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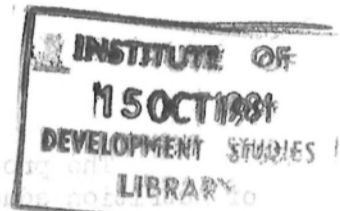
RESERVE (832)

A Social Psychological Approach to
Nutrition Education Utilizing
Ethnographic and Experimental Methods

By

Robert H. J. Feldman

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INSTITUTE FOR DEVELOPMENT STUDIES
UNIVERSITY OF NAIROBI

P.O. Box 30197
NAIROBI, KENYA.

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THE EFFECT OF DIFFERENT COMMUNICATION SOURCES IN PRODUCING
NUTRITIONALLY-ADVANTAGEOUS CHANGES IN HEALTH
BELIEFS AND KNOWLEDGE

Abstract

The proposed research I believe will assist the development of nutrition education programs among secondary school students in Kenya. It will attempt to determine the characteristics of the communicator (in terms of the psychological variables of similarity and expertise) which are most effective in producing nutritionally-advantageous changes in knowledge and beliefs. Specifically it will determine whether a local non-nutrition authority ("peer") is a more effective communicator than a non-local nutrition authority ("expert"). Since the spreading of knowledge of proper nutrition is an important program in Kenya, it is hoped that this research will contribute to this program.

A Social Psychological Approach to
Nutrition Education Utilizing
Ethnographic and Experimental Methods*

The present study is a social psychological investigation of the effects of different communicators in producing nutritionally-advantageous changes in dietary and health knowledge and attitudes among secondary school students in Kenya. Nutrition knowledge and attitudes were chosen for study because of their central importance to Kenyan society and because nutrition plays an essential role in preventive health.

It is noted that food and nutrition practices in transitional societies, such as Kenya, differ markedly from those in western society. In the developing nations of Africa the prevalence of malnutrition is due in part to the lack of knowledge about proper nutrition practices (Jelliffe, 1969). In any program to improve nutrition practices, an essential element is nutrition education. Therefore, the issue is what is the most effective means of conveying nutrition education, that is, who would be the most effective communicator of proper nutrition practices?

Many programs designed to inform people about proper nutrition practices frequently use either authorities/expert or peers. Past psychological research has shown that in some cases experts are more persuasive than peers (Aronson, Turner and Carlsmith 1963; and Whittaker and Meade, 1968). In other instances peers have been found to be more persuasive than experts (Kitz and Lazarfeld, 1955; and Rogers and Meyner, 1965). A communicator who is described as a peer gains influence from his or her similarity, but loses influence from lack of expertise. An expert, on the other hand, gains influence from

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his or her expertise, but loses influence from lack of similarity. Therefore, questions arise as which factor, similarity or expertise, has the greater influence and what combinations of these two factors produce the greatest amount of knowledge and attitude change. The present investigation addresses these issues by examining the nutrition attitudes and knowledge of Kenya secondary school students.

Sex Difference

In addition to the investigation of communicator expertise and communicator-audience similarity, this study also examined the relationship of sex of communicator to sex of audience. Previous psychological research on sex differences is inconclusive. Some studies report that females are more persuasible than males (Janis and Fields, 1959; and King, 1959) while other studies find no significant difference between females and males (Abelson and Lesser, 1959; and Rosenberg, 1962). Therefore, it was one of the goals of this study to examine whether males or females are more persuasible in Kenyan society in relation to nutrition attitudes.

Method

Participants

The participants of the study were 260 female and 254 male Gusii secondary school students living in Kisii District in southwestern Kenya. The students were in the first two years of "harambee" (self-help) secondary schools. This ensured a population of ethnically homogeneous students who had not studied nutrition.

The Gusii students came predominately from rural backgrounds and most members of their families were farmers. Though the Gusii are an agricultural people, animal husbandry and outside employment play important supplementary roles in their economy. While coffee serves as a main cash crop, finger millet (eleusine) maize, sweet potatoes, bananas, legumes and tomatoes are the chief food crops.

