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THRESHOLDS IN EDUCATION

NUTRITION EDUCATION: TRANSFORMING TRADITIONS

Articles By:

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Forword

The complacency that many Americans felt about their own and others' nutritional well-being has been eroded by events of the past few years. Inflation, recession, and unemployment have rendered the feeding of families more difficult. The inequities in food availability throughout the world have proven that food is a valuable and limited resource. Abundance of food is not sufficient to insure nutritional well-being, for knowledge and motivation are also essential in selecting food combinations conducive to good health.

The bubble began to burst when the United States Department of Agriculture's (USDA) 1965 Household Food Consumption Survey uncovered a decline in consumption of several nutrients. The CBS documentary "Hunger in America" showed that low-income Americans are ill-fed and startled the rest of the country.

The U.S. Senate asked the Department of Health, Education, and Welfare (HEW) to investigate further. The resulting Ten-State Nutrition Survey confirmed that some segments of the population indeed had less than recommended nutrient intakes.

A Senate Select Committee on Nutrition and Human Needs was appointed in 1968. It held hearings where Senators came face-to-face with harbingers of America's food, nutrition, and health problems.

The surveys and testimony gave rise to the 1969 White House Conference on Food, Nutrition and Health. The Conference evoked response from government to meet the challenge of inadequate food and nutrition knowledge at home. USDA and HEW expanded and added food assistance and education programs. The Food and Drug Administration (FDA) promulgated regulations for the nutrition labeling of foods to help consumers select more wisely. The Federal Trade Commission published proposed Trade Rules and Regulations to bring nutritional claims in advertising more in line with FDA's nutrition labeling provisions.

Paralleling these developments was the formation in 1973 of the National Nutrition Consortium. Comprised of the American Dietetic Association, the American

Institution of Nutrition, the American Society for Clinical Nutrition, and the Institute of Food Technologists, the Consortium sought to provide technical assistance to the government. The Society for Nutrition Education plus food and nutrition sections of medical associations have subsequently become members.

One of the Consortium's first efforts was the development of Guidelines for a National Nutrition Policy for submission to the Senate Select Committee. Its purpose was to identify concerns for the long-range planning and implementation of government programs related to food and nutrition at home and abroad.

The Senate Select Committee on Nutrition and Human Needs held National Nutrition Policy Study Hearings in 1974. Recommendations were made by six panels on the topics of nutrition and the international situation, special groups, food availability, the consumer, health, and government.

The Senate Select Committee continued work until it was dissolved in December, 1976. One of its last achievements was the publication of the controversial Dietary Goals for the United States.

Now taking an active role in nutrition education is the Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition of the Committee on Agriculture in the U.S. House of Representatives. This committee is not alone. As of 1977, 19 committees, including 16 subcommittees, in the U.S. Senate and House of Representatives had interest or authority over the nutrition education programs of 11 agencies of two departments and two regulatory agencies.

Efforts by the government have given impetus to other endeavors. A rebirth of interest in the relationship between diet and health has occurred, spurring nutrition research and practical application. The public is more concerned with self-improvement through diet and exercise. Media coverage of food and nutrition have whetted appetites for more information.

Clearly, nutrition education has entered a new era. This issue of *Thresholds* about "transforming traditions" offers views on a subject affecting us all.

Progress is dependent upon specialists in many fields, as the cover design illustrates. The globe indicates views by those with comprehensive concerns about food use. The capitol designates articles by those in or interacting with government. The role of food industry-supported groups is illustrated by a farm, input of educators by a book. The shopping cart reflects articles by authors concerned with reaching consumers through media and other means. The figure in the atom represents views by educators of health professionals. May their articles be helpful and supportive to your endeavors in nutrition education.◄

Authors

Esther Peterson is Special Assistant for Consumer Affairs to the President of the United States, The White House, Washington, D.C.

Norge W. Jerome is a Nutritional Anthropologist and Professor, Department of Community Health, School of Medicine, University of Kansas, Kansas City.

Frederick W. Richmond is the Congressman from New York's 14th Congressional District in Brooklyn, now serving his second term.

Helen D. Ullrich is Executive Director, Society for Nutrition Education, Berkeley, California.

Kristen W. McNutt is Executive Officer of the National Nutrition Consortium, 2121 "P" St., N.W., Washington, D.C. 20037

Bob Bergland is a farmer, a former Congressman from Minnesota, and the United States Secretary of Agriculture in the Carter Administration.

Gloria Kinney is Director of Nutrition Education, National Dairy Council, Rosemont, Illinois.

Leonard L. Pourchot and Joseph R. Ellis are Professors of Education in the faculty of Research and Evaluation at Northern Illinois University, DeKalb.

Maurice J. Eash is Professor of Research in Urban Education and Dean of the College of Education, University of Illinois at Chicago Circle. Geraldine D. Brownlee is Assistant Professor of Education, University of Illinois at Chicago Circle.

Helen A. Guthrie is Professor of Nutrition, The Pennsylvania State University, University Park.

Mary Lou De Zeeuw is the Director of Nutrition and Nutrition Education of the American School Food Service Association, Denver, Colorada.

Richard K. Manoff and Thomas M. Cooke are, respectively, President and Vice President of Manoff International Inc. and a newly formed nonprofit organization, New Ideas in Health Education, Inc. Both organizations have offices in New York and Washington.

Jane Voichick is Extension Specialist, Nutritional Sciences, University of Wisconsin Extension, Madison.

Lewis Menaker is Assistant Dean, Professor of Dentistry, Professor of Nutritional Science, and Senior Scientist in the Institute of Dental Research, The University of Alabama School of Dentistry, Birmingham.

Fredrick J. Stare and Elizabeth M. Whelan, are Professor of Nutrition and Research Associate in Nutrition, respectively, at the Harvard School of Public Health, Boston.

Toward a National Policy on Food

Esther Peterson

This is the text of Ms. Peterson's address at a meeting of the Food and Agriculture Organization of the United Nations, in Rome, Italy, on March 3, 1978.

Fellow delegates, members of the secretariat, observers, and friends. . . .

I am so very happy to be with you here today. I feel fortunate to represent my President, Jimmy Carter, because I share with him the belief that the right to food is the most basic human right.

I feel especially fortunate that I am able to share with each of you this common dedication to the task of eradicating hunger — a goal toward which we must begin to take more concrete steps here this week.

This common dedication, more than any other factor, binds us together in this meeting. Many of you are nutritionists. I am not, although nutrition is a major concern of mine. Others represent different specialties in food and agriculture. All of us have labored to eliminate hunger and reduce malnutrition in this world in our own way. We share in common that goal and experience.

In the United States we are blessed with a farm economy and technology of uncommon abundance and dimension, and we have sought to share that abundance and knowledge to eliminate hunger at home and to reduce it throughout the world.

In our domestic programs we have created food delivery systems which bring needed services to the poor and nutritionally vulnerable. For families and individuals we have evolved a food stamp program that serves every community, and enables over 16 million people to buy more food to improve their diet within their reach. We are planning changes which will increase these numbers by nearly three million persons over the next year. We recognize that children are especially vulnerable to the ravages of malnutrition, and we allocate the resources to serve nearly 12 million school children with a free or low-cost meal each school day. Children in preschool programs and in organized activities outside school also receive a better diet through federal efforts. A program to help pregnant and lactating women, and infants, to obtain a better diet has only recently been started. The health benefits are gratifying, and President Carter plans to greatly expand this effort. Poverty, inflation, and isolation cause the elderly to suffer especially from malnutrition and hunger, and we are now providing resources to support community programs to serve meals for older Americans, particularly those who are poor.

Forgive me if I belabor this issue. I do so not to claim some special expertise for the U.S., but for exactly the opposite reason. A national nutrition policy is emerging in our country today not because it was planned but simply because the commitment to end hunger is strong. It led us to the knowledge that we do not have to wait to build a planning capability before we could act. We have come to realize the institutions which gave us so much food are not of themselves adequate to ensure that all the people will have right to food — this basic human need — fulfilled. Our Secretary of Agriculture, Bob Bergland, said it so very well recently: "We think this country must develop a policy around human nutrition, around which we build a food policy for this country and as much of the world as is interested. And in that framework we have to fashion a more rational farm policy."

Our experience in responding to hunger and poverty has shown that human nutrition is the center around which we will develop a U.S. nutrition policy, and fashion a more rational farm policy. As a result we are beginning now to rearrange our present institutions, and to examine the need to create new ones where that is appropriate. This is a dynamic process, and never ending. We have no special expertise in planning or implementing a national nutrition policy. President Carter will be the first president to propose a nutrition policy for the U.S. and we will begin by making a special commitment to ending hunger and malnutrition. We share with each nation gathered here today the desire to construct a national policy on nutrition, and we believe we can learn as much from your experiences as you can learn from ours. We will share ours with you.

Before leaving to come here, President Carter asked that I say this to you:

First, he asked that I share with you the fundamental principles which will guide the U.S. on nutrition issues in its relations with the international community:

Hunger and malnutrition are symptoms of underdevelopment and poverty. The highest priority in U.S. policy toward the developing world, where most of the hungry people live, will be accorded to relieving underdevelopment and poverty by meeting the basic human needs of the poor majority;

U.S. relations with the developing world will be concentrated on assisting, developing, and enhancing their self-reliance, particularly through providing technology appropriate to their needs, strengthening local institutions, and enhancing local cultures and traditions;

While U.S. policies will take into consideration such "supply" issues as production, research, technology, and food aid, greater emphasis will be given to such "demand" issues as broadening land ownership, improving health and sanitation, nutrition education, reducing underemployment and unemployment (especially rural), family planning, and more equitable distribution of income;

The U.S. believes multilateral programs of the United Nations and the international financial institutions must play an increasingly important developmental role, and we will work to improve the quality of our participation in them.

Finally, U.S. policies will emphasize what the U.S. can do best, and what it can distinctively contribute to the efforts of the developing world and the international community to alleviate world hunger and malnutrition. These are:

(a) sharing our research and technical expertise,
(b) sharing our food abundance, and
(c) encouraging the private and voluntary sector to share more widely their unique resources in rural development.

Within these basic principles, the U.S. is prepared to take the following specific steps:

1. The President will soon create a White House Commission, with the support of the Congress, to assess domestic and international aspects of hunger and malnutrition. A major responsibility of this commission will be to suggest governmental policies which will make the U.S. a more effective partner within international institutions and in working with other governments to eliminate hunger and malnutrition at home and in the world.

2. The President will ask the Congress shortly to authorize a six-million-ton international emergency wheat reserve to meet our commitment to world food aid, and to support any new commitment made within a new International Wheat Agreement. We encourage all nations to join in giving similar pledges toward an international system of food reserves.

3. The question of food assistance has troubled many people, I know, and I take great satisfaction in repeating what the President said only recently: "I intend," he said, "to increase food aid to countries that need it now, making sure available food goes to those who need it the most. . . . . (and) to increase our assistance for agricultural and rural development, especially to small farmers."

4. In the context of the present Tokyo round of multilateral trade negotiations, the U.S. is exploring new and better methods to liberalize trade patterns which will enhance the purchasing power of people who live in the developing world.

5. The President has studied the report by the National Academy of Sciences World Food and Nutrition Study on Research and has asked his staff to recommend how the U.S. should establish research priorities that will address such needs as the lag in tropical zone agricultural research, support indigenous nutrition research capacity, and develop technology which is culturally and economically appropriate.

6. Greater stress will be given to encouraging private sector involvement in confronting world hunger and malnutrition. Incentives will be considered which will encourage the private and voluntary sector to work on rural development with counterpart organizations in the developing world.

7. The U.S. will encourage those firms which produce or market food products abroad to place nutrition in the forefront when considering production and marketing decisions.

We recognize that the commitment of the U.S. to eliminating hunger in the world is measured by the willingness of the American people to freely support the allocation of resources for these purposes. We are prepared to give this task our fullest support, not only as a demonstration of political leadership but also in recognition of the value of citizen participation in this effort to end hunger.

We must strive together to eliminate the worst aspects of hunger and malnutrition. Together we have the resources. We have the technology. We need only the political will of the developed and developing countries alike to achieve a world without hunger. Each nation bears witness to this goal not in terms of its rhetoric but in terms of its willingness and moral commitment to use its own resources for the needs of its poor and nutritionally vulnerable. No expert from abroad is needed to help make this pledge. It requires the sustained commitment of leaders, both public and private.

The U.S. believes FAO must be a leader and catalyst in this area within the UN system, as a provider of technical advice and services, and as a mobilizer of public and private groups to carry out the declaration of the World Food Conference to eliminate hunger and malnutrition.

Once that commitment is made, once the leadership is apparent, then the world community — its mechanisms for multilateral cooperation and coordination — will indeed respond.

I am here to pledge the support of President Jimmy Carter and the American people to a renewed commitment to eliminate hunger and malnourishment in the world, fully aware of our past deficiencies and most humbly aware of the special responsbility we all bear. ◀

Nutrition Education: An Anthropological Viewpoint

Norge W. Jerome

Conventional nutrition education may be defined as the process by which information on items ingested by humans (solid and liquid dietary items, and in certain instances, non-dietary substances such as drugs and medications) is communicated, received, and acted upon. Nutrition education is considered a community resource and an important part of health care delivery services. However, this resource may be perceived differentially by residents of the community. It may be utilized fully by some and ignored by many others. A few individuals may select only those elements that seem applicable to their specific needs at a specific time. These phenomena should be regarded as evidence of the complex nature of the nutrition education process.

The complexities associated with conventional nutrition education stem from the interaction of the two major components of the communication process: (a) the communicator (nutrition educator) whose raison d'être consists largely of technical information on the nutritional composition of dietary items and their various functions in biological systems and (b) the layperson (learner) who may be interested in understanding the usefulness of the technical information but often does not see how it applies to his/her personal health or life situation. Essentially, then, the contractual parties, educator and learner, operate from different ideas and definitions of reality and try to communicate from different conceptual domains.

Can anthropological concepts and principles help to reduce the complexities of the nutrition education process? In other words, can anthropological ideas aid in reducing the disparities between educator and learner, or specialist and layperson? I believe that it can.

Many anthropologists view human behavior (including food-related behavior) as adaptive strategies aimed at achieving a reasonable level of security by resolving threats to individual and group survival. The strategic behaviors include the **selection** and **utilization** of resources available in the total environment to achieve the major objectives of self-enhancement and survival.

This does not mean, of course, that at any given point in time every individual in every society or community will recognize and utilize every available, exploitable resource with life-enhancing and survival potential. Nor does it mean that every individual in a given culture or cultural subgroup in a society has equal opportunity to recognize, select, and utilize the available resources. Variations do exist. Opportunities may be limited by physical, biological, technological, political, economic, social, and personal constraints. Concepts about self and the universe, and the individual or group's relationship to that universe, may also impose severe limitations on whether or how resources are recognized and used. At the same time, concepts of self in relation to the universe may also facilitate recognition and exploration of environmental resources. Thus, intercultural, intracultural, and interpersonal variations in resource identification, use, and management are normal and predictable. Unfortunately, these diversities in the selection, use, and management of resources have not been incorporated into the content and process of nutrition education.

Anthropologists recognize that many adaptive strategies often survive beyond their practical utility and that while certain practices might have had functional utility in the past their retention in many situations is functional only in the symbolic sense. It is also well recognized that many practices adhered to by people in some societies and communities are dysfunctional in the self-enhancement and life-preservation sense. The point is, however, that if the people themselves perceive that their actions will lead them to achieve the goals that they have set for themselves then the associated behaviors and practices are conceptualized as "adaptive strategies."

The concepts of consumer-derived objectives and adaptive strategies that lead to personal goal achievement are salient to the nutrition education process. They set limits and direct the kinds and amounts of technical information to be provided an individual or group, and the style and method of communicating whatever information is provided. However, it is important to note that in situations of dire poverty and malnutrition and under conditions of societal neglect the input of the nutrition educator will be of little significance. Technical information is unlikely to be of much use when lack of access to basic resources is the major limitation.

The concept of adaptive strategies also helps to explain why the acquisition of new knowledge is often insufficient to change behavior. As many nutrition educators know, providing people with information about "what is wrong with" a traditional behavior or "what is right about" an alternative approach will not necessarily lead to behavioral change. If we view individual acts, habits, or preferences as parts of "behavioral complexes" or adaptive strategies, we gain some insight into this frequently encountered stumbling block to effective nutrition education. In general, people are more likely to **exchange** one behavior (dysfunctional in the health-promoting sense) for a "new and improved" variant only if they are convinced through repeated trial that the latter is superior. Superiority is often determined by three major factors: *fit, ease,* and *style.*

These factors may be applied to the nutrition education process. In order to meet the criterion of *fit,* the objectives of the target individual or group must be met when a new behavior (or new information, depending upon the educator's objectives) is being proposed. The alternative strategy must also *fit* the resources immediately available to the individual or group. Criteria of *ease* and *style* are met by the type of transition expected of the layperson/learner. The new behavior (or information) should be similar to the old and the transition should be imperceptible; if sudden and disruptive, it should be accom-

panied by ritual and symbols and reinforced periodically. The Weight Watchers International Program provides an excellent example of the latter.

