terms of stimulus-response theory.

#### Sex-School Differences

A significant main effect for sex was found. Gusii male secondary school students exhibited higher attitude scores than Gusii female secondary school students. However, upon further investigation it seems that the difference between the male and female students may be due to either a sex difference or to a school difference.

Past research examining sex differences has reported either that females are more persuasible than males (egs. Janis and Field (1959) and King (1959)), or no significant differences in persuasibility between males and females (egs. Andersen (1961) and Abelson and Lesser (1959)). The trend from this study, however, differs from these findings.

In explaining why females may be more persuasible than males in American society, Aronson suggests, "This is probably because, in our society, women are socialized to be more submissive and less skeptical than men, and are rewarded for submissiveness rather than assertiveness" (1972, p. 80). In Gusii society women are also socialized to be more submissive and less skeptical than men. Therefore, the reported trend that Gusii males were more persuaded than Gusii females cannot be explained due to socialization, since Gusii males are not socialized to be more submissive and less skeptical.

Feldman (1972) examining traditional-modern attitudes between male and female lower level (Form I

and Form II) Gusii secondary school students reported no significant sex differences. Therefore, the difference between male and female persuasibility cannot be explained due to any differential in modernization of attitudes.

In a further examination of male and female persuasibility, Aronson (1972) suggests that people may be more persuasible on topics that they are less knowledgeable or less interested.<sup>1</sup> The message content in this study was based upon an extensive piloting of the knowledge of male and female students. The message content was based upon questions that were incorrectly answered by both male and female students. Also, no significant differences were found in knowledge scores between male and female control subjects. Therefore, the difference between male and female attitudes cannot be attributed to differences prior to the communication, or in fact to differences after reading the message, since no significant sex difference was found for knowledge scores of the experimental groups. Hence,

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<sup>1</sup>Interest in the topic under consideration was not examined, therefore, no conclusions can be made whether male and female students differed in terms of interest in nutrition.

comparison of male and female Gusii socialization, modernization and knowledge do not readily explain differences in persuasibility. Therefore, the discussion returns to the examination of school differences.

All of the secondary schools were self-help harambee schools in Kisii District and all of the teachers at these schools were African. In examining the schools for any apparent differences, it was noticed that of the four secondary schools, the lower scoring female school had the largest number of non-Gusii students and was the geographically closest to Masailand (the low similar source was Masai). It was found that the lower scoring female school students were persuaded least by the Masai source of the four schools. Their mean attitude score for the low similar Masai source was 35.5, compared with 38.2, 38.8, and 39.1 for the other three schools.

It is possible that female Gusii students exposed to other ethnic/tribal groups in a competitive school situation responded to this situation by being

less open to a persuasive communication from a low similar Masai source. However, this argument does not explain the lack of a significant difference in overall sources between the two female schools (the other female school had few non-Gusii students and was geographically furthest from Masailand of the four schools). Therefore, a thorough explanation at this point would be speculative due to the lack of data and information on this issue.

#### Order of Attitudes and Knowledge

A significant order effect was found. Respondents who received the attitude statements first had higher attitude scores than respondents who received the attitudes second, and respondents who received the knowledge questions first had higher knowledge scores than respondents who received the knowledge questions second. Therefore, it appears that measurement of the first dependent variable (either attitudes or knowledge) and/or the passage of time interferes with the responses

on the second measure. That is, measuring both attitudes and knowledge results in the possible proactive inhibition of the second variable by the first variable.

Past studies measuring both attitudes and knowledge have usually measured attitudes first and knowledge second (Hovland and Mandel (1952), Hovland and Weiss (1951), Johnson and Izzett (1972), Johnson and Scileppi (1969), Kelman and Hovland (1953), and Tompkins and Samovar (1964)): Mills and Jellison (1968) studying the effects of source similarity measured knowledge first and attitudes second and still reported the usual similarity finding.

Few studies have reported the effect of varying the order of the two measures in the same study. Miller and Campbell (1959) examined attitude/knowledge order and reported no order effect. Insko (1964), however, found attitude/knowledge order effected knowledge, but not attitudes. Respondents who received the knowledge section first/attitude section second had higher knowledge scores than respondents who received the attitude section



first/knowledge section second. Therefore, no generalization can be made from the different findings of Miller and Campbell, and Insko. Since this research produced a third finding, it is clear that attitude/knowledge order is a methodological problem that needs further investigation.

### Summary

The effects of source-receiver similarity and source expertise on nutrition attitudes and knowledge were examined among Gusii secondary school students in Kenya. No differences in knowledge scores among the various experimental groups were found. Neither a similarity main effect nor an expertise main effect was found for attitudes. However, a similarity-by-expertise interaction was found. The low similar/low expert communication source was less persuasive than either the low similar/high expert source, high similar/low expert source or high similar/high expert source.

A main effect for sex of subject was reported. Male students had higher attitude scores than

female students. However, upon further examination it seems that the difference between the male and female students may be due to either a sex difference or to a school difference.

The order of the measurement of attitudes and knowledge was balanced and an order effect was found. Respondents who received the attitude statements first had higher attitude scores than respondents who received the attitude statements second, and respondents who received the knowledge questions first had higher knowledge scores than respondents who received the knowledge questions second.

### Implications

Nutrition attitudes and knowledge were chosen for investigation because of their central importance to Kenyan society. The prevalence of malnutrition is due in part to the lack of knowledge about proper nutrition practices. In any program to improve nutrition practices, an essential element is nutrition education.

The question that arises is what is the most effective means of transmitting nutrition education, that is, who would be the most effective communication source of proper nutrition practices?

This research reported that a low similar/low expert source was less persuasive than either a low similar/high expert source, high similar/low expert source, or high similar/high expert source. But the attitude scores of the students receiving a message from the low similar/low expert source were still significantly greater than the control group which did not receive any message at all. This research did not contain a group of respondents who received a message and no communication source description. Therefore it is not possible to ascertain the effect of the message by itself. But the research did examine eight different sources (similarity (2) by expertise (2) by sex of source (2)) given to two different populations (male and female) and found significant differences (that is, improvement) in both attitudes and knowledge

scores between each of the sixteen experimental groups and the two control (male and female) groups.

Therefore, based on this study, the following recommendations are made. To improve the attitudes and knowledge of Gusii/Kenyan secondary school students it is essential to communicate a nutrition message. A general improvement in attitudes and knowledge will be achieved by any source (differing in similarity, expertise and sex). However, the greatest degree of attitude change will be achieved by a source which has at least one positive attribute, that is, a source which is either high in expertise and/or high in similarity:

APPENDICES

APPENDIX A

PERCEPTION OF SIMILARITY AND EXPERTISE

CHARACTERISTICS BY GUSII STUDENTS

Perception of Similarity Characteristics

<u>Description</u>	<u>Similar</u>	<u>Neutral</u>	<u>Different</u>
High Similar	12	2	0
Low Similar	0	5	10

Perception of Nutrition Knowledge (Expertise)

<u>Description</u>	<u>High</u>	<u>Medium</u>	<u>Low</u>
High Expert	23	1	1
Low Expert	3	4	17

APPENDIX B

COMMUNICATION MATERIALS



Introduction: People have many beliefs about food and human nutrition. You are going to read about a person. Also, you are going to read about the food and nutrition beliefs of that person.

## ONE OF THE SOURCE DESCRIPTIONS

A person is described below. Read the following description of the person carefully.

### Description of a Person

She is a Gusii by tribe. She was born and grew up in Kisii District. She speaks EkeGusii. She is a Christian. She is under 30 years old.

She is a World Health Organisation doctor. She teaches human nutrition at a nutrition college. She wrote a textbook on human nutrition. She worked at Kenyatta Hospital in human nutrition. She has taught human nutrition at Kenyatta Hospital.

## ONE OF THE SOURCE DESCRIPTIONS

A person is described below. Read the following description of the person carefully.

Description of a Person

He is a clothing shopkeeper. He has helped a shopkeeper in a clothing shop. He has been a trader. He has been a farmer. He has worked in a coffee processing factory.

He is a Masai by tribe. He was born and grew up in the city of Nairobi. He speaks Masai. He is not a Christian. He is over 30 years old.

You have read a description of a person. Be sure you know exactly who this person is. If you do not remember who this person is, then please read again the description of the person.

Below is a passage. This passage is about the food and nutrition beliefs of the person you read about. Read the passage carefully.

In Kisii District there are many healthy foods which are cheap to buy. For example, guavas which are a good source of vitamin A and vitamin C, are cheap to buy. Of the fruits found in Kisii District, guavas are one of the most healthy fruits. Guavas have more vitamin C than oranges, lemons or pineapples. A very good source of vitamin A is pawpaw. Pawpaw has more food value than sugar cane. Though oranges, bananas, and pineapples are good sources of vitamin A, pawpaw is a better source. All of these fruits are easily found in Kisii District and are cheap to buy.