Kisii District is removed from the central hub of the modern capital city of Nairobi, and, therefore has limited access to outside communication sources (e.g. newspapers, magazines, radio; Soja, 1968). Though the Gusii students in this study were in an educational setting, they still lacked contact with the types and quantity of communicators

and persuasive messages that Euro-American students come in contact with daily (e.g. television advertising). Since Gusii students differ sharply from Euro-American students in terms of the type of contact they have with communication sources, a study conducted in Kisii District offered the opportunity to test the universality of the effect of different communicators on persuasion. Additional reasons why Gusii students were chosen for the investigation were that the author had conducted previous research among Gusii students (e.g. Feldman, 1975a, 1975b) and that the author had taught Gusii secondary school students for two years as an American Peace Corps Volunteer secondary school teacher.

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 physicians, nutritionists, and other nutrition researchers at meeting 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 nutritionists was working at a rural health centre. Consultations were also made with Gusii biology and health science teachers.

Traditional and Modern Gusii Food Practices

The first stage in developing a questionnaire on food and nutrition knowledge and attitudes among Gusii students was to collect information about Gusii food practices. This information was obtained through extensive interviews with numerous individuals in Kisii District as well as from the article "Nyansongo: A Gusii Community in Kenya"

by R.A. Levine and B.B. Levine (1963).

Food and nutrition play an important role in all societies with food practices closely interwoven with many other cultural practices. In Gusii society, traditionally, about 6 a.m., the mother would be the first member of the family to eat breakfast. She would have porridge or food left over from supper, however, among poorer families the mother would miss the breakfast meal entirely. About 7 a.m., the mother would then feed her husband and children a similar meal of porridge or food left over from supper. If the mother remained home during the day, she would cook food, usually a thin porridge or sweet potatoes, for her children whenever they were hungry.

In the mid-morning, about 10:30 a.m., or 11 a.m., when the children came back from working in the "shamba", field, the mother would traditionally feed them boiled sweet potatoes. The midday meal would consist of dry porridge and spinach-like leaves, or cooked beans and maize. If the father and guests were present, then meat would be served.

In the afternoon, if sugar cane was available, it would be eaten by children. If the occasion arose, men would attend a beer party. Supper was usually after sunset, about 7 p.m., and consisted of "posho", gruel, or sweet potatoes. In general, at meal times children would be the last to be served.

Traditionally, after a Gusii infant was born, he or she would not be seen by any older person until the infant was one month old. The infant was not put on any feeding schedule, instead, the infant was nursed by his or her mother on demand. If the infant's mother was busy working in the shamba, the infant was cared for by an "aya", a young girl. She would feed the infant liquid porridge whenever the infant cried. Weaning traditionally occurs at about the twentieth month after birth. It could occur as early as 11 months or as late as 30 months. Weaning took as short as one week or as long as six months. The average weaning time was one to two months.

Gusii primary school children usually attended school without eating breakfast. Since primary schools were distant from their homes, they usually went without lunch. Therefore, they had to obtain almost all of their food at the supper meal. Since posho, a porridge made from

finger millet, maize grain or sorghum, was the main staple among the Gusii, children had to eat large quantities of posho in order to obtain necessary nutrients.

Food was an important bond between mother and child. Gusii mothers considered the providing of food to be their chief responsibility to their children. Mothers would tend to give larger portions of food to their more obedient children, at the expense of their less obedient children, although food deprivation, was considered too harsh a punishment for young children. When a mother was busy working in the fields she would not stop her work, except in the case of a food request.

The Gusii have had strict regulations concerning the customary use of food. Traditionally, daughters were not to eat with their fathers and husbands and wives would not eat together. It was the custom that no one would eat, or touch, the father's food, no matter how late he would be. In polygynous households, each wife would serve the husband a basket of food. The husband would eat some from each basket and give the rest to his children. One of the husband's sanctions against his wife for "misbehaviour" was not to eat her food. There also had been a taboo forbidding women and girls from eating chicken and eggs.

Traditional Gusii food practices have been described above. Many of these practices are still evident today. Though people still have porridge for breakfast, some wealthier families may have tea. If visitors come during the morning hours, tea with bread may be served. Meat is presently eaten more often at the midday meal.