The fieldwork method of anthropology which involves participation and observation in community life provides a sound basis for acquiring knowledge on community food patterns and to learn about adaptive strategies of individuals and groups. The technique of participant-observation should be systematically incorporated into the education of nutrition educators.

Because ideas and concepts that held true in one era are often retained and imparted when social and technological conditions dictate a different style of behavior, anthropologists are trained to observe and record actual nonverbal behaviors within the social and cultural contexts of people's lives. In this way, the anthropologist learns directly what people actually do as they adapt to daily life conditions rather than rely solely on what they say they do. People's statements about what they do are often more ideational than real. Consequently, nutrition education programs that are based totally on verbal responses of consumer/clients or worse, on the educator's concepts of what constitutes "appropriate nutrition education," are doomed to failure.

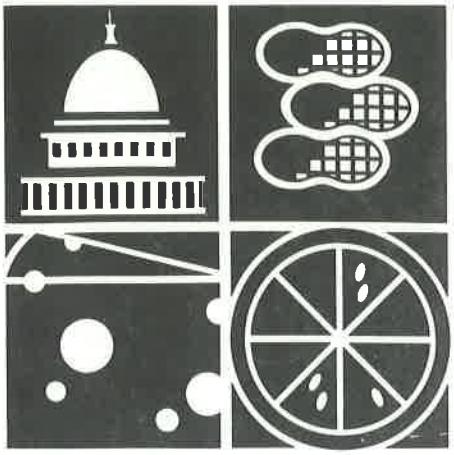
Since the environment may limit or facilitate adaptive strategies for self-enhancement and survival, the anthropologist in the field observes and records the full range of **existing** resources and those which are **recognized, selected,** and **utilized** by a community. For example, in order to determine a group's use of food, and its diet pattern and quality, the anthropologist records the full range of edibles in the community; the full range of food and nutrition services; food and non-food production and marketing patterns; food distribution and exchange patterns within the community and domestic unit; food procurement, storage, preparation, and consumption patterns within the community and domestic unit; food waste disposal patterns, the care and feeding of pets and other domesticated animals, and seasonal variations on these phenomena. Records are also made of measured amounts of typical diets consumed by individuals in various age categories, by those undergoing physiological stress such as pregnancy, and by those with special social and economic roles and responsibilities. In large-scale field studies other members of the research team will obtain information on the health and nutritional status of a random sample in the population.

In addition to determining the sociocultural matrix and life-styles of individuals in the community under study, the data will show what dietary items are eaten, sold, exchanged, discarded, fed to pets and other animals, or completely excluded from the diet. The data will also show who eats what items, when, how, how much, at what financial cost, for what purposes, with whom, how often, and most importantly, how various members of the community identify, select, utilize, and manage all the available resources including food and nutrition services. In addition, the data will include information on the full range of transactions involved in food use, diet, and nutrition, and on how these vary over time and under changing environmental conditions. Information on variations in food and resource use within communities is particularly important for the development of all types of food and nutrition services, including nutrition education.

The types of data obtained by anthropologists in the field should form an integral part of the nutrition education process, although it is recognized that this strategy cannot be fully utilized in every nutrition education program. However, this approach should be encouraged and used by nutrition educators with long-term commitments to a community. When the communicator (nutrition educator) understands how individuals in a given community vary in their perception and use of resources and how they adapt their behavior to conform to the environment, then the technical information can be modified accordingly. Accuracy of content and fidelity to subject matter can be maintained while modifying the method and style of communication, or changing the educational format and location to conform with the client or learner's living situation.

Similarly, if members of a community perceive that some of their immediate needs for self-enhancement and their goals for survival can be largely met through nutrition education programs they will utilize them as a viable resource and take full advantage of them without coercion. This merging of goals between educator and learner should terminate the sanctions currently imposed on clients in some federally sponsored nutrition education programs. The **requirement** that a client participate in nutrition education programs as a condition for receiving food vouchers—the current practice in some United States Department of Agriculture funded Special Supplemental Food Programs for Women, Infants, and Children (WIC) — removes voluntarism from learning, limits the learner's range of decision-making skills, encourages mediocrity on the part of the educator, and triggers a series of "maladaptive behaviors" in both educator and learner. More importantly, when educator-learner goals are merged the contractual parties will function cooperatively in their attempt to find solutions to the nutritional problems which threaten self-enhancement and survival. New strategies of adaptation will then be based on the selection and use of resources appropriate to the client's nutritional needs, personal goals, and living situation.

Summary Nutrition education has a special role in assisting individuals as they adapt to the changing food environment. From the anthropological point of view, nutrition education is viewed as a community resource. As active agents, individuals will utilize this resource selectively on the basis of need in order to adapt and readapt creatively to the changing environment. Failure to recognize and utilize this resource by members of the community warrants reappraisal of the content and process of conventional nutrition education programs. Some anthropological concepts, principles, and methods should be of value in the evaluation and reappraisal process. ◀



A New Nutrition Education

Frederick W. Richmond

I am honored that the editors of *Thresholds* have asked me to share with you my views as Chairman of the House Agriculture Subcommittee on Domestic Marketing, Consumer Relations, and Nutrition. Since 1976, when the important area of human nutrition was added at my request to our jurisdiction, my Congressional colleagues and I have conducted numerous activities aimed at reviewing and improving the efforts of government and the private sector to provide the public with accurate and useful information about diet and health.

Among our publications have been reports on federal nutrition education and research programs, the quality and readability of government nutrition pamphlets, and an overview of the role of the food industry in nutrition education.

At our request the General Accounting Office recently released a study appropriately titled *Informing the Public About Nutrition: Federal Agencies Should Do Better.* What shocked us most in this report was the Comptroller's finding that the United States Department of Agriculture's Extension Food and Nutrition Program is reaching only two percent of its intended audience and the Expanded Food and Nutrition Education Program only 20%. The figures for the Department of Health, Education, and Welfare are equally shocking. Head Start reaches only 15%, the elderly nutrition program only 23%, and the consumer adult education program a scant two percent.

Clearly, such overwhelming documentation shows the need for a national policy which coordinates responsibilities and activities and holds government programs accountable for their effectiveness.

The "Old Nutrition Education" of simplistic slogans, vintage depression pamphlets, outmoded strategies, and inefficient programs must be replaced with a "New Nutrition Education" that is:

(a) diet and health oriented;
(b) based on objective and current scientific information;
(c) comprehensible and useful;
(d) attractive, appealing, and motivating;
(e) community-based;
(f) available where and when consumers want information, be it on the airwaves, in supermarkets, or local papers;
(g) long-term and continuous; and
(h) coordinated with other educational efforts in the public and private sectors.

After holding extensive hearings on nutrition education, I introduced H.R. 12428, The National Consumer Nutrition Information Act. In addition to coordinating the present patchwork of over 30 separate federal programs, the bill called for a combination of strategies that would employ community projects, public service announcements, and experiments in graphic nutrition labeling. Unfortunately, even with the endorsements of an overwhelming number of professional organizations and consumer groups, the bill did not secure final passage by the full Agriculture Committee. Although the bill's many supporters were disappointed, they can be assured that my colleagues and I will redouble our efforts in the 96th Congress.

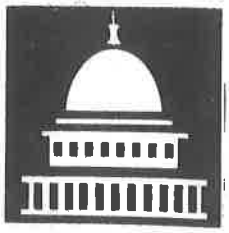
Based on my experiences in the past two years, I believe that the voices of consumers, nutritionists, and educators are finally being heard in Washington. The vital issues of nutrition research, education, labeling, and advertising will, I am happy to report, be the subject of legislative and executive attention in the coming year.

My own subcommittee, in addition to fighting for passage of a nutrition education bill, plans to hold hearings to answer such critical questions as:

(a) What is the government doing to advise consumers on the health risks of obesity and safe ways to lose weight?
(b) How can we use the public airwaves to provide nutrition information?
(c) What is the potential of graphic labeling in the American food system?
(d) What standards should be applied to nutrition education materials used in our school systems?
(e) And, finally, in relation to the high cost of food: How much are we really paying for convenience and advertising and is the move away from traditional foods to our nutritional and economic benefit?

These and many other important nutrition-related questions must be answered not with rhetoric but with a dialogue and consensus that will ensure cooperation between the public and private sectors. In the past two years we have heard the problems articulated; now we need to work hard for solutions. I hope that *Thresholds'* readers will take an active role in this process.

Those interested in expressing their opinions or being placed on the Nutrition Subcommittee's mailing list should write to my attention at Room 1301, Longworth House Office Building, Washington, D. C. 20515. ◀



Current Problems and Issues in Nutrition Education

Helen D. Ullrich

As the term nutrition becomes more and more popularly used in the mass media, it presents certain kinds of problems and challenges that have not existed previously for professional nutrition educators. Nutrition advice is featured in popular magazines on a regular basis. Nutrition claims about food are more frequently made in advertising. Another measure of public interest is the jokes about dieting and food safety are frequently used in comic strips. Book stores contain a great proliferation health, nutrition, and diet books—many of them making conflicting and erroneous claims. In fact, the lay person who is anxious to pursue a cautious and nutritionally-sound existence has difficulty in finding resouces of information which are helpful. A number of these issues are being reviewed at the national level. We are hopeful that in time there will be action to correct some of these problems. Nutrition is a relatively young science, and when it is applied to human beings, its interpretation is compounded by each individual's social, cultural, and economic needs and values.

Television Advertising to Children Joan Gussow studied the nutrition messages children were receiving via TV advertising. Most of the ads during the Saturday morning children's programs were related to highly sugared products, including soft drinks, candy, and presweetened cereals. These findngs helped to initiate the growing tide of concerned citizenry. Groups such as Action for Children's Television, Center for Science and the Public Interest, Committee on Children's Television, and the Council on Children, Media, and Advertising have actively developed programs and projects to stimulate an awareness of the problem. However, change comes about slowly because in the approximately six years since Gussow's original study only a few ads and public service announcements have been produced about fruits and vegetables, milk and other less sugary and more nutritious foods.

Education in Food Intervention Programs After the White House Conference on Food, Nutrition and Health in 1969, there was an upsurge in intervention programs which essentially provide supplemental income or food to families. Some of these programs are now beginning to provide nutrition education along with supplemental food.

The Women, Infants, and Children (WIC) Program for pregnant women and children up to the age of five and the child care or Head Start Programs all have an identifiable component for nutrition education. However, the funds are only token amounts.

The revised Food Stamp Program of 1977, which provides many needy families with food stamps to exchange for needed food, will for the first time provide an opportunity for the recipients to obtain information to guide them in making food choices. However, food selection certainly is not limited to the needy. It is hoped that this component of the Food Stamp Program, for which the United States Department of Agriculture has not released regulations, will also be available to non-food stamp recipients.

Federal feeding programs for the elderly also provide minimal education as a part of their outreach programs. However, the current legislation which may encompass many changes has not clearly indicated the role of nutrition education.

Education in the Schools The largest nutrition education program is the newly established nutrition education component of the National School Lunch Act. This federal program provides up to $27 million for nutrition education programs in the states through an entitlement program. This program offers the opportunity to develop a coordinated statewide program of nutrition education and training for students, teachers, and school foodservice workers. State plans are presently being developed. The programs should be emerging in the states by winter 1978-79. Since it is only a three-year appropriation and one year was almost gone before the regulations were released, there is a need to urge action in each state.

National Nutrition Policy Just before the Senate Select Committee on Nutrition and Human Needs was disbanded in December, 1976, the Dietary Goals for the United States were issued. These Dietary Goals recommend that 55-60% of dietary calories should come from carbohydrates while no more than 30% should come from fat. And of that 30% of the food energy from fat the distribution of saturated, polyunsaturated, and monounsaturated fatty acids should be evenly distributed. The resulting protein consumption would amount to about 12% of the total caloric intake. The Dietary Goals recommend a restriction of the consumption of cholesterol and salt and sugar consumption at the level of 15% of the total food energy intake.

In order to accomplish these Goals there is need for an extensive rethinking of the foods consumed by the average American. If these Goals are to be adopted as a part of the national food and nutrition program, it will require a highly coordinated national nutrition education program.

Goals as educational tools have been used very effectively, and Dietary Goals could be used as educational tools in place of the four food groups approach. It remains to be seen how widespread the acceptance of this approach to nutrition education will be.

Challenges for the Nutrition Educator The use of fast-food eating places and institutionalized programs at schools and places of work continues to increase in popularity. As a result, the family at home becomes less effective as a center for learning about the choices of food to eat.

The need for an expanded sequential nutrition education program from early childhood throughout life becomes more imperative. The nutrient needs and goals change throughout life. Our total knowledge about nutrition as well as personal perspective on the values and needs as they relate to food keep changing. A new era of nutrition education has begun. ◀

Nutrition Education Policies

Kristen W. McNutt

The word "policy" is being linked more often recently to nutrition and terms related to nutrition. Indeed, this phraseology should come as no surprise. As the many arms of government embrace more enthusiastically programs that provide food and services related to food, there is a growing need for some guideline that tells us in straightforward language what we are trying to accomplish with tax dollars in the name of nutrition.

The question of an overall nutrition policy is frequently discussed within both nutrition and legislative communities; it is debated even more intensely in spheres where these two circles overlap. My personal analysis at present is that there is little value to a piece of paper entitled "A National Nutrition Policy." Note the use of the article "a", initial caps, and "policy" singular.

On the other hand, there are substantial grounds to support the idea that policy "is" whatever is happening at the moment that impacts upon achieving a specific goal. Policy therefore is the sum of several actions, possibly in quite widely separated locations. Policy is a dynamic process — it can and does change in response to newer knowledge, shifting priorities, and a number of other variables.

According to this philosophy, therefore, we already have a national nutrition policy; likewise, we have a national education policy. As a corollary to both of the above, we also have a national nutrition education policy. Our current nutrition education policy incorporates fundamental guarantees regarding education laid down in the Constitution, laws promulgated by Congress, programs and regulations administered by the executive departments (primarily by the Departments of Agriculture and of Health, Education, and Welfare), and decisions rendered by the courts.

The components cited above are mainly under the auspices of the federal government. Although the federal role in education has been growing since World War II, the responsibilities for education reside primarily with the governments closer to the people. The multitude of nutrition education policies adopted by each of these systems together formulate our national policy. These policies or sets of actions vary depending on the priorities of state and local legislators, decisions of school boards, the degree of support given by school administrators, the level of interest exhibited by the community and nutritionists, and even the responsiveness of students to nutrition education initiatives.

Goal of Nutrition Education

There is merit to the fact that nutrition education policies are tailored to state and local variables. However, this situation makes it extremely important to have a broadly agreed upon goal for nutrition education which can serve as a universal standard to determine the effectiveness of multiple efforts and policies. Though different methods and messages may prove more appropriate under various circumstances, we should all ultimately be striving for a common objective.

For purposes of discussion, I propose that the objective of nutrition education everywhere is that *each person has the opportunity to select from available foods a diet that meets both that person's biological and social needs.*

Let's take this objective apart, phrase by phrase:

"Each person" implies that either (1) nutrition education must reach beyond the traditional K-12 system or (2) the goal is not achievable until an entire generation has passed through the traditional school system. Stating these options helps us focus on one of several policy decisions. For the present, are we trying to educate everyone or only students in schools?

"Each person" also declares the need to educate males as well as females. This objective, which probably would not have been important two decades ago, shows how policies should respond to societal changes. Today most men who work outside the home and boys who participate in school lunch programs have sole responsibility for choosing their diets for at least one of three meals eaten each day. Even those who "brown bag" at noon choose for themselves snacks and beverages — sources of energy and nutrients — during most of the day. As breakfast becomes a more individualized meal and suppers are eaten more frequently away from home, diet choices become more dependent upon individual knowledge and personal priorities.

"Have the opportunity" is perhaps the most controversial phrase in our stated goal. Perhaps in some education systems, this decision is yet another question of policy. Some nutrition educators no doubt think that the goal of nutrition education should be that the individual selects an appropriate diet rather than simply has this opportunity. In my opinion, however, the responsibility of the education system is met by providing the opportunity to make an informed choice. Education ideally informs persons of alternative behaviors, but the ultimate choice resides with the informed individual.

"To select" hinges upon the person's information about diet, food, and health; these concepts must be mastered before the nutrition education can be considered accomplished. There are several levels of knowledge to which various education efforts might aspire, depending again upon policy decisions.

The most basic level focuses on food selection guidelines with little or no discussion of nutrients and energy; emphasis is primarily

on types of food and ranges of amounts to eat. A higher level develops the idea of the body's need for nutrients and how these nutrients may be acquired by selecting various types and amounts of foods. A still more sophisticated level of nutrition education delves into tailoring the food selections more specifically to individual preferences as well as to individual biological and social needs. At any of these levels, when necessary, appropriate information can be incorporated for certain groups and individuals about moderation or avoidance of specific foods or components of food that might produce a hazard to health.

As a general rule, the more information mastered, the greater the flexibility of food choices while meeting individual needs. On the other hand, the amount of information taught depends on constraints such as time in the curriculum, teachers' command of nutrition information, and the students' willingness to invest time in learning nutrition. The variables may be significant determinants in the best nutrition education policy for a specific community or school system.