Other good sources of vitamin A are deep yellow coloured vegetables. It is most healthy to eat deep yellow coloured vegetables every day. Deep yellow coloured vegetables have more vitamin A than light yellow coloured vegetables. Sweet potatoes (amarabwani) which are deep yellow in colour have more vitamin A than posho (obokima) made from maize. Carrots and pumpkins are other examples of deep yellow vegetables that are good sources of vitamin A. English potatoes, however, are a poor source of vitamin A.

Another way to stay healthy without spending a lot of money, is to eat guavas, pawpaw, oranges, and lemons that are locally grown rather than drinking squash drinks or sodas such as coca cola and fanta. Fruit juices (omochununu bw'amatunda) also have more food value than soda or squash drinks. Sodas, squash drinks and sweets contain lots of sugar and are poor in food value. If a person eats a lot of sugar, he may get tooth decay. Children often get tooth decay from eating sweets. Sugar, however, does not cause malaria.

Therefore, to get the right amount of vitamin A and vitamin C without spending a lot of money, a person should eat fresh fruits and deep yellow vegetables that grow in Kisii District.

Please answer the questions below.

You will find a choice of answers in each question. Put a circle around the letter A, B, C, or D to show which answer you think is best.

Example. Which is the capital of Kenya?

(A) Mombasa (B) Kampala (C) Nairobi (D) Kisumu

Correct Answer is C.

- 1) Bananas are a good source of -  
(A) Riboflavin (B) Vitamin A (C) Vitamin B1 (D) Fat
- 2) Of the following fruits, which has the most food value?  
(A) Guavas (B) Lemons (C) Oranges (D) Pineapples
- 3) English potatoes are -  
(A) A good source of vitamin A (B) A good source of fat  
(C) A good source of protein (D) A poor source of vitamin A
- 4) Pumpkin is a good source of -  
(A) Vitamin A (B) Vitamin C (C) Vitamin B1 (D) Iron
- 5) Squash drinks -  
(A) Can make you strong (B) Have lots of food value  
(C) Are poor in food value (D) Have vitamin C
- 6) Of the following, which colour of fruits and vegetables would have the most vitamin A?  
(A) Violet (B) White (C) Light yellow (D) Deep yellow
- 7) Soda -  
(A) Can make you strong (B) Is poor in food value  
(C) Has vitamin C (D) Has lots of food value
- 8) Guavas are a good source of -  
(A) Riboflavin (B) Iron (C) Fat (D) Vitamin A
- 9) If a person eats a lot of sugar, he may get  
(A) Tooth decay (B) Malaria (C) Tetanus (D) Polio

- 10) Sweet potatoes are a good source of -  
(A) Vitamin B1 (B) Protein (C) Vitamin A (D) Fat
- 11) Of the following, which has the most vitamin A?  
(A) Bananas (B) Lemons (C) Pawpaw (D) Pineapples
- 12) It is most healthy to eat deep yellow coloured vegetables -  
(A) Once a week (B) Every day (C) Many times a month  
(D) Once a month
- 13) Oranges are a good source of -  
(A) Vitamin A (B) Vitamin B1 (C) Iron (D) Protein
- 14) Of the following, which has the most vitamin C?  
(A) Oranges (B) Lemons (C) Pineapples (D) Guavas
- 15) Carrots are a good source of -  
(A) Vitamin B1 (B) Vitamin A (C) Vitamin C (D) Iron
- 16) Guavas are a good source of -  
(A) Fat (B) Vitamin B1 (C) Vitamin C (D) Protein
- 17) Pineapples are a good source of -  
(A) Fat (B) Vitamin B1 (C) Niacin (D) Vitamin A

How do you feel about food? Below you will find sentences with three possible choices. Pick the letter with the sentences you most agree with by putting a circle around the letter a, b, or c.

Note: This is not a test. THERE ARE NO RIGHT NOR WRONG ANSWERS.

Example: i) I like -

- (a) Swahili books better than English books..
- (b) them both the same.
- (c) English books better than Swahili books.

- If you like Swahili books better than English books, then you would put a circle around the letter 'a.'
- If you like them both the same, then you would put a circle around the letter 'b.'
- If you like English books better than Swahili books, then you would put a circle around the letter 'c.'

Remember: You are to choose only one letter for each sentence.

1) I like -

- (a) guavas better than pineapples.
- (b) them both the same.
- (c) pineapples better than guavas.

2) I like -

- (a) oranges better than fanta orange soda.
- (b) them both the same.
- (c) fanta orange soda better than oranges.



- 3) It is -
- (a) necessary to spend a lot of money in order to eat healthy foods.
  - (b) sometimes necessary to spend a lot of money in order to eat healthy foods.
  - (c) not necessary to spend a lot of money in order to eat healthy foods.
- 4) I like -
- ~~(a)~~ lemons better than guavas.
  - (b) them both the same.
  - (c) guavas better than lemons.
- 5) I like -
- (a) carrots better than English potatoes.
  - (b) them both the same.
  - (c) English potatoes better than carrots.
- 6) I like -
- (a) soda better than fruit juice.
  - (b) them both the same.
  - (c) fruit juice better than soda.
- 7) I like -
- (a) pawpaw better than pineapple.
  - (b) them both the same.
  - (c) pineapple better than pawpaw.
- 8) If a person has a lot of money -
- (a) he should not buy sweets for his children.
  - (b) it does not matter whether he buys sweets for his children.
  - (c) he should buy sweets for his children.

- 9) I like -  
(a) oranges better than guavas.  
(b) them both the same.  
(c) guavas better than oranges.
- 10) I like -  
(a) coca cola better than pawpaw.  
(b) them both the same.  
(c) pawpaw better than coca cola.
- 11) I like -  
(a) deep yellow coloured vegetables better than light yellow coloured vegetables.  
(b) them both the same.  
(c) light yellow coloured vegetables better than deep yellow coloured vegetables.
- 12) I like -  
(a) soda better than guavas.  
(b) them both the same.  
(c) guavas better than soda.
- 13) I like -  
(a) sweet potatoes with meat better than posho with meat.  
(b) them both the same.  
(c) posho with meat better than sweet potatoes with meat.
- 14) I like -  
(a) lemons better than fanta lemonade.  
(b) them both the same.  
(c) fanta lemonade better than lemons.

- 15) (a) I do not like to eat deep yellow vegetables every day.  
(b) It does not matter whether I eat deep yellow vegetables every day.  
(c) I like to eat deep yellow vegetables every day.
- 16) I like -  
(a) squash drinks better than guavas.  
(b) them both the same.  
(c) guavas better than squash drinks.
- 17) I like -  
(a) pawpaw better than sugar cane.  
(b) them both the same.  
(c) sugar cane better than pawpaw.

I. You have read about a person. Decide whether this person is similar to you, or a little similar and a little different to you, or different to you.

Pick the sentence you most agree with by putting a circle around the letter a, b, or c.

- (a) The person I read about is similar to me.
- (b) The person I read about is a little similar and a little different to me.
- (c) The person I read about is different to me.

II. Decide whether the person you read about knows very much about human nutrition, or knows some about human nutrition, or knows very little about human nutrition.

Pick the sentence you most agree with by putting a circle around the letter a, b, or c.

- (a) The person I read about knows very much about human nutrition.
- (b) The person I read about knows some about human nutrition.
- (c) The person I read about knows very little about human nutrition.

III. How do you feel about the person you read about? Below you will find sentences with three possible choices. Pick the letter you most agree with by putting a circle around the letter a, b, or c.

- 1) The person I read about is -
  - (a) very clever.
  - (b) a little clever.
  - (c) not clever.

2) The person I read about is -

- (a) very likeable.
- (b) a little likeable.
- (c) not likeable.

3) The person I read about is -

- (a) very honest.
- (b) a little honest.
- (c) not honest.

4) The person I read about is -

- (a) very believable.
- (b) a little believable.
- (c) not believable.

IV. The passage you have read was about food and nutrition. How do you feel about the passage? Below you will find sentences with three possible choices. Pick the letter you most agree with by putting a circle around the letter a, b, or c.

1) The passage -

- (a) made very much sense.
- (b) made some sense.
- (c) made very little sense.

2) The passage -

- (a) was easy to understand.
- (b) was a little easy and a little difficult to understand.
- (c) was difficult to understand.

V. Do you remember who is the person you read about? Answer each of the following questions by putting a circle around the correct answer.