During the afternoon, some people have "four o'clock tea." A few people will have sweet bananas in the afternoon. If visitors arrive at dinner time, chicken is frequently served.

Though breast feeding has been the traditional feeding practice of Gusii infants, "modern" Gusii mothers frequently bottle feed their infants. Cow's milk is used during bottle feeding. Modern Gusii women eat chicken as well as eggs, and children are eating more nutritious meals which sometimes contain meat.

Malnutrition, however, still exists in parts of Kisii District. Sections of Kisii are overpopulated, and kwashiorkor exists because of

Lack of farming land. In other parts of Kisii, where adequate land is available, malnutrition occurs because of the lack of proper information. People in these areas eat too much starchy foods, such as posho and bananas, and not enough proteins, such as beans and meat.

Intestinal worms are very common among children. Children frequently eat unwashed fruits and vegetables which they pick up from the ground. To combat malnutrition, two nutritionists have been assigned to Kisii District. One of the nutritionists has worked at rural health centre. However, malnutrition and the lack of proper nutrition knowledge is a big problem. Therefore, more information about nutrition and health should be taught in both primary and secondary schools.

Food and Nutrition Knowledge

To determine the level of nutrition knowledge of Gusii secondary school students, a survey was taken prior to the experimental phase of the study. It was found that students had a good general knowledge of nutrition. They knew the value of proteins, minerals and vitamins and also knew about the proper care of infants and children. The students, however, were misinformed about the value of soda and squash drinks. They believed that sodas such as coca cola and fanta, and orange and lemon squash drinks were rich in food value and vitamins. They were also not aware of the nutritious value of fruits such as guavas, pawpaws and oranges.

The students were also unaware of the importance of the colour of fruits and vegetables. They did not know that dark green coloured vegetables and that deep yellow coloured vegetables and fruits are more nutritious than light coloured vegetables and fruits. For example, the students believed that English potatoes had more food value than sweet potatoes that are deep yellow in colour. Another belief widely held by the students was that if a person eats a lot of sugar, he or she will get malaria. The students were less aware of the relationship between eating a lot of sugar and tooth decay. It was also believed that it is necessary to spend a lot of money in order to eat healthy foods despite the availability of inexpensive healthy foods in Kisii District. Therefore, the students were well-informed about human nutrition except in the area related to the nutritional value of fruits and deep yellow coloured vegetables.

Similarity and Expertise

The next step of the research was to determine the characteristics of similarity and expertise. Previous research on the effects of similarity and expertise on persuasion have usually defined similarity and expertise from the researcher's point of view. Since the researcher's point of view may not always coincide with that of the participant, this study made an empirical determination of the students' perception of similarity and expertise. A group of Gusii secondary school students were asked to make a list of the characteristics of a nutrition expert and a second list of the characteristics of someone similar to themselves. Then, this researcher in conjunction with a number of Gusii research assistants greatly expanded the lists of characteristics.

The expanded list of similarity characteristics were then given to another group of 36 male and 34 female students. These students were asked to determine whether the characteristics were high in similarity, medium in similarity, or low in similarity to themselves. The expanded list of expertise characteristics were given to a different group of 40 male and 42 female students. They were asked to determine whether the characteristics were high in nutrition expertise, medium in nutrition expertise, or low in nutrition expertise. The similarity and expertise characteristics that had the greatest consensus of responses were chosen for the final stage of the research.

Experimental Interventions

Based upon the analysis of the survey of expertise and similarity characteristics, two levels of expertise (high and low) and two levels of similarity (high and low) were examined.

The high similar characteristics were:

Tribe: Gusii

Place of Birth and Grew up in: Kisii District

Language: EkeGusii

Religion: Christian

Age: Under 30 years old.