"Available foods" speaks to the reality that not all foods are always accessible to everyone. There is unquestionably a limit of food dollars beneath which selection of an adequate diet is impossible. However, for most people in the U.S. today, food availability is limited more often by logistics, life-style, lifepace, and personal priorities than by monetary restrictions. Successful nutrition education equips people — whether they are snacking at a baseball game or a fancy French restaurant, having lunch in a bus station or on the Concord, shopping on food stamps at a small inner city market or in the country at a farmers' market —to make the best possible selections from the food available at the moment.

"A diet" conveys the idea that the overall nutritional characteristics of food combinations eaten within a certain time period determine an individual's nutritional status. Teaching students to avoid "bad foods" is unquestionably an inadequate goal for nutrition education. The confusion partly results from defining "good" versus "bad" foods. This distinction is especially difficult when guidance is given to a large group of persons with varying nutritional and psycho-social needs. It is quite possible that a diet devoid of all supposedly "bad" foods could be seriously deficient in one or more nutrients. For example, stringently reducing foods that contain fat could eliminate the best traditional sources of iron and perhaps calcium. Unless the teacher is trained to teach appropriate dietary substitution for these nutrients, a real deficiency condition may result from efforts to reduce a hypothetical risk.

Another fallacy in the "good-bad" food theory is that obesity, the most significant nutrition problem in our country, can result from eating too many "good" foods just as well as from eating too many "bad" foods.

"That meets both that person's biological and social needs" conveys several messages. It reminds us that nutrient needs vary on the basis of body size, sex, activity level, age, health status, genetic makeup, environmental factors, and many other variables. Although many combinations of foods might provide the appropriate amounts and types of nutrients for any one person, social factors often restrict what is acceptable or accessible to that person. Although it is unreasonable — indeed unnecessary — to insist that for all persons at all times nutritional considerations will be the primary determination in food choices, effective nutrition education can make it easier to choose a total diet that meets both purposes of eating.

Other Prerequisites Although nutrition education policies will differ throughout the country, several elements are universally required in order to achieve effective nutrition education.

A primary prerequisite is the knowledge base — both the factual content of nutrition science and the methodologies for transmitting this knowledge — upon which policies are built. Equally important is a means for training teachers in nutrition. Although it is hardly necessary to complete a doctorate in nutrition to teach nutrition to elementary-secondary students, undergraduate education in nutrition for education majors, in-service training, and continuing education are mandatory. The science of nutrition is a rapidly growing body of knowledge. There exists, and will continue to exist, a frightening amount of misinformation about nutrition in the popular press and on the airways. The public has been sensitized to the possiblity of misleading information in print advertisements and commercial messages. Also, the Federal Trade Commission is becoming more vigorous in efforts to control such misinformation. However, too many people unquestionably accept information in editorials, feature stories, news articles, popular books, and radio-TV talk shows. They fail to realize that *there is no control whatsoever on the validity of information in non-commercial messages related to nutrition.*

A teacher who bases his/her nutrition lessons on such sources might indeed be conveying counter-educational messages and might possibly do more harm than good . . . with the best of intentions. This statement is not meant as an indictment of well-meaning teachers but as a warning for all policy makers. One of the greatest challenges to the quality of nutrition education today is to ensure the accuracy of information. Teachers and/or coaches who serve as nutrition educators must have a sound foundation in nutrition, they must realize their limitations in this science, and they need access to sources of current, up-to-date information regarding newer topics of research that reach the popular press. Unless this condition is met, an authorization from Congress for nutrition education funds or a resolution from the local PTA to encourage instruction in nutrition can be a dangerous course of action. The end result could be detrimental to our nutrition education policies and our National Nutrition Education Policy. ◄

Nutrition Education and the U.S. Department of Agriculture

Bob Bergland

Extraordinary changes have occurred since mankind first discovered food. First, and most basic, was the discovery and development of agriculture. Man's ability to produce an abundant and stable food supply was the first step toward civilization. Following this fortunate accomplishment (by several thousand years), we discovered nutrition. Having been freed from the necessity of looking *for* food, we had time to look *into* food. A logical assumption would be that with plenty of food available to sustain life and with the knowledge about the kinds of food needed to maintain optimum health, mankind's oldest and most pressing problem is solved.

But that assumption is a blanket that doesn't cover everyone.

About 10 years ago, Americans were shocked to learn that 20% of the citizens in the world's wealthiest nation were hungry. Studies found that people in more than 250 U.S. counties subsisted on such poor diets that these areas were designated as "hunger counties." It was particularly ironic that this discovery came on the heels of massive programs to feed hungry people abroad in the aftermath of a major war. It came also at a time when the U.S. was facing an "overabundance" of agricultural products.

The U.S. Department of Agriculture (USDA), which had been in the food assistance business since the mid-1930's, was given primary responsibility for implementing and administering the programs to help alleviate hunger. The school lunch program, started in the 1940's, was expanded and additional food programs for children were developed. The commodity distribution program, initially an emergency food distribution operation, was given more funds and wider authority. The food stamp program was initiated to allow low-income families to buy food through regular market channels. And particular attention was paid to the "high nutritional risk" group of women, infants, and children through a special program.

Recent studies by USDA show that food aid has been successfully distributed to the areas identified as having hunger problems and that the per capita food sales in these areas have increased. We cannot, however, state that hunger has been eliminated, or that food aid is reaching the neediest, or that the money is sufficient to provide food for everyone who is hungry. Indeed it is obvious that we have not reached a "food-for-all" utopia. One reason lies within the food assistance programs themselves.

As originally conceived, many of the programs did not include adequate methods for identifying or reaching the neediest people. In some instances, people who were in the greatest need of food assistance were exluded from programs by unreachable eligibility criteria. Funds were too little or were locked into rigid allocation guidelines. Inefficiency, mismanagement, and abuses plagued some of the programs.

Many of these problems have been corrected or are being eliminated. Congress has allocated more funds and has amended food assistance legislation. The USDA has made substantial changes in regulations. Management practices required of local administrators have been modified to provide more effective delivery of food assistance to the widest possible population in need of such assistance.

But no matter how genuine the intent or effective the program, there is a second reason a food utopia has yet to be attained. People with little money to spend are disadvantaged when it comes to obtaining food. For low-income families this often means that food purchases take a disproportionately high percentage of their money, up to 40 or 50% for some very poor people. But money is not the only limitation. A lack of nutrition knowledge when buying food is as much of a problem in achieving an adequate diet as is the lack of money.

In this country, people are free to choose whatever foods they wish to eat from the world's most abundant, reliable, and varied food supply. The quality of their diets depends upon the choices they make — based on what they know or do not know about nutrition.

Malnutrition is a problem at every income level and at every level of education. The poor have not always had enough food. The rich are often eating too much food or eating the wrong kinds. Over the years, the USDA has had the responsibility for providing nutrition information and education services to the public. There are, for example, the 60 years of nutrition education experience and programs of the Cooperative Extension Service that reach many millions of Americans at grass root levels. There is the nutrition, education, and food economic research conducted by various USDA agencies. And finally there are the many millions of nutrition publications produced and distributed by the Department.

However, the amount of activity and the degree of effectiveness have often varied. Too often, the effectiveness has been least in areas where these services are most needed. Food distribution programs, for instance, have generally met survival needs, but often have placed insufficient emphasis on the nutrition information and education requirements. We must expand our capabilities. It is not enough to deliver the food — or the money to buy the food. We also have to provide the nutrition tools to help people use their food supply wisely. We are now expanding and redirecting these efforts to reflect renewed concern and to

bring sharper focus to the goal of good nutrition.

An example of this is the Expanded Food and Nutrition Education Program (EFNEP) which concentrates on improving the food selection, nutrition knowledge, and food preparation practices of low-income households. This intense, one-on-one small group program hires and trains low-income people to contact and teach the target population in their own neighborhoods. From its initial year of operation in 1968 with funds of $10 million, it has grown to its present $50 million funding with some 5,670 program aides working in 1,200 independent cities, counties, and Indian reservations.

A major thrust of USDA activities in nutrition education is tied into the programs aimed at the most nutritionally-vulnerable groups. One of these programs, the Special Supplemental Food Program for Women, Infants, and Children (WIC), reaches a population identified at medical clinics as high nutritional risks. Participants receive supplementary aid in buying specified high-nutrition food items. Nutrition education is a mandated component of the program. Since its first year of operation in 1974, with funding of $11.1 million, the program has been expanded to a funding of $395 million in fiscal year 1978, reaching some 1,192,000 people. Evidence indicates that it is one of the most effective and successful health and nutrition programs operated by the federal government.

In a pilot project initiated this summer by USDA, migrant farm workers are being afforded a better opportunity to participate in the WIC program. Under the project migrant families, once certified at a WIC clinic, need not be recertified as they move into other areas following harvest. The certification is logged onto a card which is carried to the next WIC clinic. Special nutrition education lesson modules in English and Spanish were developed for the project. As participants complete sections of the lessons, this information is also logged on the certification card, providing continuity, less duplication, and more assurance of completed lessons.

At present, states are permitted to use 20% of their total WIC grant for administrative costs, including support for the nutrition education component of the program. Legislation proposed by USDA for fiscal year 1979 would expand the WIC program, extending it for four years, increasing funds to enable WIC to reach more of those in need of the program, and strengthening the program's nutrition education component.

Under the proposal, the Secretary of Agriculture would establish standards to assure that adequate nutrition education services are provided. Clinics participating in WIC programs would be authorized to provide nutrition education services to participants and to parents of infants and children who are enrolled at the clinic but do not participate in the WIC program. Training programs would be required for all persons providing nutrition education, and states would be required to evaluate WIC nutrition education annually. In addition, nutrition education materials and sessions would be provided in languages other than English in areas where substantial numbers of low-income households speak a second language.

One of the most logical methods for providing nutrition education to a large segment of the population is through the nation's schools. This is especially true within the context of USDA's child feeding programs. Yet, this natural setting has received only peripheral attention. There has been a lack of concerted and organized effort. We have seen only limited attempts to provide children with the knowledge and motivation to help them develop food and nutrition attitudes and practices that will sustain them through life. Under the legislation passed in November, 1977, the USDA. has been mandated to direct highest priority to this situation. The National School Lunch Act and Child Nutrition Amendments of 1977 provided, for the first time, that funds be allocated to states specifically for nutrition education.

The first funds — $26 million for fiscal year 1978 — have been made available by USDA under the new nutrition education and training program. The grants are based on a rate of 50 cents for each child enrolled in a school or child care institution with a minimum of $75,000 for any one state.

As provided under the legislation, the new program will provide education and training for children, teachers, and foodservice personnel. The program will emphasize the vital relationship between nutrition, good food, and health. Specifically, the funding will help states:

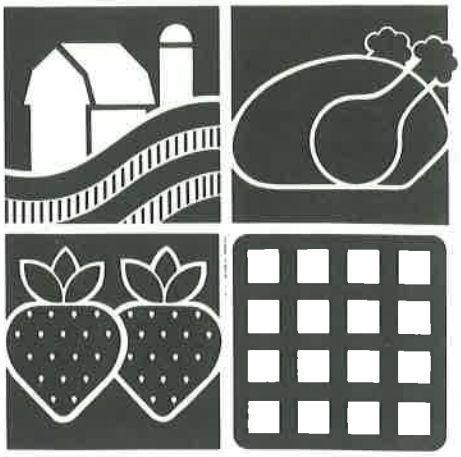
(a) instruct teachers in nutrition principles to enable them to teach their students better;
(b) train school foodservice workers in principles and practices of foodservice management, including nutrition;
(c) develop classroom materials and curricula; and
(d) educate students about the nutritional value of food and foster the attitudes and practices that will enable students to be critical and wise consumers of food throughout their lives.

To qualify for grants under the program, states must appoint a nutrition education and training specialist to coordinate a comprehensive program. And, at the crux of the program, states will be required to make full use of the learning-laboratory potential of the school lunch, breakfast, and child care food programs.

The new and ongoing USDA programs are the nucleus of an effective response to the nutritional dilemma that faces us. However, the solution does not lie with government alone. There must be cooperation among each segment of the population and all components of the food system. Food is too important to our well-being as individuals and as a nation to permit separate and uncoordinated operations.

We know how important nutrition is to our general well-being. We have growing evidence that nutrition plays a vital role in good health and in disease prevention. And we see more desire for nutrition information manifested by more people.

Now's the time, then, to broaden the nutrition abilities of Americans. USDA looks forward to making the most of this opportunity. ◄



Nutrition Education and Industry-Supported Groups

Gloria Kinney

Efforts are being made by the government, schools, medical-scientific community, and mass media to enhance the nutritional awareness of Americans and to improve their dietary habits. However, no discussion of nutrition education would be complete without citing contributions of organizations supported by the food industry.

National Dairy Council (NDC) is such an organization. It was founded in 1915 by milk producers, processors, handlers, and equipment and supply firms. In 1918 the dairy industry was approached by Dr. E. V. McCollum, a noted nutritionist who had discovered vitamin A in milk. He asked for the industry's support in his efforts to educate the public about the importance of dairy products in human nutrition. Thus NDC's programs of nutrition research and education were launched.

A brief review of some of Dairy Council's activities over the years shows how society and the dairy industry have received mutual benefits during its 63-year existence. Dairy Council was successful in efforts to modify proposed rationing of milk during World War I by showing the importance of milk in the diet. After the war, NDC began to educate the nation's children about the necessity of consuming a balanced diet that included milk products. Today's National School Lunch Program and other Child Nutrition Programs reflect, in part, NDC's continuing efforts to see that the nutritional needs of school children are being met.

Other industries have formed their own organizations similar to Dairy Council for purposes of nutrition research, education, and communication. The American Egg Board, American Institute of Baking, Cereal Institute, Florida Citrus Commission, Grocery Manufacturers of America, National Live Stock and Meat Board, Nutrition Foundation, Potato Board, United Fresh Fruit and Vegetable Association, and the Wheat Flour Institute are among the industry-supported organizations recognized as consistent sources of accurate and excellent nutrition information. While many of these organizations are similar to Dairy Council in mission, each would have its own unique story to tell concerning its methods of operation and its contributions to nutrition education.

One of the things that distinguishes Dairy Council from other industry-supported groups is the grass roots organization which supports its nutrition education program at the community level. An estimated 175 million Americans are reached by the Dairy Council staff network of 300 nutritionists, dietitians, and home economists who are located in 127 offices across the country. In addition, National Dairy Council was officially designated an educational-scientific institution in 1970 by the Internal Revenue Service of the U.S. Department of the Treasury, a rarity for an industry-sponsored organization.

Dairy Council's purpose is to contribute to the achievement of optimal health by providing leadership in nutrition research and nutrition education based on the concept of a balanced diet, including milk and milk products, in accordance with scientific recommendations. The Dairy Council program entails working with and through the nation's leaders: teachers, school administrators, physicians, dentists, nurses, dietitians, government officials, scientists, and the mass media. The educational materials produced by NDC provide some of the tools with which these leaders and Dairy Council staff work.

Nutrition Education Since 1915 NDC has produced hundreds of educational materials. Among the best known are *The Guide to Good Eating, Food Models,* and *Comparison Cards.* For decades, *The Guide to Good Eating* has pictured the food groups as a basis for selecting one's diet. The most recent edition of the *Guide* also features a nutrient-based approach to food choices.

The *Food Models* are life-size, color photographs of foods in common serving sizes, with nutrient data printed on the reverse side. These models are usable with all age groups and are accompanied by teacher/leader guide which suggests appropriate learning activities.

A set of 57 colorful bar graphs known as the *Comparison Cards* shows the percentages of the U.S. Recommended Daily Allowances in a serving of food. The set also includes a teacher/leader guide that provides background information and directions for use.

These materials just described are among the more than 100 booklets, leaflets, posters, sheets, films, filmstrips, slides, and transparencies featured in NDC's 1978 catalog of nutrition education materials. Included are materials for preschoolers, elementary school youngsters, junior and senior high school students, and adult consumers. Many of the materials are accompanied by teacher/leader guides that give supplemental information, suggestions for use, and listings of additional resources.

References and periodicals are also produced by NDC for health professionals. Six times a year *The Dairy Council Digest* presents the latest research findings on a topic related to nutrition. Each quarterly issue of *Nutrition News* carries a feature article, teaching suggestions, and abstracts of recent articles and books for those concerned with the direct application of nutrition knowledge in an educational setting.

Multimedia educational program packages are also a Dairy Council staple. They consist of audiovisual aids, a teacher/leader guide, and supporting printed materials. *Food: A Super Natural Resource* is a consumer education program for

high school students. *Label it NUTRITION* instructs teens and adults in nutrition labeling, while *Toothtown U.S.A.* covers various aspects of dental health for middle elementary school children.

Thousands of these materials and programs are placed each year through local affiliated Dairy Council units, or by National Dairy Council in areas where there is no affiliate. Dairy Council staff trainslocal leader groups to use these education aids with their ultimate audiences of students, patients, and consumers.

Constant contact with teachers, school administrators, health professionals, consumers, and representatives of the media enables Dairy Council to continuously refine and improve its repertoire of educational offerings. This interaction with various leaders provides an excellent means of assessing what information may be insufficient or lacking on a specific subject matter for certain audiences. Thus determinations are made as to what new educational materials and programs are needed and will be produced by NDC.