- 1) The person I read about is -  
(A) Male (B) Female
- 2) The person I read about is -  
(A) Kuria (B) Gusii (C) Luo (D) Masai
- 3) The person I read about is a -  
(A) Clothing Shopkeeper (B) New Teacher  
(C) World Health Organisation Doctor (D) Biologist
- 4) The person I read about is -  
(A) Under 30 years old (B) Over 30 years old
- 5) The person I read about has worked at -  
(A) Kenyatta Hospital (B) A Primary School  
(C) A Coffee Processing Factory (D) A Hotel

VI. Now that you have read a passage about food and nutrition, what would you do? Below you will find sentences with three possible choices. Pick the sentence you most agree with by putting a circle around the letter a, b, or c.

- 1) If I have extra money when I go to town -  
(a) I would buy fresh fruits rather than squash drinks or soda.  
(b) I would buy either one.  
(c) I would buy squash drinks or soda rather than fresh fruits.
- 2) If I have extra money when I go to town -  
(a) I would buy pineapple rather than pawpaw.  
(b) I would buy either one.  
(c) I would buy pawpaw rather than pineapple.

- 3) When I leave secondary school -
- (a) I will not spend a lot of money in order to eat healthy foods.
  - (b) I will sometimes spend a lot of money in order to eat healthy foods.
  - (c) I will spend a lot of money in order to eat healthy foods.
- 4) When I leave secondary school and if I have a lot of money -
- (a) I will buy sweets for my children.
  - (b) I do not know whether I will buy sweets for my children.
  - (c) I will not buy sweets for my children.

VII. Thank you very much. Would you please answer the following questions about yourself.

- 1) Your Tribe \_\_\_\_\_
- 2) Your Location \_\_\_\_\_
- 3) Your Sex \_\_\_\_\_
- 4) Your Form \_\_\_\_\_
- 5) Your Religion \_\_\_\_\_
- 6) Your Age (Circle One) (a) Under 20 years (b) 20-25 years  
(c) 26-30 years (d) Over 30 years
- 7) Your Place of Birth (Circle One)  
(a) Kisii District (b) Nairobi (c) Other \_\_\_\_\_

APPENDIX C

RAW DATA



Instructions for Reading Raw Data Table

Each line represents the responses of an individual respondent.

Column 1 is 5 for all respondents.

Column 2 represents school with values 3, 4, 5, 6.

Column 3 represents grade with 1=Form I, 2=Form II.

Columns 4, 5, 6 represents ID number.

Column 8 represents similarity with 1=High, 2=Low, 9=Control.

Column 9 represents expertise with 1=High, 2=Low, 9=Control.

Column 10 represents sex of source with 1=Male, 2=Female,  
9=Control.

Column 11 represents sex of subject with 1=Male, 2=Female.

Column 13 represents order of source description with  
3=similarity first/expertise second,  
4=expertise first/similarity second, 9=control.

Column 14 represents order of attitude/knowledge with  
3=attitude first/knowledge second  
4=knowledge first/attitude second.

Column 15 represents the form of the attitude statements  
with 6=standard form, 7=reverse form ("a" and  
"c" reversed).

Column 16 represents the form of the third set of materials with 6=standard form, 7=reverse form ("a" and "c" reversed).

Columns 21-37 represents knowledge responses.

To calculate the knowledge score for each respondent, first see Appendix B--Communication Materials where the correct knowledge answers are circled. Each correct answer is worth one point. Blanks and incorrect answers are worth zero points. Since there are 17 questions, the possible range of points is from 0 to 17.

Columns 41-57 represent attitude responses.

To calculate the attitude score for each respondent first see Appendix B--Communication Materials where the nutritionally-advantageous attitudes are circled. This is the standard form (As) of the attitude statements. Blank responses are treated as neutral responses and given the value "2." Respondents who received the standard form have "6" in column 15. To determine the scores for respondents receiving the standard form the following transformation is necessary: in columns

41, 42, 45, 47, 48, 51, 53, 54, and 57 (i.e., where "a" is the nutritionally-advantageous response) change the response 3 to 1, and the response 1 to 3.

Respondents having a "7" in column 15 have the reversed form with "a" and "c" reversed. To determine their scores the following transformation is necessary: in columns 43, 44, 46, 49, 50, 52, 55, and 56 change the responses 3 to 1 and the response 1 to 3. Now, for both the standard form and the reverse form, 3=nutritionally-advantageous response, 2=neutral response, 1=nutritionally-disadvantageous response. Summing the 17 responses yields a possible range of scores from 17 to 51.

It should be noted that columns 58-70 refer to items about the source and message. Since the control respondents did not receive source and message materials these items are blank for control respondents.

Columns 58-65 represent part of the third set of materials. Blank responses are treated as neutral responses and given the value "2." Respondents having a "6" in column 16 received the standard form (form A).

To determine their scores the following transformation is necessary: change the responses 3 to 1 and the responses 1 to 3. Respondents having a "7" in column 16 received the reverse form with "a" and "c" reversed. No transformation is necessary for these responses.

Column 58 represents perceived similarity with

3=similar, 2=neutral, 1=different.

Column 59 represents perceived expertise with

3=knows very much, 2=knows some, 1=knows very little.

Columns 60-63 (four items) represent source evaluation with a possible range from 4 to 12; higher the score, the higher the evaluation.

Columns 64-65 (two items) represent message evaluation with a possible range from 2 to 6; the higher the score, the higher the evaluation.

Columns 66-70 (five items) represent source knowledge, with a possible range from 0 to 5. To determine the score it is necessary to examine columns 8, 9, and 10 (source description).

Each correct identification receives one point.

Columns 71-74 represent behavioral intent responses. Blank responses are treated as neutral responses and receive the value "2." To determine the score for respondents receiving the standard form ("6" in column 16) the following transformation is necessary: in columns 71 and 73 change the response 3 to 1 and the response 1 to 3. To determine the scores for respondents receiving the reverse form ("7" in column 16) the following transformation is necessary: in columns 72 and 74 change the response 3 to 1 and the response 1 to 3. Now, for both the standard form and the reverse form 3=nutritionally-advantageous behavioral intent, 2=neutral behavioral intent, 1=nutritionally-disadvantageous behavioral intent. Summing the 4 items yields a possible range of scores from 4 to 12.

Column 75 represents religious affiliation with

1=Christian, 2=non-Christian.

Column 76 represents age with 1=under 20 years, 2=20-25 years, 3=26-30 years, 4=over 30 years.

Column 77 represents place of birth with 1=Kisii District,

2=Nairobi, 3=other.

column	1	8	13	21	41	71
541905	9991	9367	44332433243221314	31113332111111213	3323121	
541906	9991	9476	1212434432 221224	11321331331213331	1131111	
542907	9991	9376	34432314222123332	13332213231211332	3121111	
542908	9991	9467	42342442324113321	32123233113333112	3331111	
551909	9991	9366	31212112221123 2	311113331333 1131	3231111	
551910	9991	9477	23232441241121423	21322321233323332	3223111	
551911	9991	9377	14312332413113443	12332311312323311	3313111	
551912	9991	9466	41114114223344232	21131123112222121	2221111	
551913	9991	9367	23241333241442441	13112232213233223	3112111	
551914	9991	9476	32342431122343142	12331221323312132	2231111	
551915	9991	9376	233143111111141133	12323222231232233	3132111	
552916	9991	9467	33342132142334313	31121323313132213	3313111	
552918	9991	9477	44342441222144431	13121213231313331	1332121	
552919	9991	9377	14344331224122444	11332221221312332	2213111	
552920	9991	9466	23311334221223431	32133233333232113	1121111	
561921	9992	9366	43323132222131433	33123112111313133	1332111	
561922	9992	9477	32434313213141332	12331221321312313	3213111	
561923	9992	9377	33331441223211241	13331311333311111	3313111	
561924	9992	9466	12341131222314324	33131232131131313	2131111	
561925	9992	9367	23114334234111132	31113332113113113	1312111	
561926	9992	9476	13342442124112132	21111212133111331	2113111	
561927	9992	9376	14131234234141334	23312112311312333	1123111	
561928	9992	9467	13342141222111312	32112221133132133	3211111	
562929	9992	9366	13411311233113324	32111212131121311	3332111	
562930	9992	9477	32324 4 212123312	13232211321212333	1323111	
562931	9992	9377	32342431222324134	13133133331311233	1131111	
562932	9992	9466	32342431224321132	32121212232122213	3231111	
562933	9992	9367	33342342224141413	32123333323211112	3331122	
562934	9992	9476	44311142212311344	13331311231313331	1131111	
562935	9992	9376	43321443211142432	11311312331111332	1131111	
562936	9992	9467	14311214222314133	33123113211133232	1323111	
532003	1222	3466	21313434123214232	113213112313113313111123221231233111		
532004	2112	4477	21422434133214234	133111331333313123221222143213131111		
532005	2222	3376	21122413124342214	1233222331232231211111111241241233111		
532006	1122	3367	23413423133344234	21131321231331131333312332231131111111		
532011	1222	4476	31124434113212122	3322113331333313321121222121131333111		
532012	2112	3377	1323411131234433	223222331231121131311113333123113211111		
532014	1122	4477	21434434233221332	223322133131113133333332323113311111		
532015	2212	3466	21314414234214334	3221223111323211222232332141232122111		
532016	2122	4367	21414434133314234	1133131133121113121222112243213131111		
532017	1212	4467	134233142 2112 21	1113323321211313313233233121143113111		
532018	1112	4476	11332444113243342	223132311132121231111121224113332111		
532019	1222	3377	21122421133242234	323211331131132232333322221133132411		
532021	2222	3477	21431444113214334	222213122333121211122222241241322111		
532025	1212	3477	21124444123213312	1233111233333213131321321221213323111		
532026	1112	3376	23312333241444343	213311212122321112121122311133111		

