

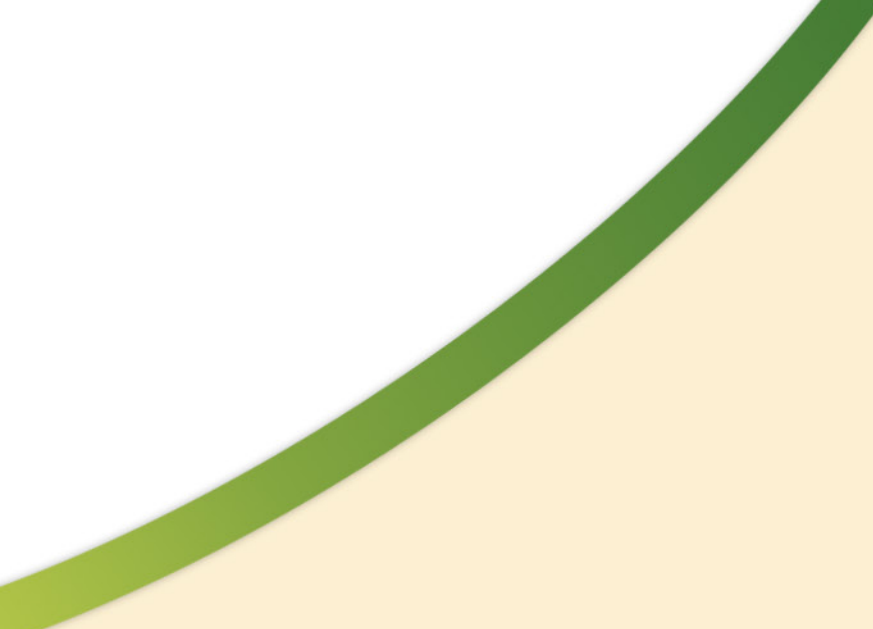
Challenges and issues in nutrition education

by Judiann McNulty



BACKGROUND PAPER FOR THE
INTERNATIONAL CONFERENCE ON
NUTRITION (ICN2)





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List of Acronyms

ACF	Action Contre la Faim
AUSAID	Australian Agency for International Development
BCC	Behavior change communication
BRAC	Bangladesh Rural Advancement Committee
CGIAR	Consultative Group on International Agricultural Research
CHETNA	Center for Health Education Training and Nutrition Awareness
CIDA	Canadian International Development Agency
DALY	Disability-Adjusted Life Years
DFID	UK Department for International Development
ENA	Essential Nutrition Actions
ENACT	Education for Effective Nutrition in Action
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization of the United Nations
ICDS	Integrated Child Development Services
ICN	International Conference on Nutrition
IEC	Information, Education and Communication
IFPRI	International Food Policy Research Institute
IYCF	Infant and Young Child Feeding
IYCN	Infant and Young Child Nutrition Project of USAID
NACS	Nutrition Assessment, Counseling and Support
NCD	Non-communicable disease
NEAC	Nutrition Education and Communication
NGO	Non-governmental organization
PAHO	Pan American Health Organization
REACH	Renewed Efforts Against Child Hunger
SBC	Social and behavior change
SUN	Scaling Up Nutrition
TIPs	Trials for Improved Practices
UK	United Kingdom
UN	United Nations
UNAIDS	Joint Program on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNSCN	UN Standing Committee on Nutrition
US	United States
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
WFP	World Food Program
WHO	World Health Organization



Introduction and methods

Chapter 1

Introduction

The first International Conference on Nutrition (ICN) was held in Rome in 1992 jointly sponsored by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). A World Declaration and Plan of Action for Nutrition was adopted by delegates from 159 countries and the European Community who pledged to eliminate or reduce substantially starvation and famine; widespread chronic hunger; undernutrition, especially among children, women and the aged; micronutrient deficiencies, especially iron, iodine and vitamin A deficiencies; diet-related communicable and non-communicable diseases; impediments to optimal breastfeeding; and inadequate sanitation, poor hygiene and unsafe drinking water.