This recognition of an existing need is the first step taken by Dairy Council in the development of a new education material. Specifications are then drawn up as to what its purpose, design, content, and format will be. As development proceeds, the material is reviewed by Dairy Council staff, by experts in the field, and by the leaders who will eventually use it. In the final stages of development, field tests are conducted with sample groupings of the targeted users. Feedback received from all these steps in the development process is carefully analyzed to insure that the material produced will be educationally effective, scientifically accurate, and responsive to identified needs. The last step in the development process involves training affiliated Dairy Council staff to use the new materials.

To keep materials factual, attractive, and timely, only a year's supply is printed at one time. The necessity to reprint frequently provides additional opportunity for reviewing the material for accuracy and datedness. Revisions are made where necessary. An educational material that begins to outlive its usefulness is discontinued.

Dairy Council has long been concerned with child nutrition. It has recognized the need for a systematic way of providing a nutrition education program which is compatible with children's intellectual development and which can be built upon and expanded as children mature.

This need has been realized by others, too, and Dairy Council started in 1975 to make such a curriculum become a reality. The following projects were initiated by NDC to evaluate the status of nutrition education and to prepare the way for developing a sequential curriculum for elementary and secondary schools:

...A survey was taken of all affiliated Dairy Council units to determine the services they provided to schools and how the schools used existing instructional materials. The results of this survey provided direction for selecting materials for the new curriculum and defined potential for its implementation.

...The Office of Evaluation Research, University of Illinois at Chicago Circle designed a nutrition education needs assessment instrument which Dairy Council staff then used to interview 124 teachers and 148 administrators drawn from a nationwide sample. Survey results documented educators' needs as well as their various expectations for a new program.

...The Society for Nutrition Education evaluated 78 existing nutrition curricula, 22 of them intensively. Although many of these programs received high marks, none met all the criteria for a sequential curriculum which would teach nutrition at all grade levels.

NDC then selected a Blue Ribbon Committee of consultants with specialties in educational planning and administration, child development, curriculum and instruction, educational, research, nutrition, psychology, sociology, and teacher training to assist in designing the new program. This committee studied results of the surveys described above and made its own recommendations for development of a sequential curriculum for kindergarten through grade 12.

The seven nutrition concepts identified by the 1969 White House Conference on Food, Nutrition and Health were established as the basic framework for the new curriculum. These concepts were translated into a set of specific learner outcomes arranged from the simple to the more complex. Student learning activities were tnen developed to produce the desired learner outcomes. These learning activities were designed so as to be appropriate to the age, interests, and developmental level of the student.

By 1976 a prototype curriculum was produced which had undergone extensive review and was ready for field testing. During the 1976-77 school year the curriculum was tested by 76 teachers and 2,911 students in urban, suburban, and rural elementary schools. Involved were 19 school districts, eight of which used experimental and control groups for the field test. Teachers at the 11 other sites tested the prototype curriculum to furnish feedback on selected aspects of its implementation.

Results of the field testing were analyzed and interpreted by the Office of Evaluation Research, University of Illinois at Chicago Circle. The curriculum was found to be free of sex, regional, and achievement biases. Students in the experimental groups using the curriculum showed significant increases in nutrition knowledge and had more positive attitudes toward nutrition. Feedback from students, teachers, and classroom observers was then used to adjust the reading level of the materials, their sequencing and instructional time requirements.

The final product, *FOOD...Your Choice,* is an interdisciplinary, multicultural, and activity-oriented nutrition learning system. Level 1 is for students in kindergarten, first and second grades; Level 2 for grades 3, 4; and Level 3 for grades 5, 6. Each level is packaged in a colorful box that contains:

program overview, a folder which describes the curriculum's rationale and the scope and sequence of its student learning outcomes;

teacher materials, a guide that provides an overview for each instructional unit, directions for conducting its learning ac-

tivities, evaluation instruments, and a nutrition primer;

student materials, a book of spirit masters keyed to the learning activities;

resource materials, instructional aids for the classroom; and

take-home materials, a letter to parents and leaflets that link classroom nutrition instruction with food practices at home.

The Society for Nutrition Education reviewed Levels 1, 2, and 3 of *FOOD...Your Choice* and found the program "to be scientifically sound and educationally useful for the intended audience." At its July 1977 Convention, The American School Food Service Association passed a resolution of support for the curriculum's use by the schools.

The first three levels of the curriculum were ready for general distribution to the schools in August, 1977. Staff members of the affiliated Dairy Council units introduced teachers and administrators to the program with inservice training sessions. As a result, at the close of the 1977-78 school year, the curriculum had reached approximately three million children in elementary classrooms across the country. In addition, several states have added *Food...Your Choice* to their lists of approved instructional materials. Evaluation studies of the curriculum were continued during the 1977-78 school year. Results of these studies are providing the basis for further refinement of the elementary school portion of the curriculum.

Meanwhile, NDC is continuing the development of the curriculum for junior and senior high school students in grades 7-12. These levels of the curriculum will build upon the nutrition concepts introduced and developed in the K-6 portion of the program. Field tests will be conducted in 1979 and the initial segments of the program will be ready for national distribution in 1980.

FOOD...Your Choice, as well as other materials and programs produced by National Dairy Council, are shown at several national conventions each year. Professional meetings such as those of the Association for Supervision and Curriculum Development, American School Food Service Association, Society for Nutrition Education, American Home Economics Association, American Dietetic Association, etc., are selected for these exhibits.

NDC has responded to the increasing need for accountability and evaluation in education in a number of ways. Not only are the individual materials and programs produced by NDC thoroughly researched and learner-tested before distribution, but other approaches to increasing the effectiveness of nutrition education are also being developed. For example, grants-in-aid have been made to universities to develop model programs whereby student teachers learn nutrition and instructional methodologies appropriate for transmitting this information to their future pupils.

In December 1978 NDC is sponsoring a nutrition education research conference to bring together national leaders in the field to discuss the "state of the art" and to establish priorities for needed research. The creation of an environment where serious dialogue and constructive, coordinated planning can take place is regarded as a crucial step in the future improvement of nutrition education.

Nutrition Research The education materials and programs produced by NDC are based on and enhanced by its nutrition research program. All materials are evaluated by the research staff for nutritional accuracy and consistency with current scientific-medical opinion.

Functioning as the basis for the educational program is only one aspect of NDC's nutrition research program. In addition, the research program operates through grants-in-aid to leading nutrition researchers, maintains systematic contacts with the nutrition research community, provides conference support, and conducts library research.

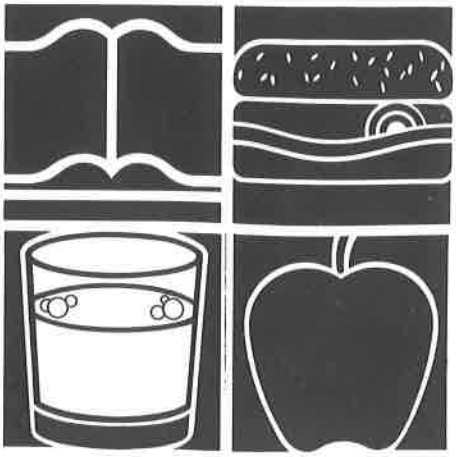
Many researchers make inquiries of NDC concerning the availability of grants-in-aid. Occasionally their needs and those of NDC mesh. At other times scientists whose work is of particular interest will be contacted and offered support. The result is NDC sponsorship of a number of researchers at leading universities who study facets of the relationships between dairy products and health.

Over the years NDC has also cosponsored nutrition symposia with such professional organizations as the Institute of Food Technologists, American Institute of Nutrition, American Society for Clinical Nutrition, and American Dairy Science Association. In addition, NDC's expertise in nutrition research is frequently called upon to furnish information, counsel, and testimony in governmental hearings.

NDC augments its nutrition research and education programs with a variety of communications services. A daily radio program called "Nutrition Message for Today" is released monthly to 700 stations. NDC also creates public service announcements (PSA's) concerning nutrition. These PSA's are then placed by affiliated Dairy Council units with local television and radio stations. In addition, NDC sponsors conferences where mass media communicators and recognized leaders in nutrition have the opportunity to meet with one another for discussion of timely issues.

The Future The relationship among food, nutrition, and health that Dr. E. V. McCollum perceived over 60 years ago is now seen more clearly by government, health professionals, and consumers. Industry-supported organizations have extended this awareness and have complemented the nutrition education efforts of these groups with their own resources and programs.

There is, however, a need for cooperation and coordination of all these efforts in order to provide accurate and effective nutrition education to the general public. Industry-supported groups have an important role to play in this endeavor. Each has a unique heritage and mission. That of Dairy Council is to uphold its commitment to optimum health through effective nutrition education programs which are based on scientific research. ◄



Nutrition Education Preparation for Educators

Leonard L. Pourchot and
Joseph R. Ellis

Introduction to the Study Physical well-being is important for both the total well-being of the individual and the community. Throughout the past decade in the U.S. there has been an increasing concern for the relationship between diet and health. This concern has manifested itself among both concerned professionals and the general population. It has brought into focus questions about the schools' responsibility for, and role in, nutrition education and the kind and amount of preparation which persons who are to provide nutrition education need and, in fact, receive.

As teacher education institutions have sought to respond to seemingly ever increasing demands to equip educators with competencies to deliver programs for an expanding array of society's concerns and problems, the competition for time and priority in both the preservice and inservice preparation of school teachers, counselors, and administrators has become a chronic constraint. Often time restrictions and the pressures generated by the demands of various interest groups have been thought to preclude an adequate offering of nutrition education for educators.

Problem of the Study What kind and amount of nutrition education do teacher educators report their institutions offer school teachers, counselors, and administrators at both the preservice and inservice levels? Furthermore, what opinions do these educators provide regarding the quality and adequacy of the nutrition education offered at their institutions?

Method of the Study The study adhered to the descriptive survey method. A sample of 232 member institutions was selected from the 1977 Directory of the American Association of Colleges for Teacher Education (AACTE). The selection criteria were designed to include in the sample about one-third of all AACTE institutions, and to include those schools which were known to have the largest teacher education enrollments and to be representative of all 50 states. It is estimated that schools in the sample are responsible for the formal preparation of at least 90% of the certified educators in the U.S.

In March of 1978 a questionnaire was sent to the listed AACTE representatives for each institution in the sample. Completed questionnaires were received from 134 or 58% of those in the sample. Respondents were mainly administrators or instructors in home economics or teacher education programs. They were generally specialists in health education, nutrition education, and human development. Data were analyzed in terms of the number and percentage of institutions responding to each item of the questionnaire. Additionally, comments offered by respondents were reviewed and assigned to categories relating to **needs, plans,** and **research.**

Results of the Study Of the 134 institutions from which completed questionnaires were received, 106 or 79% reported their institutions offered nutrition education to educators while 29 or 21% indicated that their institutions did not offer nutrition education for educators. For those providing nutrition education for educators, 65 reported nutrition education courses offered as electives and 67 reported them offered as required courses. Nearly one-third of these institutions reported offering both elective and required courses in nutrition education for educators.

When asked about their institutions' plans for increased offerings in nutrition education, 27.6% indicated that such plans were being developed or existed; 44.8% reported that their institutions had no such plans; 26.9% said they were unaware of such plans and one, or .7%, said that such a plan was being discussed. The data in Table I are presented as a summary of the number and kind of nutrition education offerings reported for those institutions participating in the study. Responses are treated as numbers and percentages for each of six patterns of offerings. It should be noted that it was appropriate for respondents to indicate more than one kind of offering for their institutions.

Forty-two institutions (31.3%) offer one course, 57 (42.5%) offer more than one course, while 46 (34.3%) provide nutrition education as segments within courses. Forty institutions (29.8%) provide workshops in nutrition education, four (2.9%) offer not-for-credit experiences in the area while eight (13.4%) offer nutrition education through a mode other than the five mentioned here.

A further examination of the data in Table I indicates that, except for workshops and not-for-credit experiences, undergraduate nutrition education offerings far exceed those provided for graduate educators.

The data in Table II are presented as a description of the number and kind of educators by level of their professional responsibility who participated in the nutrition education offerings reported by the institutions included in the study. Although participants were rather well distributed in a range of responsibility from the preschool through post-secondary education (including adult education), a somewhat larger number were

Table I

Respondents' Report of Number and Kind of Nutrition Education Offerings by Their Institutions at the Undergraduate and Graduate Levels

N = 134*

Number and Percentage of Responses

Offering	Institutions		Undergraduates		Graduates	
	N	%	N	%	N	%
One Course	42	31.3	35	26.1	16	11.9
More than one course	57	42.5	55	41.0	33	24.6
Segments within courses	46	34.3	41	30.6	27	20.1
Workshops	40	29.8	24	17.9	32	23.9
Not-for-credit experiences	4	2.9	2	1.5	2	1.5
Other	8	13.4	0	0	0	0

*Some respondents noted more than one kind of offering.

Table II

Respondents' Description of the Number and Kind of Participants in Nutrition Education Offerings at Their Institutions

Number and Percentage of Responses

Level of Participants	Institutions		Under-graduates		Graduates		Teachers		Admin-istrators		Others	
	N	%	N	%	N	%	N	%	N	%	N	%
Preschool	58	43.3	54	40.3	25	18.6	26	19.4	6	4.5	5	3.7
Elementary School	61	45.5	53	39.5	25	18.6	36	26.9	9	6.7	5	3.7
Middle School	51	38.1	44	32.8	31	23.1	34	25.4	7	5.2	4	2.9
Secondary School	77	57.5	66	49.3	41	30.6	44	32.8	10	7.5	8	5.9
Post-secondary	38	28.4	25	18.6	22	16.4	16	11.9	3	2.2	11	8.2

engaged in work at the secondary school than at any other level. More undergraduates than graduates were involved and teachers outnumbered administrators approximately four to one.

The data appearing in Table III provide a listing of respondents' ratings of the adequacy of their institutions' offerings in nutrition education. Of the 106 institutions from which ratings were received, 18 institutions (17.0%) were rated as exemplary, 55 (51.9%) were rated adequate while 21 (19.8%) were rated less than adequate and nine (8.5%) were rated as extremely inadequate. For three institutions (2.8%), respondents indicated they had no basis for rating their nutrition education offerings.

Table III

Respondents' Rating of Their Institution's Offerings In Nutrition Education

N = 106

Subjective Rating	Number and Percentage of Institutions	
	N	%
Exemplary	18	17
Adequate	55	51.9
Less than adequate	21	19.8
Extremely inadequate	9	8.5
No basis for rating	3	2.8

One section of the questionnaire solicited respondents' written comments and suggestions regarding nutrition education. Most of the questionnaires received included this kind of response. For purposes of analysis, these comments and suggestions were grouped into three categories: **needs, plans,** and **research.** They are summarized below accordingly.

Needs Respondents commented to the effect that:

(1) High priority should be given to emphasizing nutrition education for all teachers, especially for teachers at the elementary school level, while nutrition education should be made more vital and more relevant than just the study of the four food groups.

(2) Nutrition education courses should be required of all nursery school and early childhood education majors and some suggested them as a requirement for all teachers; however, it was noted that other required courses already in the teacher education sequences leave little or no room for more requirements, and that rigid certification requirements were a hindrance to the inclusion of more courses.

(3) There is a serious need for qualified people with adequate backgrounds for teaching nutrition education to teachers.

(4) The need for financial support for programs and faculty and the fears of "cutbacks" are a constraint to expanding nutrition education for teachers.

Plans Some respondents noted:

(1) Programs will be expanded to include such diverse groups as health education majors, elementary teachers, dietetics majors, early childhood educators, and a total K-12 program.

(2) Areas in which nutrition concepts are being taught include biochemistry, natural science, home economics, and agriculture.

(3) The federal nutrition guidelines for the elderly are helpful in course planning.

(4) Nutrition educators are working with lay and community groups and developing new college courses and programs at both undergraduate and graduate levels, including a proposed doctorate in school health education with a significant "nutrition" element.

(5) One state university had done a nutrition education curriculum study from which plans emerged for teaching course content to teachers and for curricular improvement in the public schools.

Research Respondents' comments called attention to nutrition education research reports and writing from several sources including the *Journal of Nutrition Education,* the Pennsylvania State University *Nutrition Education Curriculum Study,* and the U.S. Senate report on *Nutrition and Mental Health.*

Conclusions Regarding the kind and amount of nutrition education offered in the teacher education programs provided by the institutions represented in the study, it is concluded that approximately four-fifths of these colleges and universities offer nutrition education to either preservice or inservice education students. Furthermore, the amount and kind of nutrition education offered varies both at the graduate and undergraduate levels. Offerings occur mostly as courses or as segments within courses and to a lesser extent as workshops and not-for-credit experiences. It appears that institutions are divided in terms of requiring education students to take work in nutrition education; however, a large number provide both elective and required courses in nutrition education. Instruction in nutrition education is usually performed by specialists who are not members of the institution's education faculty.

Regarding the quality and adequacy of the nutrition education offered by institutions that participated in the study, it is concluded that most of these institutions are satisfied with their offerings; however, nearly one-third of them were reported to have nutrition education offerings that were less than adequate or extremely inadequate. Additionally, concern was expressed by several respondents to the study's questionnaire that the priority and emphasis placed on nutrition education for teachers is insufficient.