532027	1222	4367	2112572111253214	12315233231533223322332121133222111
532028	2112	3476	21424434283124334	32311122213221212 323321143211231111
531029	2222	4467	23411414233213334	3331113331133331123331311141231333111
531030	1122	4366	33114444233114344	3333333133333333323111132223113321141
531031	2212	3377	21413424133212344	3312113321313311312233333141233121111
531032	2122	4466	11422434133211334	133212111111323312111112243213323111
531033	1212	4376	41421444133213334	33113131 13 3111312111211121131331111
531034	1112	4367	21422414111313423	1233121223133231122211112223113232111
531035	1222	3476	21413424133114334	3133123332333132232131111221231333111
531036	2112	4467	21413424133212114	1113331333131133113233332143213113111
531038	1122	3377	12133314232224342	3113112211321321331311333222112211111
531039	2212	4466	21124434133241342	33213132112133 1321132312144231133111
531040	2122	3477	21414434133214234	3331233231311111332223322243213131111
531041	1212	3366	21414434233212234	1133132323131133111112121121131331111
531042	1112	3477	24422444113223342	2131133131313113313333331123113112111
531044	2112	3367	21412444133213334	3221323212133333111222233143113111111
531046	1122	4467	31143424133214334	11232311331311331333333223113131111
531047	2212	3476	24422434213212344	2312311122311122312311112141232211111
531048	2122	4377	21114444113213224	3311133321331111323333222243211133111
531050	1112	4466	21412414133211234	31123322331231312211112111231112311111
531051	1222	3367	21114434132211111	13123311231332331133232222211331111111
531052	2112	4376	21421314123212334	11311211111113113311111111143211313111
531055	2212	4377	22123424133244131	1312123321313313332123131141233121111
531056	2122	3366	24413413133211313	121313213211323313111111143211333111
531058	1112	3366	21414424133214234	3213131223131223321112222123112322111
531059	1222	4377	24312444222144234	123111322233113333222332124212132111
531060	2112	3466	32332443144124224	13312313131332133212111121431122211
531061	2222	4477	11223411233314134	1313131131131133313313221241233113111
531062	1122	4376	43331441142113411	23132213332313333271333122231111232111
531063	2212	3367	11123424133221244	11133313331313131312332322141233223111
531065	1212	4366	21114434133214234	113333113313113311111111121131333111
531066	1112	4377	11122314224142124	3213111323331133333223223123113131111
531068	2112	4477	44321414134212344	11313312333313113333323331432131333111
531069	2222	3376	41144134214123333	223213321313113331211122241233231121
541085	2221	3477	21422434112214334	3321321132111213313311132141232311111
541086	1121	3466	31413424133214234	2123132123131123121111112223111222111
541087	2211	4367	31124434123323324	2122132133132133111222233141233221111
541090	1111	3376	31 13424133212222	3331313221313311321121111123111313111
541091	1221	4367	43423414233314224	2131321323323333312333333221132131111
541092	2111	3476	21423434133114334	3131333211311121321322221143211322111
541093	2221	4467	21124434123111334	132212313111231112332222241233311111
541094	1121	4366	21422444133213334	121312133313133211111112223111323111
541096	2121	4466	21323424224212231	31233331331331331311113324321113111
541097	1211	4376	24224434141112224	332331111111321311111121121231322121
541098	1111	4367	21123424133111234	1133331232132132133333323123211123111
541099	1221	3476	31212433144221144	1111111113 111111111111122211333112111



column	1	8	13	21	41	58	71
541100	2111	4467	31423424133314234	1113331123122233133333311143213111111			
541101	2221	3366	21414434133214334	311123231 131113133233211241231332111			
541102	1121	3377	21323424113123333	233111323132131333113133223113113111			
541103	2211	4466	31432424333223321	13313313131231 2111111122121231331111			
541104	1212	3477	11421424113313324	1321313223112113223221121243213322111			
541105	1211	3366	43433323133243132	1332313231223121323212312121133233111			
541106	1111	3477	21413424233213334	2311313311313311323332112223213233111			
541108	2111	3367	24323311241241143	332213113111311232112132122321321131			
541109	2221	4376	31313434122443332	3221313232311222332131122241231233111			
541110	1121	4467	21412434133114234	231322333112333133333222123113322111			
541111	2211	3476	31472434143123222	133233112333123323333332144113131111			
541112	2121	4377	31122444123233342	3232213321313311312222333243213211111			
541169	1211	3366	21414434133214234	111313123313123221111111121131333111			
541170	1111	3477	23412424113213244	3333313321313313333333323123113111111			
541171	1221	4466	21423424133224334	111323113313323311123111231141333111			
541172	2111	3367	21134434232113222	1212232321131131231323332243212213111			
542113	1211	4477	21422414133111234	1321113331313311133223322121233122111			
542114	1111	4466	21123424132212234	2213132323133233121131112123211231111			
542115	1221	3367	21413424133212334	1113131133131133133333333221133111131			
542116	2111	4376	24413424133113334	133311333131331121111111143211333111			
542117	2221	3467	21413424133114234	2112332223231133133333333224213213111			
542119	2211	4377	23314111224413214	1322133131313111132323123241233323111			
542120	2121	3366	21423424133313324	2133332133231123131232132431113111111			
542122	1111	3366	31433423133124322	1113 3 333131221111711232123111331111			
542123	1221	4377	3421244313221234	2312221231311311233333333123343332111			
542124	2111	3466	21444424133214334	21122322313213311111111143211233111			
542125	2221	4477	21413424133211122	1331132123232212321222213241232322111			
542126	1121	4376	21123424131212244	3311212311313311211111111223111313111			
542127	2211	3367	21123424134213324	2132332133131133122111233141233321111			
542128	2121	4476	21412424133112234	33113133113133123211221243213313111			
542129	1211	4366	21414434133211233	113313113313113311222221121131323121			
542130	1111	4377	21423424133214334	3322312121313311333333333223143211111			
542131	1221	3466	23322431121122342	1313331213133113311113133121111333142			
542132	2111	4477	21123314133213334	231121312123111313323323143213213111			
542133	2221	3376	24341241221212341	23331132313111211211112241231221111			
542134	1121	3367	21124444132214334	1113131333333133113333333223113211111			
542135	2211	4476	31423434133214234	33122123213 3311133223311141111233121			
542136	2121	3467	11424432114112334	333111331111331132233132324321333111			
542137	1211	3376	31122434222342314	231121222132231132222111112113113121			
542138	1111	3467	21413424133214233	2132232133133133123333322123113131121			
542139	1221	4476	21413424133214234	3331313311313311322333311221231133111			
542140	2111	3377	22223424132213234	3311113111313321321222312143213233111			
541088	2122	3376	31413424133214232	33312131213133131111112124321133111			
541089	1212	3477	21113444133213244	131133331131131331333332221111333121			
541107	1222	4466	22424434223131334	2312332333113113122211111221131321111			
542118	1122	3476	21122424133124342	1313333131133211311131213223112332111			