The low similar characteristics 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 high expert characteristics 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 low expert characteristics 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 factor

In the final stage of the research 362 first and second year harumbee secondary school students attending four secondary school participated. Male and female students in each school were randomly assigned to either one of four experimental groups (331 students) or a control group (31 students). Each of the experimental groups received the same written communication which aimed to produce nutritionally-advantageous changes in nutrition knowledge and attitudes; the control group did not receive any communication. Each of the four experimental groups differed in the written information they received about the author/communicator of the written message. The four author/communicators differed in terms of the characteristics of similarity and expertise. The communicators in the four experimental groups were :

- (1) high expert/high similar,
- (2) high expert/low similar,
- (3) low expert/high similar, and
- (4) low expert/low similar (see diagram)

<u>EXPERIMENTAL</u> <u>GROUPS</u>		<u>SIMILARITY</u>	
		High	Low
<u>EXPERTISE</u>	High	1	2
	Low	3	4

In addition, within each of the four experimental groups, half of the participants received a written message attributed to a member of their own sex and half the participants received a written message attributed to a member of the opposite sex. Immediately after the description of the communicator and the communication message were knowledge of the nutrition message and (2) express their feelings about what foods they prefer.

In order to reduce response bias half of the attitude items favoured the more nutritious food and half of the statements favoured the less nutritious food. For example, a statement in favour of the more nutritious food was "I like pawpaw better than coca cola." An item written in support of the less nutritious food was, "I like fanta orange soda better than oranges." The attitude statements were then placed in random order.

After all of the students completed filling out the materials, the students were thanked for taking part in the study and the nature of the research was explained to them. Shortly after the study was completed, all of the schools, including the schools which took part in the 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.

Results

A statistically significant difference was found between the experimental groups and the control group for both knowledge and attitudes ($p < .005$ for each comparison). That is, the students who read the communication message (the experimental groups) had a better knowledge of proper nutrition than those who had not read the message. Also, the

experimental groups preferred (their attitudes supported) the more nutritious foods than the control group.

An examination of the effect of the characteristics of the communicator on food and nutrition beliefs found an expertise-by-similarity interaction, $F(1,315) = 4.8$, $p < .05$. The communicator who was both low in expertise and low in similarity was less persuasive than either the low expert/high similar, high expert/low similar, or high expert/high similar communicator. No statistical difference in persuasibility was found for the latter three communicators. That is, the low expert/high similar, high expert/low similar and high expert/high similar communicators were about equally persuasive. Also, no significant difference was found among the experimental groups in terms of knowledge change. That is, knowledge level significantly increased among the four experimental groups who received the communication, regardless of the characteristics of the communicator.

A statistically significant difference was found between the male and female students, $F(1,315) = 7.0$, $p < .01$. Male students were more persuaded than female students. Since the male students came from two predominately male schools

and the female students came from two predominately female schools an examination was made of school differences. A significant school difference was found, $F(3,327) = 3.2$, $p < .05$; therefore, the difference between the male and female students may be due to a sex difference or to a school difference. Also, no significant difference was found between male and female communicators. That is, male and female communicators were about equally persuasive.

Conclusions and Recommendations

The primary object of this study was to assess the influence of communicator expertise and communicator-audience similarity on nutrition knowledge and attitudes in Kenyan society. The results of this study report an expertise-by-similarity interaction. A communicator who was both low in expertise and low in similarity was less persuasive than communicators who were either low expert/high similar, high expert/low similar, or high expert/high similar. No statistically significant difference in persuasiveness was found among the high expert/low similar, low expert/high similar or high expert/high similar communicators.

In terms of expertise, a communicator who was not an expert, but who was highly similar to his or her audience, that is, the low expert/high similar communicator was as influential as a highly expert communicator (either the high expert/low similar or high expert/high similar communicator). That is, Gusii secondary school students were about equally persuaded by a Gusii who was not an expert (i.e. clothing shopkeeper) as by a doctor (whether high or low in similarity). These results indicate that a communicator highly similar to his or her audience, but not an expert would be as influential as a highly trained expert. Therefore, to conserve both money and human resources in the development of nutrition education programs, locally trained people should be utilized rather than bringing in specially trained experts.

In terms of similarity, a communicator who was dissimilar to his or her audience, but who was at the same time an expert (high expert/low similar) was as influential as a highly similar communicator. That is, Gusii secondary school students were persuaded comparably by a non-Gusii (Masai) doctor as by a Gusii communicator (whether high or expert). In other words, for Gusii secondary school students an outsider was as significantly influential if the outsider was an expert. In terms of nutrition education programs, a communicator dissimilar from his or her audience would need to be an expert in order to be significantly influential. However, expertise would not be necessary characteristic for a highly similar communicator. Therefore, it appears that a communicator having at least one favourable attribute (that is, high similarity and/or high expertise) is at an advantage in changing the attitudes of Gusii secondary school students.