It would appear that nutrition education for educators has yet to capture the full support of teacher educators.

Recommendations It is recommended that vehicles be created for facilitating the communication of needs and developments in nutrition education to institutions involved in teacher education. Such organizations as the American Association of Colleges for Teacher Education, the Association for Teacher Education, and the Association for Supervision and Curriculum Development should lead in encouragingresearch, program development, and dissemination in this area.

Efforts to achieve nutrition education goals should be based on scientific evidence. The highest standards of scientific objectivity should prevail in developing the content and activities of nutrition education courses and programs regardless of the discipline or department of the university responsible for the offering. ◀

Evaluating Nutrition Education Programs

Maurice J. Eash and
Geraldine D. Brownlee

Historically, educative practice has continued without the support of evaluation data. As a consequence, policy building and program implementation are not guided by evaluative information and have resulted in less effective and efficient programs. We will address this practice in nutrition education by reviewing the state of nutrition education, discussing the need for evaluation, suggesting some improvements based on evaluation studies, and indicating some areas of needed study.

A perusal of the literature gives substantial evidence that nutrition education has become increasingly widespread and valued in America. Initiative to stimulate nutrition education has been shown by legislators and program development in the federal, state, and local governments; curriculum decision-makers and personnel in preschools, elementary, and secondary schools, and extension education; the mass media; and private industry.

Some of the governmental efforts to safeguard the health of school children and to improve and maintain levels of nutrition are: The National School Lunch Program, The National School Breakfast Program, The Head Start Program, Public Health Programs and the Extension Service of the Department of Agriculture. Senators Schweiker and McGovern, members of the former Senate Select Committee on Nutrition and Human Needs, Vice President Mondale, and the late Senator Humphrey have been strong advocates of nutrition education programs.

Nutrition education is an area of study in our nation's elementary and secondary schools even in the face of growing demands on teaching time brought about by new content areas and changing emphasis in traditional subjects. A survey of curriculum guides shows that nutrition sometimes is taught as a separate course, but most often either is taught as a unit or module or is integrated with other subjects such as health education, sex education, physical education, home economics, biology, general science, consumer education, environment education, and social studies. Moreover, instruction in nutrition is given to youth, low-income families, and minority adults in both urban and rural communities throughout the country.

Further evidence of the recent extensiveness of nutrition education is the involvement of the mass media. The *Mulligan Stew* 4-H television series for the Cooperative Extension Service first viewed in the early 1970's (Shapiro et al., 1974; Nolan & Gross, 1975); the experiments with low-income families in Ohio (Efionayi & Aibangbee, 1970) and with Mexican-American families in Texas (Pfannstiel & Hunter, 1968) in the 1960's are sample programs of nutrition education that were taught by radio, television, newsletters, and nutrition aides and by radio, television, newsletters, newspapers, and formal classes to the respective populations.

National Dairy Council's educational efforts are examples of the growing participation of the private sector in nutrition education. And, the comprehensive needs assessment studies for the National Dairy Council for improving nutrition education in the public elementary and secondary schools (Eash & Rasher, 1975; Talmage, Rasher, and Strachen, 1977a, 1977b, 1977c) and the resulting revisions of nutrition education elementary school curriculums (Talmage, Eash, Rasher, and Strachen, 1977a, 1977b, 1977c) are benchmarks in nutrition education.

The assumption that the medical profession has actively supported nutrition education has not been substantiated. Rather, the literature indicates that the medical profession has as yet to become seriously involved in nutrition education programs *(Nutrition and Health with an Evaluation of Surveillance,* 1975). Nonetheless, nutrition education is clearly viewed as important for all Americans — the urban, the suburban, the rural; low-income, middle-income, high-income — even when particular populations, namely, the young, the aged, the poor, the Black, Spanish-Americans, native Americans, Eskimos, and underdeveloped nations have been seen as the more needy of nutrition education.

Whereas the broad-based and noncontroversial acceptance of the importance of nutrition education has been established, further evaluative study in nutrition education is needed. The program development thrust is accelerating but the impact of these efforts is largely unknown. In the remainder of this paper we will discuss the need to evaluate nutrition education, some techniques for evaluation, and some areas of needed study in nutrition education.

Need for Evaluation As has been indicated in the foregoing segment, nutrition education need not be stampeded; moreover, few would deny that there is sufficiently persuasive evidence for the inclusion of nutrition education (Winshoff, 1978). Furthermore, because nutrition education is in its infancy, leaders in education still have the option to make evaluation a part of the curriculum design and implementation process at every level. We suggest that the program developers ought to seize the occasion to implement evaluation within every program and give attention to the translation of the findings into policy and practice. Here lies the critical need!

Evaluation of implementation has become a growing concern of supporters of nutrition education. Three recent efforts illustrate this

concern — one in the federal government, a second by a private agency, and a third in the public schools. The federal government raised implementation and practice issues in a recent report to Congress by the General Accounting Office on the National School Lunch Program (ERIC, 1977). This document addressed the need to evaluate the program and directed the Department of Health, Education, and Welfare and the Department of Agriculture (HEW, USDA) to assume particular roles in the evaluation. Implementation of the program based on its specified purposes and the effect of the program, as conducted, on the health of children indicated a strong need for an evaluative study.

The National Dairy Council commissioned researchers at the University of Illinois at Chicago Circle to conduct a nationwide study (Talmage et al., 1977a, 1977b, 1977c) to determine how to improve implementation of nutrition curriculum in the public elementary school. Earlier, this university research team had studied the effectiveness of a multicultural nutrition education project in an Indiana school system (Eash et al., 1977). The conclusions drawn in both investigations demonstrated the significance of program evaluation in determining the relationship of the implementation of nutrition curriculums throughout the school system and the attainment of positive outcomes. That is, evaluation in nutrition education is essential in directing the implementation process and is critical in guiding policy building in more effective curriculum practice.

Techniques for Evaluation The techniques for establishing evaluation research designs for assessing nutrition education are well-known (Eash, Talmage, Walberg, 1974). In this short paper, we will not be definitive on techniques but will discuss evaluation studies which suggest how to develop nutrition education into an effective, disciplined field of study.

The first level of studies are already underway. The National Dairy Council (NDC), a long-time leader in nutrition education, commissioned a series of evaluative studies which speak to the range of curriculum design problems that plague all subject areas. During its development of *FOOD.....Your Choice,* the first comprehensive nutrition education curriculum for elementary placement, a nationwide needs assessment study resolved a number of arguments which have thwarted progress (Eash et al., 1975). It was found that arguments on content selection, the hierarchy of content placement, concept emphasis, and methodology were lodged in unsubstantiated opinions and assumptions. There was an absence of clear-cut content. Rather, there were short-range and long-range personal and social goals which could be pursued through use of a variety of content — a common, but frequently overlooked curriculum research finding. In short, the practitioners, as they reflect society, are not in conflict over the desired outcomes for nutrition education: improved growth and health for the individual, an improved quality of life, and greater options of choice for all its citizens. Obstacles to these long-range outcomes are readily identified in the research on nutrition, population, and health (Winshoff), and in the experiences of educators who live with the effects of poor nutrition in their classrooms where malnourished children stand out for their passivity and nonresponsiveness to classroom stimuli (Read & Felson, 1976). The NDC needs assessment study moved the building of curriculum off dead center and into selecting a content to be implemented. Further needs assessment studies are required to keep content current and functional, but it is unlikely that the long-range goals will undergo drastic change.

A second series of studies commissioned by NDC and conducted by the University of Illinois at Chicago Circle addressed questions of sequencing, placement, and knowledge outcomes gained when certain content is used according to a specified design under the range of teaching conditions which prevail in schools (Talmage et al., 1977a, 1977b, 1977c). The findings on sequence suggest that there are hierarchies of knowledge where foundational knowledge is needed to enable a student to master advanced concepts.

For the investigations of unit placement and sequencing, a set of tests was developed which contain both knowledge and application questions (Talmage et al., 1977a, 1977b, 1977c). A refined analysis of data gathered in the nationwide study found that special placement of concepts was desirable and needed and that sequencing helped students move toward understanding the interactions of the biological and behavioral. For example, equally nutritious foods were accepted or rejected by culturally-induced food preferences which reflect longstanding cultural biases. Knowledge of these preferences does not overcome the dietary habits of a lifetime but it is a first step in building the awareness of the student to his/her status as captive to unexamined attitudes in dietary habits. These knowledge tests as developed can give schools insights into the current status of students' knowledge and their progress toward short-range and long-range goals in nutrition education. Knowledge is not always power but it is of primacy if change is to take place.

Areas of Needed Study In a new are of study, it is tempting to say to both researcher and practitioner that any knowledge which is generated will be welcome. This approach will likely result in addressing the immediate questions which confront practice. However, the building of a knowledge base to improve practice and advance social goals in an area which has real consequences does not permit professional self-indulgence. Nutrition education is intertwined with basic personality and behavioral traits and food choices are deeply ingrained. As we build effective curriculum in the school we engage in moral choices that may affect the lives of learners deeply. Such a curriculum is not ethically neutral. We need to see that nutrition education does differ from traditional social and behavioral science approaches where oversimplistic, fact-loaded curriculum has seldom reflected personal needs and long-range social goals with sufficient seriousness to move student learning to the level of creative generalizations, even though this is the salient characteristic of permanent learning. Nutrition educa-

tion's most fundamental goals (personal growth and quality of life) lay out with great immediacy some areas of needed study which we have placed in two categories.

An effective methodology in instruction is very much at issue in nutrition education. Nutrition education comes into an already crowded school curriculum; therefore, it must displace other learnings and yet limit its demand on classroom time. The task it faces with the individual learner is one of unlearning the accepted family and peer wisdom as much as mastery of new information. What are effective and efficient ways of transmitting complex learnings which alter fundamental relationships that students have often unquestioningly accepted? What is the effect of intensity of instruction on the learner? What causes the onset of diminishing returns in the learner's nutrition knowledge, attitude, and practice? Should much of the effort in nutrition education take place in the school lunchroom or should food consumption be part of the classroom organization? Where do parents enter into instruction? Why is the effect of nutrition education of parents through paraprofessionals significant, but short-lived? Can the child be an instrument for reaching into the home and altering food behavior or should instructional objectives include alteration of basic nutrition habit patterns of the family? What is the most effective use of mass media, for instance? When is the newspaper a more effective medium in nutrition education than television or vice versa and under what conditions are other mass media and/or audiovisual aids more effective than others? These are a few of the methodological questions that arise immediately in implementation of a nutrition education program. All hinge around the effect of such a program and how it can be carried out efficiently. Evaluation designs can be used to gather data on these methodological questions providing treatments are specified and set up.

Realistically, what knowledge in nutrition education should we strive to gain? Thomas Malthus made a profound observation many years ago with his sweeping generalization relating to food and population. Like all generalizations, it was broken by exceptions which he either did not perceive or chose to gloss over; nevertheless, it has remained like an unexploded bomb in the memory of mankind. It is becoming clear that Malthus may have been wrong in his details, but the driving insight of the threat of overpopulation on earth is possible. Nutrition education can be a litany of foods and calorie content as we try to stem our propensity for overindulgence, or it can move toward embracing broader theories — not necessarily on the grand sweep of Malthus — but theories which can have equally grave policy consequences. A main policy consideration in food distribution is the complex relationship of reducing population through feeding children to insure their survival. It is believed by population experts that this is the surest path to inducing family planning and, as a consequence, it is a population control. Should we strive to incorporate these paradoxical but revealing ideas in nutrition education? An equally powerful principle is the research effects of nutrition on health, longevity, and the ability to profit from formal schooling. This principle strongly suggests that to deny nutritious food to babies is to deny an equal chance at life. Therefore, to teach the four food groups, as is central to some curriculums, is the most limited approach to nutrition education. To put food into its cultural and social policy context is the broadest and most powerful approach. The first is a fairly straight forward teaching task not very different from teaching basic skills; the latter is attempting to reconstruct a quality society for all citizens as a birthright. Evaluative research will not answer the policy questions of which we shall choose. It will, however, tell us what may be possible and at what cost. ◄

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What Should Be Taught In Nutrition Education

Helen A. Guthrie

With an increasing interest on the part of the public in the relationship of nutrition to health, there has been an increasing concern on the part of educators and nutritionists alike that children be given the knowledge and skills to allow them to function as nutritionally-literate decision-makers — motivated, skilled, knowledgeable, and prepared to make informed decisions regarding nutrition issues (Lewis, 1976). The public is concerned not only about the relationship of nutrition to health, but about the safety of the food supply. In addition, people are confused by the apparently conflicting messages they are receiving from those they perceive to be informed professionals.

One obvious way to cope with this is to provide children with a basic understanding of nutrition to give them the skill and confidence to make sound judgements. If high school students are to emerge as informed consumers of nutrition information, the challenge to the nutritionist is to guide the educator by identifying the concepts to be taught. The educator, in turn, must provide the expertise on how, when, and in what context to teach them.

While some educators feel that nutrition concepts can be taught most effectively through an understanding of food and the food processing and distribution systems, most efforts in nutrition education have centered on teaching nutrition concepts as a basis for influencing food behavior. The University of Hawaii has developed an innovative curriculum using a food-based approach (Maretzki, Note 1). On the other hand, several groups, including the Pennsylvania State University, have based curriculum development on a nutrient approach described here. Regardless of the approach, an effective program must be based on a clearly identified set of goals.

It was with the objective of systematically developing a curriculum that a team of educators, nutritionists, communicators, and health professionals began working together. Their ultimate goal was to identify learner objectives that reflected a set of knowledge and skills which a high school graduate would need to think, feel, and perform in a nutritionally-literate manner in making decisions for him or herself and others (Light, Note 2). They recognized also that once the objectives had been agreed upon, it would be necessary to establish priorities among them as a basis for recommending curricular content.

The initial step in the process was formulating a set of 15 skills, knowledge, and attitude areas. These were subsequently expanded into 87 learner objectives designed to answer the following questions considered basic to a nutrition education curriculum:

(a) why do we need nutrition?
(b) what nutrients do we need and how much?
(c) how do we get nutrition?
(d) how do our nutritional needs change?
(e) how do we study nutrition?

Following consultation with several groups of professional nutritionists, the list was reduced to 40 objectives. A sample of 1,000 nutrition educators was then polled to establish a consensus on priorities among the objectives. The resulting list of objectives is shown in Table I. These, along with the considerations of the developmental stage of the child; the needs and interests of the learners; the concerns of the parents, teachers, and the community; the requirements of schooling; and the goals of education in the state were used in developing a scope and sequence of a nutrition curriculum entitled *Nutrition Education in a Changing World.* It stressed the scientific principles of nutrition, proper attitudes toward food environment, and realistic concepts of the food/human health relationships. The curriculum was designed to prepare the student to cope with the ever-changing issues associated with a changing food environment. In this, nutrition content was spiralled throughout language arts, social studies, mathematics, and arts. Implicit in the introduction of nutrition in elementary and secondary curriculum is the need to provide opportunities for teachers to acquire the nutrition knowledge necessary to teach effectively and confidently.

Table I

Project Learner Objectives in Ranked Order of Priority

1. Analyze one's own nutrition and food patterns, identify problems, if any, and initiate action to correct these problems.
2. Describe the relationship between nutrition and health.
3. Explain why the inclusion of a variety of foods in the diet is desirable.
4. Critically evaluate food and nutrition claims on a logical and nutritionally-informed basis.
5. Select an adequate diet for one week based on nutrient criteria when given limited food resources.
6. Identify the nutritional and health risks associated with different food patterns.
7. Specify the role of food and nutrients in body functions.
8. Identify the role of foods and nutrients for individuals in the family or living unit when given limited food resources.
9. Apply principles of energy balance to plan a food and activity pattern which results in a desirable body weight.
10. Plan an adequate daily diet based on nutrient/cost criteria when given food lists of nutrient composition and cost data.
11. Discuss major nutrition-related health problems in the U.S. today.
12. Enumerate the steps necessary to protect specified foods from contamination in the household.
13. Prepare a nutritionally-balanced diet for one week which includes a variety of foods.
14. Describe ways to store food

to maintain freshness and nutrient qualities.

15. Specify ways in which the individual can continue learning about food and nutrition beyond formal schooling.
16. Prepare a market list as a basis for meal planning for a living unit, given time and cost constraints.
17. Evaluate food products on the basis of the U.S. Recommended Daily Allowances.
18. Allocate food according to the needs of individuals in the family or living unit, given limited food resources.
19. Identify major factors that affect cost, quality, availability, and variety of foods in the marketplace.
20. Utilize available resources in the community to prevent or solve nutrition problems of individuals.
21. Prepare a meal, given certain food, time, and cost limitations.
22. Identify strategies useful in solving nutrition-related problems in families or living units.
23. Plan and manage the preparation of meals for a specific living unit for a three-day period.
24. Select from a list of physical and environmental stresses those conditions which elevate energy and protein requirements.
25. Identify strategies useful in solving nutrition-related problems found in the community.
26. Identify the biological processes involved in making nutrients available to the body.
27. Compare the eating patterns and habits of different families, and suggest possible factors which may be related to the differences.
28. Identify the ways that inhabitants of this planet are interdependent on finite resources that include food.
29. List several ways in which food influences social interaction.
30. Identify those situations in which food is used as an object of expressive behavior.
31. Specify several major nutrition problems in other areas of the world, and list some of the important factors that have a bearing upon the problems.
32. Compare the food practices of different communities and describe these differences in economic, cultural, social, and religious terms.
33. Specify the changes in the quality and composition of food items from their points of origin to their presence on the plate.
34. Enumerate the food distribution factors that influence the nutritional qualities of the diet of a population.
35. Specify several ecological implications of the food distribution system.
36. Report which aesthetic and sensory qualities influence the selection of different foods by different individuals.
37. Identify contributions of nutrition knowledge to other disciplines.
38. List several career opportunities for individuals trained in nutrition.
39. List the disciplines that contribute to the knowledge of nutrition.
40. Describe the scientific methods used in the discipline of nutrition.