column	1	8	13	21	41	58	71
542121	1212	3467	21124414233211244	231322333113313333333323221131313111			
552145	1212	4467	21322344223112344	2113323322333133112331121121133213111			
552155	1222	4367	34133414133213112	1133321131133233321333323221133111111			
552160	2122	4466	21423444133214234	111313333313311311111111243111313111			
551072	2121	3467	21413424133312234	132323113313313312333333243213221111			
551081	1211	4467	21323424133311334	3113131123131133133332333121133311111			
551082	1111	4476	21312444113114124	3323113111111133111112111123113331211			
551083	1221	3377	11443424143212343	3312313121313311321331132221233133111			
551084	2111	4366	2112443413321 344	1311332313123331121111322143211332121			
551177	1211	4477	21113434133212234	1331211232331331133333333121231332111			
551178	1111	4466	21123424123113334	3113322123233213131132111123111233111			
551179	1221	3367	23124444323214134	1313131213131133123333333123133112111			
551180	2111	4376	21123434131112344	233111112132233122111111143211231111			
551181	2221	3467	21124424133212334	1111131313111131123333333241233111111			
551182	1121	3476	21413434133213334	2311 13321311311331111211223111313111			
551183	2211	4377	21423444231224234	21311232133112111112222214233122111			
551184	2121	3366	21124434134112334	113323212113313311111111243211213111			
551225	1211	4376	21321434113112122	33311331311311311111112121131333111			
551226	1111	4367	2131 424121323232	111313113323113323333333123132111111			
551227	1221	3476	21122444232214132	3331133133222123111111221131333111			
551228	2111	4467	11134241232 4134	211313113313313113333322143213131111			
551229	2221	3366	21423424113223334	1123331133131133122211222241231323111			
551230	1121	3377	24122343213241314	1223131121232312322333212124213121142			
551231	2211	4466	21434434123112433	112212213213223313211111141231331111			
551232	2121	3477	21112434133213234	313133221131331132233222432111122111			
551233	1211	3366	31124434233114334	12333222232313231111111122141313111			
551234	1111	3477	21413424133214234	2332212321313311323333331231132111111			
551235	1221	4466	21413434134214334	111333123313223321223212121231333111			
551236	2111	3367	24411213224143144	13 1132221232213223222143211122111			
551237	2221	4376	21112444133123331	2311213111311311233113332241131321111			
551238	1121	4467	21112444133114334	121331232112313112333333223212213111			
551239	2211	3476	21113321134214234	32 1211212212311313333111143231132111			
551240	2121	4377	21113424133213314	3311313331313311323222321432131311121			
551075	1221	4476	24323431134214334	233331212131111132111111221111231111			
551173	2221	4376	24313424134213234	33313131113113113311211332212311111111			
551174	1121	4467	21423424233213234	111313133313313313333323223213131111			
551175	2211	3476	21411434133113344	313133121132131112211133141232332111			
551176	2121	4377	24123324133322323	33311132111133213223222243213122111			
551217	1211	3477	21412434133213234	2331323123332113333223331211331131			
551218	1111	3376	21413424223212334	32212131311121313121211311231113321 1			
551219	1221	4367	21424434123242242	11231312331331331233332322133122111			
551220	2111	3476	21323424123313432	1331313331311331331112333143211323111			
551221	2221	4467	21443424133212134	2113321132133231113333223141233111111			
551222	1121	4366	2 11244422 21 214	2313123321123133321221331123111231111			
551223	2211	3377	21324434123214334	3313313331331311323333123141233121111			
551224	2121	4466	21333424131314131	111333333313111311111112243211231111			

Column

	1	8	13	21	41	58	71
551241	1211	4476	11324434134244334	3321113311313212332231223121133222111			
551242	1111	4467	21424434133212234	1323 31333 31132133333232123113113111			
551243	1221	3366	31413424123224134	1113132333131133131111212221131333111			
551244	2111	4377	31311444122241342	33312132213133 1333333333143213212111			
551245	2221	3466	24427424234213334	1213 3132313313111323331124123132 111			
551246	1121	3477	27427424113343434	232321233331331232333332223113221111			
551247	2211	4376	31121444133113222	3331113321311321323131212141231333121			
551248	2121	3367	31413424123213224	111313133313 133133332323242131111111			
551249	1211	3466	21434424223212444	21333112221232321212131212131231111			
551250	1111	3367	21413424113312344	1113331133133133133323322123113111111			
551251	1221	4376	2132234422224333	1311133211313213322113232221131332241			
551252	2111	3467	31414424114124232	12131123211123 332332333143113213111			
551253	2221	4476	21414434433212244	113133211131111322111122141231331111			
551254	1121	4377	21323424123214234	33112132113113 132333322223112132111			
551256	2121	4477	31434324114124234	332111131131331132233322243113331111			
551257	1211	4367	43424434223142334	323123311111313113331123121133331111			
552186	1111	3366	23334331122211144	33122133112133223 2212 124213131111			
552187	1221	4377	21423434133213343	2331312121311311231223223221133213111			
552188	2111	3466	214144341 3111234	32113232131132323 111112243111232111			
552189	2221	4477	21413424133214234	13131233213213223 2223233241233111221			
552190	1121	4376	22141414133111222	132333123323333311111111224111123111			
552191	2211	3367	23414314132112434	3321311111312211311122133141232323111			
552192	2121	4476	21112444133211234	21313111113333113 131111243211231111			
552193	1211	4366	44313421223214234	1123132332132323121111111112321121			
552194	1111	4377	21112444134111344	2313112122313213323333333123111323121			
552195	1221	3466	11412444133113334	1213222133122213211111111221132333111			
552196	2111	4477	14434424133211113	11331313333322133132112 1313111			
552197	2221	4376	21414434133214334	3311313311311311333231321241231313111			
552198	1121	3367	21423424133213334	1133131133131123133333322123113131121			
552199	2211	4476	21414434133144234	122332133232311322212112141231332111			
552200	2121	3467	21414434133214234	11331313331311331232212 143213113111			
552201	1211	3376	44413444113113334	1313112331313311332231221121231333111			
552202	1111	3467	21132444132213431	1213311332121131123332233123113113111			
552203	1221	4476	21113424133222344	333131331131311131111111221131323111			
552204	2111	3377	21113434133214234	11231212333313313133 3123143213113111			
552205	2221	4366	12423344122214131	2123232113233113122313321241231233111			
552206	1121	4477	41323424242213314	1131131113323111112333 323223113323111			
552207	2211	3466	21113424133214234	2113132223133333122111322141231333111			
552208	2121	4367	41443424133212314	1133131133133333113232233243213131111			
552209	1211	4467	21414444133214334	1133231233133233133333333123133132111			
552210	1111	4476	32414434113224334	3212323122313221333112223123111321121			
552211	1221	3377	2442244 123211324	133332223 2123 13 2131 141232332111			
552212	2111	4366	21424424113114332	12133 1233133133123323331143213322111			
552213	2221	3477	41412432113224231	1331313113231131331213322141233133121			
552214	1121	3466	11122434132211344	1332333131111313 112111223211111121			
552215	2211	4367	2132433312244113	113313121333313311111112141213132111			

Column	8	13	21	41
552216	2121	3376	21413424133214434	3332 122213133 1211212213143217233121
551070	1121	3367	21314434123214234	2133131133133233122333323223213231111
552073	1211	3376	24133424133212234	11111313113113 1133212231121131313111
552077	2221	4366	11124433233211112	1113331313132231113212311241131121111
552078	1121	4477	11234424233224231	1133333313132231122323323223113211111
552079	2211	3466	22422131123313244	2311313111213111123213331141231132121
552080	2121	4367	3343433421211 334	1321313213121311113333323243213122111
551146	1111	4476	2112444133211234	3311213111131331131111111123111311111
551148	2111	4366	24432434114212334	311313322313 33311111133 143211133111
551149	2221	3477	31123434133224131	3322113131311311311311123241233123111
551151	2211	4367	21423414142244232	3311113131133333123333323141233111111
551153	1211	3477	33413324133112234	221222222122232331222212123133112111
551154	1111	3376	21412444132213344	2231221131331213131122112123111232111
551156	2111	3476	21124434133322234	3222123322322213322223311143212333111
552157	2221	4467	21423424123232312	1213131321113231322233311141 31122121
552158	1121	4366	31122333232123142	132333332131313112111221223111232111
552159	2211	3377	14123434134221244	13231123213133113313 232212133232111
551161	1211	4376	21324434124214334	3132132123311112211111212124232131111
551162	1111	4367	41414434133113244	1123331123133113133333333123113131111
551163	1221	3476	21424444131214334	133133131331311131111111121131133111
551164	2111	4467	21423424121212332	311311121311223313223232143213311111
561258	1112	4376	14334333142214234	123113113231231211331231321421322212
561259	1222	3467	21421424123213312	1312331111131312133331222221133111111
561260	2112	4476	21223424133214234	323122321131221231111111243211333111
561261	1222	3377	21112424133232322	322112132131131132131233224113311111
561262	1122	3366	31414434113211234	1133121333131113122111112224211333111
561263	2212	4477	21223444141241244	3111322312332221313313133141233131111
561264	2122	3466	41113444133214234	1113311133113133321132111243213333111
561265	1212	3377	321424 3224242324	321331123222 12122322132221112321111
561266	1112	3466	211314142332 3232	131231211111137131323122 221113111111
561267	1222	4477	21414434133214334	31313132133311131333333332211341111111
561268	2112	3376	21122434131112234	13341323213213213211112143211132111
561269	2222	4367	31424424123214241	112113113112313212333333241233121111
561270	1122	4476	21122434122113211	233331131111331111111111123111133111
561271	2212	3467	21311414223314234	321213232313323311333322241231213111
561272	2122	4366	21124424131322124	3112311213333111321121121143211132111
561273	1212	4466	21124434133223124	221 31211312312311332 11121131333111
561274	1112	4477	11313421123214233	13311133313113133333333331242131111111
561275	1222	3376	21433424112213322	2312312321213311311111111221131233111
561276	2112	4367	21413423133214231	123313111313323312331333143213111111
561277	2222	3476	21412444133214334	23322322 31121232221112241131333111
561278	1122	3467	21413424133214234	21321321231311331233333322311313111
561279	2212	4366	4112244411 313322	131333123211312112112222141232323111
561280	2122	3377	31424444123223334	323113311231121233333322243213113111
561281	1212	3476	21413424133214234	3231113311311311111112124231333111
561282	1112	3377	21411334133212334	23122231233311333333313123113133111