Twenty years later it is time to review what progress has been made, identify the challenges that remain and the opportunities for improving nutrition that have since arisen. The ICN-2, to be held in 2014, will take advantage of the increased international political attention to nutrition (SUN Movement, REACH, etc.) and ensure the necessary support for action at all levels. The ICN-2 will be a high-level political event and the first global intergovernmental conference devoted solely to addressing the world's nutrition problems in the 21st century. Reflecting the multi-sector nature of nutrition, the Conference will bring food, agriculture, health, education, social protection and other sectors together to mobilize the political will and resources necessary for improving nutrition and for reaching consensus around a global multi-sector nutrition framework indicating concrete steps to improve nutrition.

This document is prepared for the Nutrition Education and Consumer Awareness group of FAO. The paper primarily takes into account problems experienced by countries affected by food insecurity and undernutrition (wasting, stunting, underweight, micronutrient deficiencies) while facing challenges of overweight, obesity and diet-related chronic diseases that can negatively affect social and economic development.

The objectives of this paper are to:

- Provide an overview of the main definitions and concepts in nutrition education and consumer awareness and their theoretical underpinnings and uses (i.e. nutrition education, social marketing, dietary counseling, behavior change communication (BCC), social and behavior change (SBC), health promotion, etc.);
- Comment on the need and future potential for harmonization;
- Identify the main players in international nutrition that develop, implement or support nutrition education programs and initiatives;
- Identify the main issues and concerns in nutrition education and communication as a strategy for promoting healthy diets and lifestyles and fostering large scale and sustained behavioral change based on consultations with the above players.

Methods

This paper was developed based on two literature reviews and a concept note commissioned by FAO in 2011:

1. **Nutrition Education and Communication (NEAC) Needs in the Literature (Sherman, 2011a);**
2. **NEAC Training Needs in the Literature (Sherman, 2011b);**
3. **Why Nutrition Education Matters (FAO, 2011c);**

A review of many other related FAO documents was supplemented by the following:

- On-line searches of policy documents, strategies, and mission statements of governments, United Nations (UN) agencies, donors and other agencies working to promote nutrition;
- Short e-mail surveys of staff members of other UN agencies, non-governmental organizations (NGOs) with strong nutrition interests, and other agencies linking nutrition education and agriculture such as the International Food Policy Research Institute (IFPRI), Bioversity International, and the Food and Nutrition Technical Assistance (FANTA);
- Telephone or e-mail interviews with academic faculty noted for their work in nutrition education;
- Literature scan of recent related articles in professional journals, and;
- Review of related documents from many institutions, initiatives, and projects interested in the agriculture-nutrition linkage.

The need for nutrition education

Chapter 2

The following two paragraphs excerpted from the earlier FAO document “Why Nutrition Education Matters” (FAO, 2011c) articulate the great need for nutrition education.

“The problems of undernutrition, vitamin and mineral deficiencies, obesity and diet-related chronic diseases increasingly exist side by side across the world. There are more than 900 million people who are undernourished and approximately 170 million underweight children. Those who do not get enough energy or key nutrients cannot sustain healthy, active lives. The result is poor physical and mental development, devastating illness and death, as well as incalculable loss of human potential and social and economic development. At the same time, hundreds of millions suffer from chronic diseases caused by excessive or unbalanced diets and many developing nations are now dealing with severe health issues at both ends of the nutritional spectrum. Countries still struggling to feed their people face the costs of preventing obesity and treating diet-related non-communicable illness. This is called the “double burden” of malnutrition.”

This double-burden situation is affecting some regions more than others. The Pan American Health Organization (PAHO) reported that in the Region of the Americas, the Disability-Adjusted Life Years (DALYs) lost because of nutrition-related non-communicable chronic diseases (NCDs) such as hypertension, cardiovascular disease and Type II diabetes amount to 12.5 million in addition to the 4.6 million lost because of maternal and young child malnutrition (PAHO, 2011).