While it is not only inevitable, but desirable, that these goals and objectives be revalued as the nutritional climate and educational needs change, they do represent the collective wisdom of nutrition educators at this point. A student who has progressed through a school system in which the concepts presented here are introduced, reinforced, and expanded in various subjects over the years of schooling should, indeed, be prepared to cope with most nutrition-related decisions. ◀

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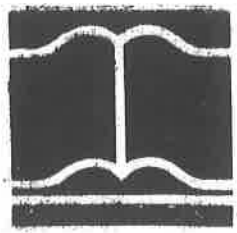

Nutrition Education: Eating And Learning At School

Mary Lou De Zeeuw

In 1976 Americans spent approximately $200 billion on food, a figure that includes $150 billion in food stores and $50 billion in restaurants. An additional $4 billion was spent by the media through newspapers, television, and magazine advertising to persuade consumers to choose one food product over another. Where immense amounts of money are spent to influence consumers' choices, people tend to be poorly informed about the optimum intake of nutrients to meet individual needs. Many remain unskilled in translating this concept into appropriate food selections. Many cannot distinguish between truths and half-truths about the very substance — food — that keeps them alive and physically attuned to everyday routines. Few consumers understand what good nutrition means or how to teach their children how to eat right.

School foodservice customers, our nation's children, are no different than their elders when it comes to food misunderstandings. Sound nutrition is the foundation of all school feeding programs. Food and children are the two "ingredients" that make school nutrition programs possible.

National School Lunch Program Enrollment in schools that offer the National School Lunch Program (NSLP) is currently 45.5 million students. Out of the approximately 110,000 schools in the U.S., 90,000 participate in the NSLP, which roughly represents 90% of the children enrolled. An average figure of 27 million students (based on December, 1977, statistics provided by the U.S. Department of Agriculture) participate daily in the national lunch program. Statistically this means approximately 56% of all eligible children participate in lunch programs.

According to the National School Lunch Act, the program's purpose is to "safeguard the health and nutritional well-being of the nation's children." Basically, the school lunch pattern meets this purpose by providing one-third of a child's total nutrient needs for the day. School nutrition programs are more than intermittent "feeding stations" offering goods and services regardless of regional preferences. Rather, school nutrition programs often are designed to reach out and explore different eating behaviors. School nutrition programs are unique because they serve the nation's largest federally-supported feeding audience at a total cost of nearly $5 billion annually - including federal, state, and local contributions.

In today's marketplace of rising food costs, food shortages, high labor costs, and private citizen distrust of some educational programs, a lunch must be served every day that a child will eat. In school foodservice jargon this translates: "What was your participation today? What was your plate waste today?" In other words, how many students at school bought a lunch versus how many " brown bagged" it? And how much good food was thrown out instead of eaten?

Another factor in the complicated school foodservice world is that food preferences of children have grown more sophisticated in recent years. At one time many cooks and managers felt that food had to be bland for the child to like it, while today's favorites indicate that spicier foods and those with eye appeal are the norm. Pizzas, tacos, chili burgers, and barbecued beef are all popular today. Yesterday, it was mashed potatoes and gravy and fried chicken that brought top participation figures.

Eating to Learn American education has recognized its responsibilities to the nation's greatest asset, its children. Understanding nutrition is one of those responsibilities. Today, school administrators are searching for better, more effective means of education. The school's objective is to help each student develop and achieve his/her full educational potential. One of the basic requirements for educational achievement, good nutrition supported by effective nutrition education, is forgotten frequently. Many school administrators and teachers fail to relate an empty stomach, an imbalanced diet, or a prison-like eating atmosphere with a child's readiness to learn.

Dr. Bruno Bettleheim identifies "food one eats" and the "way he is served" as two important factors in human personality development. When nutrition education is neglected in the schools, students often learn what they know about food and its nutritional qualities from athletic coaches, television, newspapers, magazines, health food stores, and by word of mouth from self-proclaimed experts. Students need proof that eating a wide variety of foods improves their health.

Nutrition in the Classroom
Many of the 350,000 food service professionals working in schools thoday are aware that food quality and merchandising are important dimensions of their jobs.

Growing nutrition awareness also presents an opportunity and a challenge for school foodservice professionals to create a learning laboratory where students are taught the basic facts of nutrition interestingly, meaningfully, and effectively. Nutrition and its application in daily living can be regarded as preventive medicine for the child's future health. The classroom provides the ideal climate for the introduction of sequential nutrition facts and for encouraging students to assume responsibility for their own dietary practices based on sound criteria.

Responsibility for classroom instruction should be shared by teachers, curriculum development

personnel, administrators, supervisors, foodservice personnel, parents, community and school health professionals, and community interest groups. Each has specially-developed skills, knowledge, opportunities, and interests to make significant contributions to the improved health of students through nutrition education.

Through school foodservice programs at least one nutritionally adequate meal per day is made available at a price commensurate with ability to pay. This meal can provide a "laboratory" experience for the reinforcement of nutrition facts acquired through classroom instruction. The following criteria should be considered when serving food in schools:

(a) Foods making significant contributions to students' nutrition should be offered.

(b) The time allowed for food consumption should meet the student's needs. Dining should be treated as an experience, not as a necessary evil with 10-15 minutes available for meal service and consumption.

(c) Environment in which food is served should be conducive to optimum consumption and to the formation of healthy attitudes toward foods and eating.

(d) All persons employed to serve and prepare food should contribute to a desirable learning atmosphere through a willingness to upgrade food preparation skills and nutrition knowledge, and to convey a positive attitude toward those they serve.

Foodservice Professionals as Educators Where does the school foodservice manager fit in nutrition education programs in schools? Any involvement of school foodservice professionals in nutrition education is involvement as a member of a team, i.e., serving as an active resource to enhance learning opportunities in the classroom. The end purpose of nutrition education is to bring about positive changes in food consumption. To be well-nourished, one must have access to varieties of foods. Given this food variety, adequate nourishment can be provided only if nutrients are protected through appropriate food storage and preparation. This responsibility is the primary concern of the school foodservice professional.

American School Food Service Association (ASFSA) is a non-profit professional organization representing 67,000 school food service personnel. In 1975 work was begun by the ASFSA Certification/Professional Growth Committee to identify school nutrition competencies. These competencies are defined as the minimum knowledge and skills necessary to accomplish assigned tasks at an acceptable level of performance. Passage of Public Law 95-166 and Section 19 (Nutrition Education and Training) brings into focus the urgency of providing meaningful nutrition education and training opportunities for school foodservice professionals, teachers, and, of course, students.

The role of the school foodservice manager can be one of a facilitator who possesses a good knowledge of nutrition and works cooperatively with the rest of the education team. For nutrition education to be experienced in the learning laboratory that school foodservice provides, there must be support by the board of education, the superintendent of schools, and the foodservice staff. This support includes indirect financial support through curriculum development. Many school foodservice managers do take every opportunity to explain the job that must be accomplished to improve the health and nutrition knowledge of students. Without a team effort, the approach to teaching nutrition will be fragmented.

School Foodservice Manager's Function The school foodservice manager is a person who, under the supervision of a foodservice director or school administrator, has overall management responsibility of a school foodservice operation. Basic responsibilities include assisting the foodservice director in the assessment, planning, implementation, coordination, and evaluation of the foodservice operation and in ensuring adequate nutrition and nutrition education for students. To meet the responsibitities for nutrition and nutrition education the competencies required include:

(a) demonstrates basic knowledge and understanding of nutrition;
(b) explains importance of food and foodservice to students and staff;
(c) identifies the roles and responsibilities of the manager in promoting good nutrition;
(d) interviews students and staff for food habits and likes and dislikes, and implements disired changes in foods served;
(e) implements procedures for effective cooperation between foodservice and teaching staffs in relation to student participation in lunch program, nutrition education, and special feeding programs;
(f) communicates the belief that the nutritional status of the student can be improved with good food and education;
(g) utilizes the services of relevant agencies to support nutrition education efforts; and
(h) prepares and reviews a bibliography of nutrition resource materials available.

To implement these competencies, the school foodservice manager seeks the support of the principal and teachers in using the lunchroom as a learning laboratory. The lunchroom becomes an extension of the classroom where students can learn about foods, some they may not have liked, tasted, or even seen before.

Students are learning to like vegetables at school, especially when they are properly prepared and introduced through food-tasting experiences in the classroom. The utilization of a school district needs assessment of students' nutrition knowledge serves as the basis for planning nutrition education efforts. The school foodservice manager can provide the nutrition expertise for the nutrition education curriculum. Although improper food habits are difficult to change, they are not impossible. The change will be accomplished only when nutrition programs provide the effective education in the basics of food and nutrition.

is the acceptance of the school foodservice manager as part of the educational team. The manager has no intentions of taking over the classroom, but can serve as the vital link making nutrition education successful through his/her area of expertise — nutrition knowledge and food preparation. Trained school foodservice managers are the teachers who understand the basic concepts of the NSLP's eating patterns. They practice good nutrition and secure support by being friendly, helpful, and well-groomed. Health and diet problems of students can be identified by these trained workers. They provide the nutrition learning opportunities that bring nutrition knowledge alive through food demonstrations, student-planned menu sessions, tasting parties, food preparation experiences in the classroom and in the school kitchen, tours of food facilities, and promotion of good nutrition through posters and handout materials.

Youth Advisory Councils Basic nutrition needs to be taught in the classroom by the teacher. However, the essential link is helping students put this newly-acquired knowledge into practice. This can be accomplished by the team efforts of the school foodservice manager and a well-organized and functioning Youth Advisory Council (YAC). YAC's are representatives of the student body who function as school foodservice ambassadors to the entire school. These young adults are directly involved with school foodservice operations and learn first-hand about school nutrition programs. New Congressional mandates call for more active student involvement in school foodservice programs. YAC's will serve as primary links in the effort to fully integrate students in the area of school foodservice's involvement in nutrition education. YAC's help make nutrition education a learning and eating experience at school. ◀

Getting On The Air: A Goal For Nutrition Educators

Richard K. Manoff and Thomas M. Cooke

Evidence of the failure of conventional nutrition education is all around us. It is most obvious in the insatiable demand of the American public for empty calorie foods, in the gullibility for quick-cure fad diets, and in the documented decline in nutrition knowledge by American adults (FDA. 1973-74, 1975).

Television has become the major channel of information about food and health — not the schools, or community meetings, or infrequent visits to doctors. Lamentably, much of the information that the public receives about food from mass media is misleading, inconsistent, or sometimes erroneous. Millions of Americans have listened avidly to the food faddists on early morning or late night talk shows. Millions more are persuaded to buy highly-processed foods instead of fresh fruits and vegetables. Children, particularly vulnerable to blandishments of entertaining advertisements, are targets for marketing highly-sugared cereals and snack foods.

When the food companies set out to promote their own products, they spend about $1 billion annually on television, or 20% of the total amount spent in television advertising. By contrast, "the federal government's budget is $70 million a year on a patchwork of more than 30 uncoordinated and unfocused programs . . . ." (Note 1).

This is not the first time this dismal comparison has been made. Witnesses at the recent House Nutrition Subcommittee Nutrition Education hearings repeatedly stressed the imbalance of resources of nutrition educators and commercial food marketing interests. Moreover, they emphasized the difference in technique and effectiveness of the two groups: nutrition educators relying on brochures, print media, and personal contacts through home visits and group discussions, while the food marketers rely on the sophisticated use of television spot announcements (Manoff, Note 2).

Legislation now pending before Congress is the first step to redress this imbalance of resources. The National Consumer Nutrition Information Act proposes a National Nutrition Education Council for planning and coordinating federal nutrition education research and programs. Demonstration projects including the use of radio and television and new food labeling schemes are also proposed.

This legislation does not address the key question of how the nutrition educator can have access to the same audience with the same frequency and effectiveness as the food marketer.

One approach to this dilemma is the proposed rule of the Federal Trade Commission (FTC) in which the ability of food marketers to advertise their products during certain hours would be curtailed. The progress that this rule has made in the hearing process is evidence of the nutrition advocates' recognition of television's negative effects.

The FTC staff report lists several alternative remedies for the deleterious effect that advertising of sugared products has had on the dental health of young children: warnings within the body of existing advertisements about the relationship between consumption of the product and tooth decay, limitations on the amount of advertising during children's programs for products that would lead to tooth decay, regulation of the techniques of advertising so as to reduce their effectiveness, complete prohibition of advertising to children of products that would most severely harm children's teeth, and separate messages about dental hygiene and the companies' products presented in a fixed ratio to each commercial announcement. The food company would be expected to pay for the production and broadcast of these "counter advertisements."

The FTC staff supports the complete ban of sugared food advertising as the solution to this problem:

> We submit that only a ban on advertising to children will suffice in the case of the advertising of these products which can most severely harm children's teeth. Affirmative disclosure of whatever variety, proscriptions on certain techniques or representations, or limits on the number of television advertisements for sugared products which can be directed to children all have their deficiencies, as we have pointed out (FTC, 1978).

No matter how the rule is written or administered, the food marketers will find the loopholes so that they can continue their job: selling food products in a highly competitive market. Marketing of cigarettes is an excellent example of the ingenuity of marketing strategists. Even with the complete prohibition of television and radio advertisements, sales have increased among teenagers and women.

The FTC staff's preferred solution begs the question: how to get on the air; how to get access to the mass media so that positive, informative, and persuasive nutrition education can be presented. Their solution does not face the challenge of nutrition education: creating demand for more nutritious food.

Three principles are at the foundation of answering this challenge:

(a) The nutrition educator has

the sole responsibility for nutrition education. The food industry's role is to make and market food, and the processor, far from being an educator, must be viewed as a target of the educator — to be persuaded that his products must be made more responsible to nutrition and health imperatives.

(b) The role of the nutrition educator must be broadened to include mass media communicator, political advocate, and propagandist, among others. Tomorrow's nutrition education will require influencing policy inside and outside the government to make our institutions more responsive to the nutrition needs of individuals. It cannot be accomplished on the traditional basis of education of individuals alone. The National Consumer Nutrition Information Act recognizes the need for a national nutrition education policy and strategy is an important beginning in this regard.

(c) The nutrition education profession must make as effective use of the mass media, TV in particular, as has the food industry.

These three principles should be focused on an important goal for nutrition educators: permanent and continuous access to the mass media without relying on the philanthropy of network owners and station licensees and suffering the indignities of rejection or the pittance of beggary.

Today public service announcements (PSA's) are broadcast at the whim of the station or network manager, not in response to a quantitative requirement for noncommercial programming by the Federal Communications Commission, or according to any national or local social edcation priorities. In a study of 25.5 hours of children's weekend television programming, 212 food and candy commercials were monitored compared with 12 PSA's on nutrition. Monitoring of early afternoon programming showed 182 food commercials in comparison with one PSA on nutrition (Barcus, Note 3). This level of PSA's is typical, but it does not tell the complete tale.

Public service announcements have traditionally suffered from low production budgets and bland, pedantic treatments. One critic remarked that "PSA's let Johnny go to the bathroom." Without the same or better production values and creative approaches, the PSA's cannot compete for the attention of the audience.

A Proposal for Access to the Mass Media The White House Conference on Food, Nutrition and Health in 1969 recommended that 10% of all commercial *and* program radio and television time in all time periods be retained for public service. As an eventual goal, this recommendation merits a high priority for action. However, an intermediate goal ought to be reserving 10% of all *commercial* time.

In 1977, television advertising time was valued at $7.5 billion. Ten percent of this, $750 million, could be set aside for all social/educational messages. Ten percent of this sum, or one percent of the total, allocated to nutrition messages would rank nutrition education among the top five food advertisers in the country.

This special reserve of time, or Time Bank, could be administered by a special corporation established by Congress and independent of any political control. Local communities would have to be assured of some share of the Time Bank's reserve for purely local public and private campaigns.

Most public social service program budgets contain provisions for education and information. Unfortunately, they often have the lowest priority and are woefully underfunded. With the Time Bank, all this could be changed. Program managers could develop estimates for media budgets, and once approved, could apply to the Time Bank. The Bank's managers, reviewing the budgets for various programs, could allocate the time in accordance with national and local priorities.

This proposal may only remain a dream or it can be transformed into reality, if the nutrition educators and others concerned with the lack of nutrition information for the public join together in political action to bring about fundamental changes in communication policy in the U.S.