column	8	13	71	41	58	71	
561283	1222	4366	2141	334234312334	321232212333231211	2133212221131133111	
561284	2112	3477	31433	74123314232	323133237132311131	13333333145213211111	
561285	2222	4466	23117444	34214234	13133131111131313111	111113241232133111	
561286	1122	4367	24322434	133221342	21211312131331331233	33322223113122111	
561287	2212	3376	21113424	233314234	13211133113211123233	222141231333111	
561288	1222	4467	11113424	123213231	1212	111331313313333333	243213122111
561289	1212	4377	31123444	123142234	122311231133113132	2323132124133321111	
561290	1112	4366	27424443	232331313	2212222377121212211	111112124211221111	
561291	1222	3477	13411313	223113443	3121323133231232321	322311123112313111	
561292	2112	4466	21123424	133314234	11322311731321331311	113311143211333111	
561293	2222	3367	43424414	214144134	121311131111331133333	1331241231111111	
561294	1122	3376	34422414	144314142	3312111331311232331111	1122223211213111	
561295	2212	4467	12332224	113314124	33231333113133211232	22112141231322111	
561297	1212	3367	21122344	23433324	31131313333113131135	55312124113113111	
561298	1112	3476	21123424	233214234	3311113311313311311111	1111112311133 111	
561299	1222	4467	42341134	23321432	22321233211322321322	31221133311111	
561300	2112	3366	41122414	114213412	1313333133131131111111	11311143212233111	
561301	2222	4377	24132434	131114332	2233122112321233231333	332241233233111	
561302	1122	4466	22124341	133313134	1331321312213222211121	1322123112321111	
561303	2212	3477	21112424	243213221	11133112113331111333333	2141233231111	
561304	2122	4376	21413424	133244233	331131331131331131111111	111243311313111	
561353	1212	4377	23123424	133212144	13131133113133113333333	121133131111	
561355	1222	3477	21423424	122213334	23113113111212321331211	2121221133231111	
561357	2222	3367	13324423	224123213	3313123211331133111321	1311241133112111	
561358	1122	3376	21424434	133214334	331131331131331133111111	11223211313111	
561369	1212	4476	21113424	231314232	23111111213113112333	1111121231211111	
561373	2222	3466	21123314	231314332	2331213331321333332113111	1141131122111	
561374	1122	3477	21121343	133212331	1123131131331311333333333	123113133111	
562305	1212	4476	21433424	131211334	231221232131131132112211	12121231233111	
562306	1112	4467	21423424	131234234	22123321231332331313311	121123113221111	
562307	1222	3366	21424334	133111134	1133121223133113112223111	1121131123111	
562308	2112	4377	21423424	1332 4232	33113133113133113333333	22143213231111	
562309	2222	3466	21344434	123222444	1213231122133132113323	233241231333111	
562310	1122	3477	23314212	2 311342	31231312333322231323	311223113 2211	
562311	2212	4376	143134	4233121324	131231311131232133212313	2141231321111	
562312	2122	3367	31133421	1123224332	1313321133131133133333333	243213121111	
562313	1212	3466	21424434	133214234	111313113313213312222222	2121131313111	
562314	1112	3367	21417424	123311334	13133311331311 1133332333	123113111111	
562315	1222	4376	31311344	122111123	1333212131111323123231	23224131231111	
562316	2112	3467	13433224	233311122	3331313111311321322323	2231432 1133141	
562317	2222	4476	2141 424133	214334	31323113113232133211122	11241231233111	
562318	1122	4377	21413424	123213231	3331313331313 11333322222231	133111111	
562319	2212	3366	31413424	133214234	11331311331311331332333	1141231313111	
562320	2122	4477	22113444	223213233	311212123132131133332337	1243213133111	
562321	1212	4367	31322424	213224332	21113321331331331121131	131211312111111	
562322	1112	4376	11424334	133232132	123323213 13223332211211	12123111131111	

column	1	8	13	21	41	58	71
562323	1222	3467	22414341224132234	312233321331311111223322221131321111			
562324	2112	4476	2232221 123214234	13313113331313233333321143111233111			
562325	2222	3377	1413434123213341	3112313211312113333332332241233122111			
562326	1122	3366	11113421133244234	111313112313112311111111223111323111			
562327	2212	4477	2141342 1332 4234	1123131333331323122211123144231311111			
562328	2122	3466	2142342 133214334	21131311231322332111131124321233111			
562329	1212	3377	21413424131313334	1332312111311311223333331123133313111			
562330	1112	3466	21413424133214234	1122131123133133121121121123111333111			
562331	1222	4477	21412444133213222	2332321233321211233323322221133321111			
562332	2112	3376	31424334123231313	332131321121331 31111111243213331111			
562333	2222	4367	11113112214211244	1131331131113133313231111221231312113			
562334	1122	4476	21422414143322342	31332223 232112312322212123111112111			
562335	2212	3467	21122444133214334	1333312311132231213333312141232313111			
562336	2122	4366	11411431133244232	1133131233121133111112123224211313111			
562337	1212	4466	31123424133111334	2113132113131133113221121131133111			
562338	1112	4477	21314431123314234	2332222221331223233333222123113323111			
562339	1222	3376	21323434121212124	1113311231323223121221322221123131111			
562340	2112	4367	11423324113133143	211321112332321312332121314311321211			
562341	2222	3476	21412424133214324	3232312221312211323223233241231232111			
562342	1122	3467	21424214122214234	12133212333132312223322232223213212111			
562343	2212	4366	31113434133214334	211333112313313112112232241231333111			
562344	2122	3377	23133424111212222	2332111331311311313332123143213311111			
562345	1212	3476	21311111311113224	111111111131123112213321211121222 11			
562346	1112	3377	21123424133213124	1333233121312321323233213123213231111			
562347	1222	4366	21423424133213324	1123331133133233123223222221131333111			
562348	2112	3477	31113414133212334	11313311333 1313123333123143111313111			
562349	2222	4466	21413434423213334	1113132133131333131211322241231333111			
562350	1122	4367	41314434133212334	21322371232311331333332322311313111			
562351	2212	3376	21222414132214331	2311111213321111312111111141231123111			
562352	2122	4467	21121434132214334	1331122313311311133311133143212333111			
562354	1112	4366	21122443133224342	2312311333113332211111112123213211111			
562356	2112	4466	41121414133114334	131233131132331112111122143213331111			
562360	2122	3476	21122414133213334	1311113111331132321111221243211311111			
562362	1112	3476	21114434113311132	3323313311313311311111122123211333121			
562365	2222	4377	21121114124141344	323111133313133113333333241233313111			
562366	1122	4466	21414434133213334	221321122212113211111111123212332111			
562375	2212	4376	21413424133242334	3331111221323331332212232141231333111			
562376	2122	3367	21114414133244234	1122331123121133133333313223113111111			
562381	2222	4476	21132414133313234	3133321321333113332211112241131323111			
562391	2212	4477	211223142131112324	3332133123122233133232322141233121111			

APPENDIX D

THE RELATIONSHIP BETWEEN DEPENDENT VARIABLES  
TESTED BY POINT BISERIAL CORRELATIONS

## (a) All Values

<u>Variable</u>	<u>Attitudes</u>	<u>Knowledge</u>
Perception of Similarity (3)	.03	-.02
Perception of Expertise (3)	.14**	.18***
Source Evaluation (9)	.13*	.10
Message Evaluation (5)	.15**	.19***
Source Knowledge (6)	.19***	.17**

## (b) Recoded (High versus Low Values)

<u>Variable</u>	<u>Attitudes</u>	<u>Knowledge</u>
Perception of Similarity (2)	.07	-.02
Perception of Expertise (2)	.16**	.20***
Source Evaluation (2)	.19***	.13*
Message Evaluation (2)	.21***	.18***
Source Knowledge (2)	.14**	.13*

( ) - number of values

\* .  $p < .02$ \*\*  $p < .01$ \*\*\*  $p < .001$



APPENDIX E

THE DEGREE OF ASSOCIATION BETWEEN INDEPENDENT VARIABLES  
AND SOURCE AND MESSAGE EVALUATIONS AND PERCEPTIONS  
TESTED BY CHI SQUARE ANALYSES