The examination of sex of communicator on persuasiveness found that male and female communicators were about equally persuasive. Further interviews with both male and female Gusii secondary school students found that they perceive the field of nutrition as being neither male-oriented nor female-oriented. Therefore, it is recommended that in nutrition education programs male or female communicators would be about equally persuasive.

A statistically significant difference, however, was found between male students and female students. Male students were more persuaded than female students. Since the male students came from two predominately male schools and the female students from two predominately female schools an examination was made of school

differences. Since a significant school difference was also found, the difference between the male and female students may be due to a sex difference or to a school difference.

In summary, the main research finding of this study is an expertise-by-similarity interaction. A communicator having at least one favourable attribute (low expert/high similar, high expert/low similar, or high expert/high similar) was more persuasive than a communicator having no favourable attributes (low expert/low similar). Since the former three communicators were equally persuasive the following recommendation is made. The training of a local person (low expert/high similar communicator) as a nutrition educator would utilize human resources in the most effective matter in the development of nutrition education programs.

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APPENDIX

A List of Gusii Foods*

*The list of Gusii foods found in Kisii District was derived from extensive interviews in Kisii District and from Feeding the Family by M.A. Powers. Both the English and the EkeGusii names are given.

<u>ENGLISH</u>	<u>EKEGUSII</u>
<u>Proteins</u>	
Cow	enyama ye eng'ombe
goat	enyama ye embori
sheep	engon'i
rabbit	egesusu
game animals	chingiti
liver	rini
heart	engoro
tongue	eromeme
brains	obongo
dried meat	enyama enyomo
chicken	engoko
chicken eggs	amagana engoko
game birds	chinyoni
fresh fish	enswee
dried fish	enyomo
locust	chingige
grasshoppers	ebisase
white ants	chintuga
fresh whole milk	amabere
sour whole milk	amabere amurururu
skimmed milk	amabere amatunde
sour skimmed milk	amabere amurururu amatunde
powdered skimmed milk	amabere obosie at rickerimu
kikuyu beans	enyabisongo
cowpeas	egesire
groundnuts	chinchugu
sim sim	emkano
pumpkin seeds	chintetere
<u>Carbohydrates</u>	
maize grain	ekomba
maize meal	obosie bwoobokima
finger millet	obori
sorghum	amamba
wheat bread	omogati
flour	obosie
rice	omochele
sweet potatoes	amarabwani

<u>ENGLISH</u>	<u>EKEGUSII</u>
<u>Carbohydrates</u>	
potatoes	ebiasi
yams	chinduma
cooking bananas	amatoke
cassava	emiogo
<u>Sugars</u>	
sugar cane	emesie
honey	oboke
table sugar	esukari ye emesai
<u>Fats</u>	
meat fat	amaguta ye enyama
dripping fat	amaguta okoiyeka
animal ghee	amaguta y'eching'iti
margarine	amaguta emete
kimbo	ekinbo
vegetable ghee	amaguta echingoni
<u>Vitamins</u>	
<u>Fruits and cabbage</u>	
<u>Vegetables cassava leaves</u>	
sweet potatoes leaves	okabichi
cauliflower	amato emiogo
green peppers	amato amarabwani
green onions	ekabichi nyaboise
carrots	epiripiri
red peppers	ebitunguo machani
tomatoes	chikarati
white onions	epiripiri imbarisi
turnips	chinyanya
green peas	ebitunguo ehirabu
pawpaw	chinaibu
pineapple	chimbisi
orange	ripaipai
lemons	amananasi
guavas	amatunda amororo
eating bananas	amatunda amororo
wild fruits	amapera
	amatoke
	amako orosana

ENGLISH

EKEGUSII

Greens

[Faint, illegible text in the English column, likely bleed-through from the reverse side of the page.]

chinsaga
rikumeni
rinogu
risosa
enderema
omotere
risa
egesare rikongiro
otiba