These changes would necessitate a revolution in the way that the federal government and the public have perceived the ownership of the airwaves. In the U.S., as in no other country in the world, the television and radio airwaves have been given in perpetuity to commercial interests. The public must go hat in hand to gain access or be prepared to pay the same commercial rates as private companies.

Public radio and television must compete with commercial stations and networks, and rarely do they draw more than a small percentage of the audience. Cable television in most metropolitan areas appeals only to a minority.

The FCC and the Communications Act of 1934 should be the target of the nutrition educator activists. The Act empowers the FCC with the regulation of not only radio and television broadcast frequencies but the extent to which the stations and networks operate in the public interest. There are sufficient legal precedents for the FCC to mandate specific amounts of time and time slots for public interest messages. What is lacking is political pressure to bring about these changes.

Until changes in communication policy are made, nutrition educators, the government, and industry must join forces in a new alliance for better food and health habits. Through innovative, cooperative arrangements, government and industry can finance systematic nutrition education programs using the strengths of the mass media and community-based activities (Manoff and Cooke, Note 4).

There is abundant evidence that the professional use of the mass media together with interpersonal communication can have profound effects on nutrition and health behavior. Research by Manoff International Inc. in the U.S. and in developing countries suggests the potential for the mass media alone as a powerful influence on knowledge, attitude, and behavior (Manoff, Cooke, and Romweber, Note 5). The Stanford Heart Disease Prevention Program is one of the most widely reported U.S. health education programs which

employed the mass media. After several years of evaluation, the project's findings indicate that the mass media alone and with interpersonal communication have brought about important changes in health and nutrition behavior, knowledge, and attitude (Farquhar, et al 1977)

Even without these carefully conducted investigations, the modern marketing of goods and services provides ample evidence of the effectiveness of its techniques to modify food behavior.

The choices are clear for nutrition educators and others concerned with healthful food habits: Adapt the methods of marketing to the goals of better nutrition, or continue with the largely ineffective techniques of the past. Selection of the first alternative requires continued pressure for access to the public airwaves and ingenious adaptations of marketing methods to nutrition goals. ◄

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Nutrititon Education for Adult Consumers

Jane Voichick

Interest in the field of nutrition education has recently increased with promotion of dietary modification to prevent chronic disease. A variety of messages coming from many different sources is reaching the public. Planning in the field of nutrition education for adults should consider: (a) the current level of consumer exposure to nutrition information, (b) the current nutrition concerns and problems of the population, (c) the specific populations most at risk of poor nutrition, (d) a defined "message," (e) the vehicles of communication, and (f) criteria for evaluation.

Current Level of Consumer Exposure to Nutrition Information We have much to learn regarding the details of influences on food habits. Hours of exposure to food advertising on television have been reported for some population groups (Brown, 1977) and amount of teacher time spent teaching nutrition for others (Eash & Rasher, 1975). We also have survey responses of adults about sources of their nutrition information. (USDA, 1975). However, carefully controlled studies investigating the relationship between the degree of exposure to nutrition information and the level of concern, knowledge, or change in dietary patterns have not been done. It seems apparent that much information is received from sources other than nutrition professionals. Nutrition educators need to be encouraged to create opportunities for media exposure even if it means taking risks.

We don't know the consumer's perceptions of complexity, accuracy, or utility of various forms of information. We don't know how harmful misinformation is. Lack of basic knowledge in this area hampers our efforts to prepare an effective program. Several studies have reported a lack of consumer knowledge about nutrition which suggests that current levels of exposure to nutrition information are inadequate. According to a Government Accounting Office study released in December, 1977, there appears to be a lack of sufficient, understandable information on nutrition's relationship to good health, normal development, and prevention of disease.

Current Nutrition Concerns and Problems of the Population Nutrition problems in the U.S. can be assessed directly through a combination of dietary, clinical, biochemical, and anthropometric measurements. Diagnoses of nutritional deficiencies and some excesses are possible through these means. We know that deficiencies exist in the forms of iron-deficiency anemia and retarded growth and development (DHEW, 1976). These are relatively rare compared to the extent of obesity. One estimate of the incidence of obesity is that 25% of the adults in their 30's are 20% overweight (Mayer, 1973, p.629).

The relationship of nutrition to the development of chronic disease is not completely understood. Scientists agree that diet is one form of treatment for some types of disease; however, the extent of the diet's role as a causative agent for the broad spectrum of cancers and coronary heart disease is still very controversial. Whether age-adjusted death rates can be reduced by currently proposed changes in diet is questionable. Several recent media campaigns have demonstrated some improvement in health indices for populations exposed to specific nutrition messages (Farguhar et al. 1977). However, the nutrition messages were combined with many other health-related suggestions, i.e., to stop smoking, to participate in blood pressure screening, and to increase physical activity, making evaluation of the benefit of the nutrition message impossible.

Specific Populations at Risk of Poor Nutrition A number of studies have documented that dietary deficiencies are most prevalent in low-income families (DHEW, 1972, 1976). This population groups spends a higher percentage of its income on food. Obviously, nothing can be done to improve nutritional statue if food is unavailable due to lack of financial resources. People must first be assured of an adequate food supply.

Certain periods of the life cycle are more vulnerable to nutritional insult. These are periods of rapid growth and pregnancy, especially the combination of pregnancy during adolescence. The elderly, due to socioeconomic factors and the debilitating diseases common in this age group, are another population at risk. Ethnic subpopulations, who have difficulty finding familiar foods in the marketplace and who may have reduced food availability due to poverty, are also often singled out as a population deserving special attention. Consumers urgently at need are those suffering from diseases with a therapeutic nutrition component, i.e., diabetes, cardiovascular disease, obesity, and hypertension. These individuals need specialized counseling which often is not readily available.

Definition of an Appropriate Message This is the most challenging task for nutrition educators. It is difficult to provide accurate nutrition information in a simple, clear, and yet compelling manner. The message should meet the interests and the needs of the learner. Interests are not well-defined and vary with the target population. A recent study conducted at the University of Wisconsin-Madison uncovered discrepancies between needs and interests of low-income homemakers and needs and interests of those homemakers as

perceived by teachers and administrators of the program (Lavender, 1978). Some qualitative evidence about interests may be obtained from the media. The proliferation of recipes and articles on weight control is indicative of public interest.

Topics which have been identified to be of interest to consumers are food values, what to eat and what to avoid, the functions of food additives, information about fiber and saturated fat, and the value of current food trends. There appears to be a distrust of processed foods. Consumers also seem to be interested in the nutritional quality of convenience foods and food purchased in restaurants, particularly fast-food establishments. (General Mills, 1977).

There is a difference between interests and needs. Addressing interests is essential to obtain the attention of the learner. However, the nutrition educator should feel a responsibility also to address real needs. It is essential to work within the social, economic, and cultural milieu of the learner.

That the message should be accurate is taken for granted. Unfortunately, the public is exposed to much blatant misinformation as well as information which is still hypothesis rather than fact. One has only to walk through a bookstore to see that nutrition books written by uninformed laypersons far outnumber those written by nutrition authorities. Consumers are often unaware that books about a scientific topic do not have to represent the facts.

Food advertisements concocted by advertising agencies have a very clear objective — to sell the product. The large budget assigned to food advertising is formidable competition. Unfortunately, foods which are most heavily advertised tend to be the least nutritious (Brown, 1977).

Many educators have concluded that the nutrition message should be conveyed in the form of food ideas, not details about nutrition. The relation of nutrition to health should be emphasized. Nutrient ideas taught in isolation will not be seen as relevant. Consumers will spend limited time to receive and process information. Meal patterns are quite diverse and include a lot of snacking. Food ideas should be presented in this context. The incidence of obesity and rather sedentary life-style makes emphasis of calories essential. The concepts should be taught along with the practical information to put the idea into practice.

One way to meet interests and needs is to involve the adult learner in personal risk assessment. Is there a family or personal history of cardiovascular disease, hypertension, diabetes, obesity, or hyperlipidemia? Does personal life-style include smoking or very limited physical activity? People can be persuaded to be screened and then motivated and educated to change food habits if necessary.

Based on the most current research information about the relationship of diet to health and also needs and interests of consumers, the following messages are appropriate:

(a) Consumers should select from a wide variety of foods to insure provision of sufficient amounts of essential nutrients. Fortunately, the incidence of deficiencies is low but we should not become complacent. Education in this area should be continued.

(b) Energy input should be balanced with energy output. For overweight individuals energy input should be less than energy output to attain goal weight. Sedentary people should be encouraged to increase energy expenditure. A variety of options for physical activity should be made widely available. Research suggests that below a certain minimum of energy expenditure a person's physiological regulation of food intake may be impaired (Mayer, 1968, pp.71-75).

(c) Moderation of calories which come from foods of low nutrient density (alcohol, sucrose, vegetable oils) is important for most people and particularly the obese.

(d) Excess amounts of any one food or nutrient should be avoided. Megadoses of fat-soluble vitamins A and D are known to be toxic. Large doses of other vitamins may be harmful and are certainly not helpful for normal nutrient function. Sodium and iron are examples of minerals which, if taken in excess, are known to pose problems for at least some individuals.

Suggestions about moderation of salt and sugar are difficult for consumers to implement since these substances are hidden in our food supply in surprisingly large amounts, and labeling provides inadequate information.

The message should include a risk/benefit assessment of specific dietary practices wherever possible so the consumer can make informed decisions about what to eat.

Consistency of message is highly desirable. Coalitions of individuals from food industry, government, and consumer groups as well as universities will increase the likelihood of a common believable message. Coordination at the federal level needs to be improved. Different target groups may need messages of differing complexity but the messages should be consistent.

Vehicles of Communication

The information needs to be communicated with skill and conviction in interesting ways. Cost effectiveness should be considered. Mass media approaches (radio, television, magazines, and newspapers) are good to create awareness. These methods are less expensive on a cost/person reached basis. Face-to-face teaching is better for intensive personalized instruction designed to lead to behavior change. This method is relatively high in cost. It is essential when diagnosis or therapy is involved. In this type of teaching, behavior therapy approaches should be utilized. Self-control of eating patterns, methods of controlling stimuli for eating, and designation of immediate reinforcers should be included.

Complex information needs to be conveyed in print so that the learner can set his/her own pace. If the target group includes people who read infrequently or not at all, television or radio is most desirable. Mass media can also be used to reinforce attitudes and present brief factual information. Persons with access to research-based information can work with media to release short authoritative statements regularly.

Labeling affords a tool for nutrition education. Improvements are scheduled to make labeling more useful to the public. Clearer designation of ingredients in foods

with standards of identity, information about amounts of ingredients such as sweeteners and sodium, clarifications of grade designations, unit pricing, and open dating should be provided for the consumer.

Information at point-of-purchase in stores and restaurants can be very helpful. Nutrition facts can be included on signs, placemats, and menus. Obviously, adequate choice of small portions and food for special diets is needed for the consumer to utilize information on menus.

A nutrition hotline or dial-a-dietitian technique has been utilized with success. These methods enable a teacher to address directly the concerns of the consumer.

Criteria for Evaluation

Changes in dietary habits and improved induces of health have been advocated as the ultimate goals of nutrition education. Educational programs tailor-made to individual medical needs can be evaluated in this manner. It is more difficult to use these criteria with heterogeneous groups. Simple techniques of eliciting specific dietary information from groups are not well developed. The weighed food intakes used for metabolic studies are not practical field methods.

Health changes for better or worse can be due to a multitude of factors in addition to diet. In the education of a group, some individuals may make informed choices *not* to change current dietary practices. This need not be seen as a failure of the nutrition educator. For groups, changes in awareness and knowledge may represent both the most valid and practical indicators of a successful nutrition education effort.

Familiar teaching themes such as the four food groups do not seem to arouse the interest of consumers as much as ideas which speak directly to extending the quality of life. The public, which has become seduced with promises, is bored with an academic presentation of a common consensus of research information. A schism has been created between the press-shy nutrition researcher who creates the knowledge but hesitates to share new information with outsiders and the educator who has become impatient with the caution, slowness, and reticence of the researcher. What should nutrition educators do to mend this rift so that the public can obtain the accurate information to which it is entitled? Adequate background in nutritional science should be provided potential educators—particularly health professionals in medical, dental, and nursing schools and also physical education, health education, elementary education, and home economics majors. Communication between the scientists in land grant colleges and the Cooperative Extension Service with 4,000 extension home economists at the grass roots level is often well-developed. This structure offers one of many ways to bridge the gap between the laboratory and the consumer. Continued research and collaboration will improve our future nutrition education efforts. ◄

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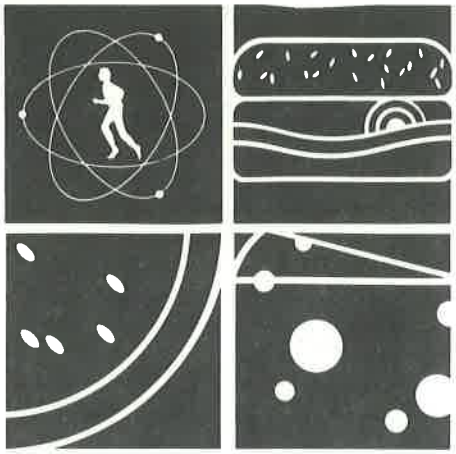

Nutrition Education In The Dental School

Lewis Menaker

The science of nutrition finds itself in a somewhat unique, and at the same time, frustrating position today relative to the health sciences such as dentistry. On the one hand interest in nutrition shown by the laity is both already overwhelming and continuing to increase. However, interest in nutrition in the dental profession at the academic and practitioner levels is low relative to the readily compartmentalized, more technically oriented, and perhaps more glamorous areas of the well-defined specialties. The result is that a situation all too often exists where: (a) the low level of knowledge that dental schools impart to students in the area of nutrition leaves the dentist no more expert than the patient; (b) the patient's demand for information leaves him/her susceptible to misinformation; (c) the eagerness to fill in voids in knowledge leads to the acceptance of hypothesis as the equal of truth, especially when some plausibility seems to be inherent in the proposition; and (d) the desire on the part of the dentist "to do something" ends in equal susceptibility to unproven and sometimes harmful therapies.

At the heart of the dilemma is an underlying failure of nutrition education to channel its energies and develop both short-term (tactical) and long-term (strategic) options in dental education. To adequately address this topic two most important questions must be asked. First, "What kind of dentist do we as dental educators wish to be turning out in five, ten, or twenty years?" And second, "What will that dental student need to know about nutrition?"

Any educators intimately involved with teaching today's dentist must conclude that the profession is still at the primitive level of having to justify nutrition in their dental curriculum. Coupled with the difficulty of getting curriculum time is the obligation that nutrition in schools of dentistry must rise above the level of what is taught in today's grade schools. The complacency with the four food groups as the *sole* approach to gaining an understanding of nutrition is generally a thing of the past, or where existent as the entire program, a shame of the present. The hierarchical understanding of foods as sources of nutrients, nutrients as biochemicals, and biochemicals as regulators of life processes is based on a fundamental appreciation of the basic life sciences.

Using today's dental school approach to teaching nutrition certain suggestions can be made to immediately improve the curriculum. As a starting point the argument for a role for nutrition in dental education must not be based on the apocrypha concerning the oral cavity as the site for symptoms of all nutritional deficiencies. First, it must be recognized that the teaching of nutrition has far surpassed the simplistic approach of using deficiency states as the catalyst for entry into a curriculum. Second, oral symptoms do not usually present the primary diagnostic lesion either in time of appearance or pathologic symptomology in a deficiency state; and third, nutritional abnormalities seldom, if ever, appear as deficiencies caused by the lack of a single nutrient. We must make it clear to our students that nutrition is a much more complex and sophisticated science which must be taught as a *pervasive element* in the educational process, shifting our emphasis from the pathologic to the normal and stressing prevention.

The approach to teaching dental students can be a combination of a short, intense course covering the dental implications of nutrition preceded by the more classic course offerings covering material traditionally taught in such courses as biochemistry, physiology, microbiology, and pathology. At the University of Alabama we have opted for preventive dentistry to serve as the "carrier" in the course material relating nutrition to clinical dentistry. Given in the freshman year along with five two-hour clinical-laboratory components in preventive dentistry, this approach has met with great success as monitored by student response.

What we have aimed for is a curriculum content for nutrition optimizing relevancy, need, and efficiency in the competitive market for a finite amount of time in our four-year program. This program can be divided into three, not necessarily equal, portions consisting of (a) a didactic, (b) a clinical, and (c) a research segment.

What I describe is not a single course but a framework within which is the design for the nutritional content of the curriculum. There is no question that early in the dental experience a student must be guided into an appreciation for scientifically-based concepts of nutrition. It is here that the concept of a broad and *pervasive* role for nutrition is developed. As shown in Table I, the subject matter is contained within the traditional boundaries of biochemistry, physiology, microbiology, and pathology. As seen in Table II, the clinical component of nutrition is contained in three courses: Preventive Dentistry, Periodontics, and Oral Pathology. As with the basic science component, no magic is intended with manipulations in the educational delivery

Table I

Didactic Component of Program

Biochemistry	Physiology	Microbiology	Pathology
	Digestion Absorption Excretion Malabsorption		Malabsorption
Energy Carbohydrate metabolism	Energy Requirements	Carbohydrate Microbial metabolism Caries	
Fats			Cardiovascular disease
Protein Metabolism Amino acids Inborn errors of metabolism	Protein Nitrogen balance		
Water	Water balance		Hypertension
Minerals Metaloenzymes Cofactors Calcification	Minerals Homeostasis Bone physiology	Trace elements	Bone pathology
Vitamins Cofactors			Vitamins Deficiency diseases
	Appetite regulation		Food allergies Undernutrition Obesity
	Special physiologic states as they		Special pathological states: antimetabolites and
	affect nutrients (wound healing,		drug interactions which affect nutrient.
	pregnancy, lack of growth, etc.)		