(a) All Values

Independent Measures

Dependent Measures

	SIMPERC(3)	EXPPER(3)	SRCEVAL(9)	MESEVAL(5)	SOURCEKN(6)
SIMILARITY(2)	18.2***	4.4	18.9*	6.9	8.6
EXPERTISE (2)	7.4*	31.6***	24.7**	5.8	5.6
SEX OF SOURCE (2)	0.7	0.2	11.9	5.5	5.2
SEX OF SUBJECT (2)	4.7	0.2	5.4	3.0	2.4

(b) Recoded (High versus Low Values) \* p<.05, \*\* p<.01, \*\*\* p<.001

Independent Measures

Dependent Measures

	SIMPERC(2)	EXPPER(2)	SRCEVAL(2)	MESEVAL(2)	SOURCEKN(2)
SIMILARITY(2)	14.3***	3.7	5.6	1.0	3.7
EXPERTISE(2)	0.3	29.5***	6.0*	1.1	0.8
SEX OF SOURCE(2)	0.2	0.1	1.4	0.0	0.7
SEX OF SUBJECT(2)	2.4	0.0	0.0	0.8	0.3

SIMPERC - Perception of Similarity, EXPPER - Perception of Expertise,  
SRCEVAL - Source Evaluation, MESEVAL - Message Evaluation, SOURCEKN - Source Knowledge  
( ) - Number of Values

APPENDIX F

THE DEGREE OF ASSOCIATION BETWEEN SOURCE AND MESSAGE

EVALUATIONS AND PERCEPTIONS

TESTED BY CHI SQUARE ANALYSES

## (a) All Values

	SIMPERC	EXPERC	SRCEVAL	MESEVAL	SOURCEKN
SIMPERC(3)	_____	18.7***	44.0***	16.2*	12.2
EXPERC(3)	_____	_____	120.2***	24.6**	10.3
SRCEVAL(9)	_____	_____	_____	59.2**	50.6
MESEVAL(5)	_____	_____	_____	_____	18.6
SOURCEKN(6)	_____	_____	_____	_____	_____

## (b) Recoded (High versus Low Values)

	SIMPERC	EXPERC	SRCEVAL	MESEVAL	SOURCEKN
SIMPERC(2)	_____	12.6***	23.6***	6.1*	0.0
EXPERC(2)	_____	_____	52.9***	9.2**	0.0
SRCEVAL(2)	_____	_____	_____	24.4***	0.0
MESEVAL(2)	_____	_____	_____	_____	0.5
SOURCEKN(2)	_____	_____	_____	_____	_____

SIMPERC - Perception of Similarity

EXPERC - Perception of Expertise

SRCEVAL - Source Evaluation

MESEVAL - Message Evaluation

SOURCEKN - Source Knowledge

\* -  $p < .05$ \*\* -  $p < .01$ \*\*\* -  $p < .001$ 

( ) - Number of Values

## KEY FOR INTERPRETING VARIABLE LABELS FOR APPENDICES G, H, I, J

Variable Labels

AGE - age of the respondent  
ATTFORM - form of the attitude statements  
BIRTHPL - place of birth of the respondent  
EXPERT - expertise of the source  
EXPPERC - perception of expertise  
GRADE - grade of the respondent  
MESEVAL - evaluation of the message  
ORDATKN - order of attitude/knowledge materials  
ORDESCRP - order of the source description (similarity/expertise)  
RELIG - religion of the respondent  
SCHOOL - school of the respondent  
SIMILAR - similarity of the source  
SIMPERC - perception of similarity  
SOURCEKN - knowledge of the source  
SRCEVAL - evaluation of the source  
SRCSEX - sex of the source  
SUBJSEX - sex of the subject

\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*  
APPENDIX G

DEPENDENT VARIABLE.. ATCH ATTITUDE CHANGE - ALL VALUES

VARIABLE(S) ENTERED (IN STEP NUMBER 16).. SIMPERC

MULTIPLE R	0.24515	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.11912	REGRESSION	14	1719.78968	107.48649	2.66400***
STANDARD ERROR	6.26395	RESIDUAL	314	12716.97165	40.48991	

VARIABLES IN THE EQUATION					VARIABLES NOT IN THE EQUATION				
VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL TOLERANCE	F	
SOURCEKN	1.37435	0.17430	0.44062	9.729***	GRADE	-0.00395	-0.00478	0.93721	0.005
OPRATKN	-2.15629	-0.16325	0.71099	9.198***					
EXPPERC	0.85672	0.09924	0.57969	2.184					
SUBJSEFX	-1.92179	-0.14544	0.72422	7.036**					
MESSEVAL	0.45153	0.07781	0.32996	1.973					
SPOSEFX	0.80179	0.06070	0.70954	1.281					
SIMILAR	-0.77031	-0.05931	0.74063	1.082					
SCHOOL	0.33123	0.05228	0.34503	0.922					
PROFSECP	-0.44179	-0.03343	0.71092	0.396					
ATTROEM	-0.41184	-0.03117	0.70767	0.339					
EXPERT	-0.19691	-0.01491	0.73898	0.071					
AGE	-0.17418	-0.01252	0.82431	0.046					
SPEEVAL	0.05938	0.01908	0.20907	0.081					
RELIG	-0.60213	-0.00990	3.86113	0.033					
BIRTHPI	-0.28627	-0.00753	2.19771	0.017					
SIMPERC	-0.06229	-0.00718	0.48845	0.016					
(CONSTANT)	42.3445								

\*\*\* p < .005  
 \*\* p < .01  
 \* p < .05

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	PSO CHANGE	SIMPLE R	B	BETA
SOURCEKN	0.18876	0.03563	0.03563	0.18876	1.37435	0.17430
OPRATKN	0.24903	0.04201	0.02639	-0.16545	-2.15629	-0.16325
EXPPERC	0.28290	0.08060	0.01859	0.13811	0.85672	0.09924
SUBJSEFX	0.31594	0.09987	0.01922	-0.14138	-1.92125	-0.14544
MESSEVAL	0.32611	0.10635	0.00653	0.14749	0.45153	0.07781
SPOSEFX	0.33219	0.11035	0.00400	0.08749	0.80179	0.06070
SIMILAR	0.33683	0.11345	0.00310	-0.05931	-0.77031	-0.05931
SCHOOL	0.34082	0.11616	0.00270	0.01448	0.33123	0.05228
PROFSECP	0.34262	0.11739	0.00123	-0.01026	-0.44179	-0.03343
ATTROEM	0.34399	0.11833	0.00105	-0.05998	-0.41184	-0.03117
EXPERT	0.34429	0.11854	0.00020	-0.06907	-0.19691	-0.01491
AGE	0.34458	0.11874	0.00020	-0.02528	-0.17418	-0.01252
SPEEVAL	0.34489	0.11895	0.00021	0.12629	0.05938	0.01908
RELIG	0.34501	0.11903	0.00008	0.03041	-0.60210	-0.00990
BIRTHPI	0.34508	0.11909	0.00005	-0.04832	-0.28627	-0.00753
SIMPERC	0.34515	0.11913	0.00005	0.03014	-0.06229	-0.00718
(CONSTANT)					42.34450	

\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*

APPENDIX H

DEPENDENT VARIABLE.. KNWCH KNOWLEDGE CHANGE - ALL VALUES

VARIABLE(S) ENTERED ON STEP NUMBER 14.. SPCEVAL

MULTIPLE R	0.39960	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.15968	REGRESSION	14.	81.93129	41.56655	4.28900***
STANDARD ERROR	2.11311	RESIDUAL	316.	3062.49127	0.69143	

VARIABLES IN THE EQUATION

VARIABLES NOT IN THE EQUATION

VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL	TOLERANCE	F
ORPATKN	1.42973	0.21544	0.24759	16.919***	SRCSEX	0.00171	0.00185	0.97605	0.001
MESEVAL	0.43128	0.14791	0.16119	7.159**	RELIG	0.00449	0.00467	0.01052	0.007
SQURCEKN	0.54289	0.13729	0.21286	6.529*					
EXPPERC	0.51502	0.11874	0.28212	3.333					
SURJSEX	-0.71575	-0.10784	0.35435	4.080*					
AGE	-0.56223	-0.07950	0.39608	2.015					
ORDESCRP	-0.44857	-0.06755	0.34628	1.678	*** p < .005				
GRADE	0.47066	0.07038	0.35429	1.765	** p < .01				
SIMPERC	-0.18940	-0.04348	0.23881	0.629	* p < .05				
SCHOOL	0.13976	0.04390	0.16941	0.691					
BIRTHPL	-0.78527	-0.04111	1.07212	0.536					
SIMILAR	0.21542	0.03246	0.36197	0.354					
EXPERT	-0.16653	-0.02509	0.36119	0.213					
SPCEVAL	0.01655	0.01058	0.10245	0.026					
(CONSTANT)	2.49502								