In the Sixth Report on the World Nutrition Situation (UNSCN, 2010), the UN Standing Committee on Nutrition (UNSCN) concluded that “for all populations, [nutrition] education and social marketing are crucial components of national, municipal and community efforts for sustained improvements in food and nutrition security. These activities are often essential to realizing the potential for nutrition improvement of many agricultural development projects and programmes. They are also important in countries where obesity and NCDs are increasing.” The report further concludes that “nutrition-friendly” sustainable agriculture is a key to improving nutrition worldwide.

In order to be well-nourished, individuals need access to sufficient, safe and good quality food. But focusing solely on food security is unlikely to solve global malnutrition. Improvements in food production alone do not necessarily translate into improvements in nutritional status, as substantiated in a review of food security program evaluations conducted by the IFPRI for the World Bank (World Bank, 2007).

For the 2011 IFPRI-sponsored conference “Leveraging Agriculture for Nutrition”, Ecker et al. (2012) reviewed the impact on malnutrition of economic development, both through agriculture production and non-agriculture growth. They concluded that in either context, economic development has very little effect on reducing childhood malnutrition and specifically recommended additional investments and actions including, “educational campaigns on child feeding practices (including breastfeeding), appropriate diets, proper hygiene, and illness prevention.” After discussing the potential for fortification programs, micronutrient supplementation and bio-fortified foods, they further concluded that “addressing the causes of micronutrient malnutrition inevitably requires programs that support dietary diversification by providing education on nutritious, balanced diets. Without this understanding, the nutritional impact of programs that increase people’s economic access to improved nutrition will be strictly limited.”

In a recent review of the effectiveness of nutrition education, Shi and Zhang (2011) reported that nutrition education does improve complementary feeding behaviors and child growth. The authors reviewed published results of fifteen interventions and noted that the successful interventions were “culturally sensitive, accessible, and integrated with local resources”

There is ample published evidence of the effectiveness of nutrition education on child growth and anemia, particularly through improving breastfeeding and complementary feeding practices such that the Lancet series on undernutrition of mothers and children cited behavior change communication (BCC) on infant and young child feeding (IYCF) as one of the 15 evidence-based effective interventions to reduce global undernutrition (Bhutta et al., 2008). Nutrition education has also been found to be effective in modifying dietary practices that affect chronic disease as was reported in a review of published interventions conducted in North America (Ammerman et al., 2003).

To avoid a crushing economic and social burden in the next 15 to 20 years, countries need to educate their people about eating the right foods – not just more or less food (FAO, 2011c). People need to know what constitutes a healthy diet and how to make good food choices. Governments and communities need to invest in creating a supportive environment for healthy eating. Promoting nutritionally adequate diets for all consumers is a major aim of FAO and is vital in the UN’s overall efforts to improve the health and well-being of populations and foster social and economic development.

Terminology - What is nutrition education?

Chapter 3

Nutrition education and behavior change communication

Different terminology is being used to describe interventions to promote healthy eating between and within countries, and between and within entities implementing or supporting such interventions. The two most common are “nutrition education” and “BCC - behavior change communication”. The following definitions were identified through on-line searches of government documents, mission statements, professional publications and textbooks.