Table II

Clinical Component of Program

Preventive Dentistry	Periodontics	Oral Pathology
Tooth development		Tooth development
Caries prevention Diet history		Caries
Lab tests Nutrition counseling Dietary allowances	Periodontal disease	Peridontal disease
	Wound healing	Wound healing
Observation of therapeutic response under controlled conditions		
Patient education Prevention Faddism		Cancer patient management
	Undergraduate research opportunities	
	Graduate training	

system, although coordination in terms of time is a worthwhile objective. One point to emphasize early is the importance of the role for dental auxiliary or other professionals (dietitians, nutritionists, etc.) in making the clinical component work.

In addition, it is important for the education of the dentist to emphasize those special areas of nutrition science which are so relevant to dentistry as to require a few moments of further explanation. Areas of dental interest which deserve concentration in today's curriculum start with oral growth and development, including protein-calorie requirements, the concept of irreversability of nutritional insult, its effects on oral tissues, and subsequent increased susceptibility to oral diseases such as dental caries under these conditions. Other topics include mineralization of hard tissues; the role of vitamins and minerals; the development of epithelial integrity and the role of vitamin A; the interaction of nutrients and the oral flora, especially the role of carbohydrates in the etiology and prevention of dental caries and their role in affecting plaque implantation, colonization, and metabolism; fluoride metabolism; wound healing, including the interaction of nutrition and stress and nutrition and infection. And finally, the special role of nutrition for patients under treatment for head and neck cancer and the resulting complications affecting nutrient requirements and intake is a mandatory inclusion.

What I have described to this point is my opinion as to the scope of nutrition information that is adequate for the dentist who is practicing *today.* A shocking fact is that the scope of nutrition knowledge that we need as *individuals* constantly touched by the pervasive influence of nutrition is far in excess of what I recommend for the content of a dental curriculum. Topics such as dietary roughage and intestinal cancer, developmental obesity, food processing and nutrient stability, nutrition labeling, nutrients and aging, nutrients and cancer, vitamin C therapy, laetrile, etc. sieze the interest of the dentist as a member of the laity, but unfortunately elude

inclusion in a curriculum because of time constraints.

Add to this disquieting thought the changes that the profession is destined to go through and what has been said thus far in this article will only serve to underscore the obsolescence of the present dental curriculum, including the nutrition content I have just described.

In my opinion, the future demands on dentistry will be dictated by three interrelated factors. First is the inevitable prevention of the two major oral diseases, dental caries and periodontal disease; second is the increased use of auxiliary personnel *under the supervision of the dentist;* and third, and by far the most powerful influence, is economics. The combination of these three factors will dictate that the next generation of dentists will demand *at least* the equivalent in training to function as physicians of the oral cavity, as is presently demanded by their medical colleagues who limit their practices to such specialties as ophthalmology or proctology. Furthermore, it is my prediction that dental, medical, optometric, and veterinary education will eventually be taught in a modified core curriculum approach. For example, the first year may contain a curriculum which is 90% shared. The second year this shared portion could drop to 70% and by the third year perhaps 50%. It would take an additional 18 to 24 months for the student to concentrate his/her study in the chosen health care area to obtain the degree. While I have just proposed a five-year program for the dental degree, I hope to make it clear that this is not simply the present four-year program stretched to five. It will by definition combine a basic health professions education with specialization in dentistry (stomatology if you wish). Mandatory internship or residency along with expanded use of auxiliary personnel will define dental education and by inference, the dental practice of the future. The seeds of this system are already evident with combined medical-dental basic science programs; true physical diagnosis courses, not one limited only to heart rate and blood pressure monitoring; and electives in anesthesiology and medicine, all of which are already part of the curriculum at the University of Alabama School of Dentistry. In the future I foresee this program evolving as seen in Table III.

While I will not quibble over the specifics of such a program, it is within this framework that nutrition education will finally come into its own. For it is in this academic atmosphere that the pervasiveness of nutrition from the newborn to the aged can be expressed. Such topics as the politics of nutrition, nutrition and health, special needs during pregnancy and in the neonate, drug and nutrient interactions, laboratory analyses, wound healing, immunity and cancer as related to nutrition, cardiovascular diseases, diabetes, hypoglycemia, obesity, aging and diet as well as food faddism will now be an obligatory part of the curriculum. Nutrition *will not* be incorporated into coursework because of the advocacy stance of those whose training is in nutrition, but by the demands of professionals to be trained to fulfill their legal, ethical, and moral responsibilities. Just as today the public expects all clergy (even those with vows of celibacy) to be expert marriage counselors, so do they expect health professionals to possess an innate knowledge of nutrition. Not too far into the future, dentistry is going to have to live up to this standard and prove accountability. ◄

Table III

Future Dental Curriculum

Undergraduate	A true pre-health profession core curriculum in basic and behavioral science.
Professional School I	*Advanced* applied basic science leading to clinical applications in a three-year core program for dental, medical, optometric, and veterinary students.
Professional School II	Two-year clinical program leading to dental degree stressing advanced general dentistry and use of auxiliary personnel.
Professional School III	Mandatory internship and/or residency program.

Nutrition Education: Results Of The Past, Misconceptions Of The Present

Fredrick J. Stare and
Elizabeth M. Whelan

Nutrition is the study of food in relation to health, both physiologic and psychologic health. The broad nature of this study in man requires exploration into the social, biological, and physical sciences. Psychology, sociology, anthropology, geography, and education are all influential in determining the diet of man as a group and as an individual. Agriculture, economics, and commerce further define the availability of food. The functions of nutrients and the utilization of food in the body are the realm of the nutritionist, dietitian, biochemist, microbiologist, and physical scientist. To bring the full scope of nutrition into perspective through discussions that draw upon these related disciplines should be the aim of any thorough book or course on nutrition.

Nutrition for each individual represents an accumulation of the habits formed throughout his/her lifetime. These food preference patterns tend to become increasingly rigid as an individual ages. Dietary patterns vary markedly from individual and from one cultural and geographic environment to another. Food preferences, cultural heritage, and the availability of foods are fundamental in establishing and molding food patterns of individuals. These patterns can be altered, but usually only with considerable effort and patience.

The improvement of the general nutritional status of a population is a long-range goal that can best be achieved through the joint efforts of concerned physical and social scientists and educators. A key to improving the nutrition level in a population is the development of an understanding and appreciation of the psychological and sociological factors determining food consumption patterns. Further progress can be achieved through nutrition education programs intensively directed to students throughout their school years, particularly in the early years. By teaching applied nutrition to children of school age (and even younger), good dietary patterns are encouraged at a time when food habits are being established. Over an extended period of time, such education will begin to influence nutrition habits in all segments of the population.

A study of food preferences and dietary patterns gains depth and perspective when considered in the context of the interrelated social sciences. However, any program in nutrition education requires some knowledge of the nutrients and their food sources; otherwise, there is a good chance that many of the educational efforts will be promoting nutrition nonsense rather than common sense nutrition.

Ideally, the earlier in life one begins nutrition education the better the chances of developing better food habits that will become lifelong. About 35 years ago Harvard's Department of Nutrition began a project in nutrition education for the elementary and secondary schools in cooperation with Harvard's School of Education. We provided scholarships for public school teachers in the first, fourth, and tenth grades who had been accepted for a one-year Master's Degree in Education. They were to spend two years for this degree, the first year learning some of the principles of nutrition and the second year in developing specific exercises for introducing nutrition in the standard courses of the elementary and secondary schools.

The first publication from this program was published privately in 1947 by the Nutrition Foundation under the title *Goals--For Nutrition Education for Elementary and Secondary Schools.* This was followed a year later by a publication, also from the Nutrition Foundation, under the title *Activities--In Nutrition Education for Kindergarten through Sixth Grade.* Dr. Homer W. Anderson, then Superintendent of Schools, Newton, Massachusetts, wrote as follows in the foreword to this second publication:

> *By incorporating nutrition education into the elementary curriculum, it becomes an integral part of education in health, social studies, science, reading, and the other courses. As such, it strengthens the curriculum rather than amplifying it. There are few communities that would not benefit from the inclusion of nutrition education into the curriculum of the schools. An unusual opportunity exists to use the classroom as a laboratory for improved habits relating to eating and to food.*

Two other publications resulted from this effort to find practical "ways and means" to introduce sound nutrition education into the public schools. These were *Activities--in Nutrition Education--A Unit for High School Classes* (1950) and *Nutrition Education in Elementary and Secondary School* (1952), published by the Nutrition Foundation.

Unfortunately, as is so frequent, funds supporting this program in practical applied nutrition from kindergarten through the twelfth grade ran out, additional support could not be obtained, and the program terminated. All of the above publications have long been out of print. However, we showed quite clearly that sound nutrition education could be introduced into "reading, writing, and arithmetic," the usual curricula at these grade levels.

This same general idea has been further developed, strangely enough, by the McDonald Corporation. In 1975 it published *Nutrition*

Action Pack developed by Joanne Sockut and Lowell F. Bernard of the Cleveland Health Museum and Education Center. This is an excellent publication designed for use by teachers in primary grades. It skillfully integrates sound nutrition education into other disciplines . . . biology, sociology, physiology, mathematics, and art. It is available for $1.00 from McDonald's Action Packs, Box 2594, Chicago, IL 60690.

Our view on teaching nutrition, whether to elementary or secondary school children, to college students, or to those in the health schools (medicine, dentistry, public health) is foremost to integrate the key principles of nutrition in an orderly and progressive manner into some of the standard courses in both the sciences and the humanities. At the higher levels of education—college, university, and the health schools—a "course" in nutrition should also be available for those interested in learning more about the subject.

Controversial aspects of nutrition should be brought to the attention of students in higher education, but here controversial views should be presented only of individuals with some degree of nutritional knowledge. This does not imply "equal time for nutritional nonsense" such as that usually given by the vendors of health foods, organic foods, and the numerous promoters of food faddism and health charlatanism.

Recently, one of us had the opportunity to give a 15-hour intensive course in nutrition to four groups each of 25 science teachers from small colleges in different areas of the country. All of these teachers had expressed an interest in learning more nutrition and in introducing a nutrition unit into one of their regular courses, or possibly starting a new course in nutrition. About half of the groups were teaching biology, a quarter chemistry, and the remainder included teachers in home economics, psychology, sociology, and physical education. From previous contacts with science teachers in colleges and high school it was not surprising that more than half of the teachers believed in considerable nutrition nonsense. Many were "down" on refined white sugar but thought that brown sugar or honey were nutritionally better; that our diets had far, far too much sugar; that so-called "natural and organic foods were superior nutritionally"; that large doses of vitamins (megavitamin therapy) are good for most anything; that hyperkinesis (hyperactivity) of children is caused by food additives; etc. In trying to find out the source of much of this nutritional nonsense, we believe it comes largely from inaccurate and sensational reporting in the media—newspapers, magazines, radio, and TV.

We'd like to take a look here at some of the specific areas where contemporary misinformation abounds.

Although we realize that there is much concern about **sugar** in our diets, the charges against it are basically unwarranted. Sugar is pure, digestible carbohydrate, an important food and source of energy. Refined white sugar is neither more nor less nutritious than brown sugar or honey. The latter two contain negligible traces of other nutrients but consist almost entirely (over 99%) of simple sugars.

Although sugar has been indicted as the culprit in a number of disorders, the facts remain contrary to the fiction. Even in excess amounts it is not a cause of diabetes, although it may exacerbate this disease; there is no concrete evidence linking sugar with coronary heart disease; it is not a cause of that very rare condition, hypoglycemia; and it most certainly is not the cause of obesity (which is simply the result of too many calories). Sugar may accelerate dental decay in many persons, but actually, it is sticky and excessive sugar consumption between meals that is at fault here, not sugar taken with meals.

Promoters of natural and organic foods are hard at work trying to convince the public that foods containing "chemicals" are unfit to eat. What they neglect to mention, or perhaps are simply too ill-informed to know, is that every living thing is composed of chemicals — in abundance. It is interesting, if somewhat puzzling, to note how many of these same "antichemical" persons are perfectly willing to dose themselves with huge amounts of megavitamins (which, of course, are laboratory-created chemical concoctions). Certainly everyone needs vitamins, but, unless you have a medically diagnosed deficiency, you will get all the vitamins and other nutrients you need from a well-balanced diet. You can, in fact, cause yourself real harm by self-prescribing massive amounts of such supplements. Fat soluble vitamins (A and D, for instance) are not excreted from the body and can build up to toxic levels.

Several years ago Dr. Benjamin Feingold, who is an allergist, not a nutritionist, presented his theory that food additives were the major cause of hyperkinesis in children. His studies were not scientifically controlled and subsequent studies by other — qualified — professionals have never demonstrated that hyperkinesis is in any way linked to food additives. Though Dr. Feingold's studies have never been published in medical literature, where his theory could be properly evaluated by other physicians and scientists, his nonscientific book on this subject received a great deal of publicity in the popular media. "Scare stories" of experiments dealing with other disorders, many of them improperly conducted, added to the furor. Additives, naturally, became feared by parents and non-parents alike—and for no justifiable reason.

The truth is that we know more about additives (which make up less than one percent of our diet) than we do about the chemistry of food itself. As we elaborated on in our book, *Panic in the Pantry,* additives have survived rigid testing procedures not applied to most "natural" products, and they contribute a great deal to both good health and eating pleasure. Perfectly edible food often tends to go "off color" and would not look appealing without the addition of food dyes. Many natural flavorings are simply not available in the quantities desired, so they are synthesized in the laboratory. Fortification of foods with vitamins C and D, and iodide has virtually eliminated scurvy, rickets, and goiter. Fluoride added to drinking water will decrease tooth decay by at least half. And, of course, there is the vital function of food preser-

vation. All of these facts, and many, many others, need to be brought before the public in such a way that they can learn the realities of nutrition rather than disconnected bits of nonsense.

It is difficult for us to list priorities in nutrition education: perhaps elementary and secondary school children, because one has a chance of influencing diet patterns for better nutrition; perhaps school teachers and parents whose information will come day-to-day from the media; and lastly, professionals in all areas of health. The Congress, stimulated in large part by the former "McGovern Committee," is making stirrings about appropriating funds for nutrition education. If this is done, and we hope it will be, nutrition education will rapidly improve in quality and quantity, for all ages and all walks of life. But we feel strongly that actual nutrition education should not be carried out or directed by governmental agencies, but rather by the private sector via peer review grants, for no one knows the best way to provide nutrition education, not even governmental bureaucrats!

Conclusion The achievement of good nutritional status is very much an individual option for most people. Although purchasing power, life-styles, and food preferences vary widely, most people in the United States have the opportunity to be well nourished. Whether the goal actually is achieved is a matter of choice and knowledge. For almost all people, eating is a very pleasant part of life, a satisfying and contenting experience. To change eating from its pleasurable context into a Spartan dedication to good nutrition is neither wise nor necessary. The secret of achieving good nutrition for a lifetime is to translate the knowledge of nutrients needed for good health into a food pattern that satisfies an individual's taste preferences on a continuing basis. There are innumerable combinations of foods and patterns of eating which can provide adequate nutrition and psychological satisfaction. In fact, variety is the cornerstone of good nutrition.

In a paper published in 1946 under the title of "Medical and Public Education in Nutrition," one of us concluded as follows:

Medical and public education in nutrition are both feasible and desirable — feasible in that because of the broad importance of the subject, nutrition fits in well with the standard curricula whether of the medical school, the elementary schools, or the ordinary activities of community life; desirable in that a knowledge of good food and good nutrition will lead to sounder bodies, better minds, and hence will help to make a more understanding physician and a public better fitted for those common spheres which, as citizens and heirs of a joint culture, they will share with others.

Some 30 years later that statement still gives a good summary of our conclusions on nutrition education. ◄

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The Chicago Nutrition Association also publishes **Nutrition References and Book Reviews,** available for $2 from Mrs. Andrew McMullen, 550 South Fourth Avenue, DesPlaines, IL 60016. Too, an abbreviated list of nutrition references is available from Harvard's Department of Nutrition, 665 Huntington Avenue, Boston, MA 02115. The National Nutrition Clearing House of the Society for Nutrition Education, 2140 Shattuck Ave., Suite 1110, Berkeley, CA 94704 is another source of information.

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Conference

An invitational conference, *"Nutrition Education: Directors for the Future,"* is being held in Chicago, Illinois, on December 4, 5, and 6, 1978.
Sponsored by the National Dairy Council, this first of a planned series of conferences will investigate historical foundations and government activity and establish priorities for future research in nutrition education.

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