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
ORPATKN	0.22276	0.04962	0.04962	0.22276	1.42973	0.21544
MESEVAL	0.30414	0.09359	0.04288	0.19387	0.43128	0.14791
SQURCEKN	0.34241	0.11724	0.02474	0.17296	0.54289	0.13729
EXPPERC	0.35936	0.12514	0.01190	0.17949	0.51502	0.11874
SURJSEX	0.36885	0.13675	0.00691	-0.08988	-0.71575	-0.10784
AGE	0.37810	0.14796	0.00691	-0.13707	-0.56223	-0.07950
ORDESCRP	0.38462	0.14792	0.00498	-0.04624	-0.44857	-0.06755
GRADE	0.39125	0.15177	0.02514	0.02661	0.47066	0.07038
SIMPERC	0.39356	0.15480	0.00182	-0.01580	-0.18940	-0.04348
SCHOOL	0.39576	0.15662	0.00173	0.02420	0.13976	0.04390
BIRTHPL	0.39757	0.15807	0.00144	-0.15034	-0.78527	-0.04111
SIMILAR	0.39877	0.15802	0.00095	0.04253	0.21542	0.03246
EXPERT	0.39951	0.15761	0.00059	-0.08010	-0.16653	-0.02509
SPCEVAL	0.39960	0.15768	0.00007	0.09903	0.01655	0.01058
(CONSTANT)					2.49502	

\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*

DEPENDENT VARIABLE... ATTITUDE CHANGE-RECORDED BINARY VALUES APPENDIX I

VARIABLE(S) ENTERED ON STEP NUMBER 15... EXPERT

MULTIPLE R	DEGREES OF FREEDOM	ANALYSIS OF VARIANCE	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE	F
0.77240	20	REGRESSION	15	2004.27929	133.61863	3.38548***
0.12029	20	RESIDUAL	315	12432.48104	39.46820	
0.79397	20	TOTAL	325	14436.76033		

VARIABLES IN THE EQUATION					VARIABLES NOT IN THE EQUATION				
VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL TOLERANCE	F	
RECEVAL	2.09274	0.14819	0.77285	7.266**	SIMPENC	0.00539	0.00538	0.85887	
ORNTAKN	-2.17692	-0.16480	0.60028	2.484***	RELIG	-0.00007	-0.00009	0.01000	
EXPRES	1.20274	0.10194	0.82015	2.773					
SIMPJEX	-1.90300	-0.12650	0.71227	4.340*					
SIMPCEKX	1.24103	0.12053	0.79910	5.034*					
SOPCVL	1.21743	0.09703	0.94113	2.053					
SOPCEX	0.77235	0.05855	0.80560	1.232					
SCNDDI	0.24500	0.04102	0.74119	0.403					
STMTLSD	-0.53454	-0.04046	0.70547	0.574					
PODCEGDP	-0.27043	-0.02204	0.45714	0.203					
ATTENOM	-0.37050	-0.02068	0.60648	0.314					
RTRTMDI	-0.70004	-0.01968	0.12674	0.111					
AGE	-0.24207	-0.01842	0.20246	0.105					
CPANC	0.15674	0.01104	0.71422	0.050					
EXPRES	-0.03428	-0.00430	0.72965	0.013					
(CONSTANT)	-21.80124								

\*\*\* p < .005  
\*\* p < .01  
\* p < .05

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	CHANCE	SIMPLE R	B	BETA
RECEVAL	0.70484	0.04312	0.02747	0.20906	2.09274	0.14819
ORNTAKN	0.24701	0.07129	0.02747	-0.16480	-2.17692	-0.16480
EXPRES	0.30124	0.05075	0.01945	0.16272	1.20274	0.10194
SIMPJEX	0.22777	0.10740	0.01666	-0.14109	-1.90300	-0.12650
SIMPCEKX	0.26097	0.12248	0.01508	0.14216	1.24103	0.12053
SOPCVL	0.24033	0.12084	0.00776	0.10110	1.21743	0.09703
SOPCEX	0.24694	0.13318	0.00776	0.05740	0.77235	0.05855
SCNDDI	0.24720	0.13414	0.00144	0.04448	0.24500	0.04102
STMTLSD	0.26915	0.12627	0.00142	-0.05631	-0.53454	-0.04046
PODCEGDP	0.27025	0.13708	0.00081	-0.01026	-0.27043	-0.02068
ATTENOM	0.27134	0.13719	0.00081	-0.05009	-0.37050	-0.02068
RTRTMDI	0.27201	0.13819	0.00050	-0.04812	-0.70004	-0.01968
AGE	0.27273	0.13865	0.00024	-0.02520	-0.24207	-0.01842
CPANC	0.27255	0.13850	0.00014	-0.04205	0.15674	0.01104
EXPRES	0.27260	0.13863	0.00006	-0.04007	-0.03428	-0.00430
(CONSTANT)					-21.80124	



\*\*\*\*\* MULTIPLE REGRESSION \*\*\*\*\*

APPENDIX 3

DEPENDENT VARIABLE: KNOWLEDGE CHANGE - RECODED BINARY VALUES

VARIABLE(S) ENTERED ON STEP NUMBER 34: SEXSEX

STATISTICS	0.40541	ANALYSIS OF VARIANCE	DF	SUM OF SQUARES	MEAN SQUARE	F
R SQUARE	0.14475	REGRESSION	14	500.97374	37.42554	3.85981***
STANDARD ERROR	2.11470	RESIDUAL	314	3044.44070	9.69888	

VARIABLES IN THE EQUATION

VARIABLES NOT IN THE EQUATION

VARIABLE	B	BETA	STD ERROR B	F	VARIABLE	BETA IN	PARTIAL TOLERANCE	F
CONSTANT	1.24110	0.20510	0.24675	15.408***				
EXPRECT	1.05492	0.15510	0.41174	4.588*				
HESEVAL	0.20044	0.12470	0.39450	5.243*				
CHIEFCRM	0.25055	0.11120	0.26265	4.287*				
SHRISFX	-0.42471	-0.10230	0.25534	3.729				
AGE	-0.47704	-0.09574	0.40244	2.812				
GRADE	0.25135	0.02244	0.25506	2.258				
PROFESRD	-0.41253	-0.04220	0.24764	1.415	*** p < .005			
STMPRES	-0.40814	-0.07244	0.37434	1.700	** p < .01			
SOCEVAL	0.12200	0.02000	0.42594	1.234	* p < .05			
ADPTMPL	-1.02144	-0.05147	1.05494	1.047				
SCHOOL	0.11217	0.03522	0.16010	0.440				
SIMILAR	0.23240	0.03504	0.25502	0.427				
EXOFFT	-0.07107	-0.01070	0.24137	0.034				
DELIG	0.25734	0.00730	1.08255	0.019				
SEXSEX	-0.02229	-0.00562	0.24588	0.012				
(CONSTANT)	-22.05040							

SUMMARY TABLE

VARIABLE	MULTIPLE R	R SQUARE	DSI CHANGE	SIMPLE P	B	BETA
CONSTANT	0.22274	0.04942	0.04942	0.22274	1.24110	0.20510
EXPRECT	0.29507	0.08760	0.07760	0.20903	1.05492	0.15510
HESEVAL	0.32068	0.10869	0.02100	0.17723	0.20044	0.12470
CHIEFCRM	0.35280	0.12453	0.01584	0.12564	0.25055	0.11120
SHRISFX	0.36775	0.13159	0.00704	-0.08000	-0.42471	-0.10230
AGE	0.37510	0.14070	0.00911	-0.12707	-0.47704	-0.09574
GRADE	0.39247	0.14628	0.00559	0.07441	0.25135	0.02244
PROFESRD	0.39440	0.14701	0.00477	-0.04624	-0.41253	-0.04220
STMPRES	0.39408	0.14530	0.00420	-0.02341	-0.40814	-0.07244
SOCEVAL	0.39705	0.14924	0.00304	0.13124	0.12200	0.02000
ADPTMPL	0.40225	0.15181	0.00257	-0.15024	-1.02144	-0.05147
SCHOOL	0.40274	0.15302	0.00122	0.02420	0.11217	0.03522
SIMILAR	0.40517	0.15417	0.00114	0.04253	0.23240	0.03504
EXOFFT	0.40531	0.15428	0.00011	-0.08010	-0.07107	-0.01070
DELIG	0.40537	0.15422	0.00005	-0.00227	0.25734	0.00730
SEXSEX	0.40541	0.15425	0.00000	-0.00788	-0.02229	-0.00562
(CONSTANT)					-22.05040	

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