Definitions for nutrition education

	Source/Authors	Definition
1	USDA, 2012b	Nutrition education helps individuals, families, and communities make informed choices about food and lifestyles that support their physiological health, economic, and social well-being.
2	Contento, 2011	Nutrition education is any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and well-being. Nutrition education is delivered through multiple venues and involves activities at the individual, community, and policy levels.
3	Eat Well, 2011	Nutrition education’s main goal is to make people aware of what constitutes a healthy diet and ways to improve their diets and their lifestyles. This can be done through different channels, although in general this occurs within schools targeting young children, since food habits in early stages of life are said to determine practices and preferences in adulthood.
4	Gil, 2010	Nutrition education is part of Applied Nutrition that focuses its resources toward learning, adaptation and acceptance of healthy eating habits, according to one’s own food culture and scientific knowledge in nutrition, all with the ultimate aim of promoting health of the individual or community. It is very useful in health promotion and primary prevention to further the acquisition of healthy eating habits in different environments. It is also a useful strategy in the adoption of therapeutic dietary prescriptions and secondary prevention.
5	Gil, 2010	Set of planned educational activities targeted at certain population groups and aimed at acquiring healthy nutrition behaviors.

6	Pérez-Rodrigo and Aranceta, 2001	Nutrition education is a key element to promoting lifelong healthy eating and exercise behaviours and should start from the early stages of life; it should also address the specific nutritional needs associated with pregnancy, including reinforcing breastfeeding. School-based nutrition education should focus not only on the provision of nutrition information, but also on the development of skills and behaviours related to areas such as preparation, food preservation and storage; social and cultural aspects of food and eating; enhanced self-esteem and positive body image and other consumer aspects.
7	Navas-López, 2005	<p>Nutrition Education is seen as discipline on the one hand, framed by Health Education and on the other, based on monitoring of a biopsychosocial model of health where many studies converge from epidemiology or psychology of learning to social psychology, sociology and anthropology drawing an interdisciplinary overview that focuses on the development and integration of biomedical, social and behavioral sciences.</p> <p>Community Nutrition is defined as all activities related to public health within the framework of Applied Nutrition and health promotion: "...nutritional information must be accompanied by a series of techniques and methods to facilitate the change of attitude in children and young people, taking into account the constraints involved in making food choices ..."</p>
8	Agencia Española de Seguridad Alimentaria y Nutrición, 2007	"In the present context, the overall goal of food education should be to provide training on the fundamentals that underpin the eating behavior, and the data to discern among the many reports that reach the population, those containing rational elements, and differentiate them from those that are only myths or fads."
9	Mataix Verdú, 2000	"Nutrition education includes all types of actions designed to change knowledge, attitudes and behaviors of individuals, groups of individuals or populations to contribute to the prevention and control of malnutrition in all its forms, and any erroneous food consumption, including of course the economic aspect."
10	Ministère des Affaires sociales et de la Santé, 2012 (France)	"Information, Education and Communication actions aiming at reinforce women capacities in health and nutrition."
11	Société Suisse de Nutrition, 2012 (Switzerland)	"Learning the link between Food and Health, Food and pleasure, its social and symbolic dimensions, its regional and religious characteristics."
12	Ministère d'Éducation Nationale, 2013 (France)	"All communication activities aiming at the voluntary modification of practices that have an incidence on population nutritional state, in order to improve it."
13	ADA, 2011	Nutrition education is defined as instruction or training intended to lead to acquired nutrition-related knowledge and/or nutrition-related skills and be provided in individual.

The definitions of nutrition education above range from very narrow (knowledge dissemination) to complex descriptions of a multi-faceted discipline. The majority now include a dimension of behavior change or voluntary modification of dietary practices as the intended outcome. Only one definition (Contento, 2011) mentions policy level. Virtually all of the definitions imply that nutrition education is coming from outside rather than as self-directed learning.

Table of Definitions for Behavior Change Communication (BCC)

	Source/Authors	Definition
1	UNICEF, 2012a	Behavior change is commonly defined as a research-based consultative process for addressing knowledge, attitudes and practices that are intrinsically linked to programme goals. Its vision includes providing participants with relevant information and motivation through well-defined strategies, using an audience-appropriate mix of interpersonal, group and mass-media channels and participatory methods. Behavior change strategies tend to focus on the individual as a locus of change.
2	USAID, 2004	Tailored messages and approaches using a variety of communication channels to develop positive behaviors; to promote and sustain individual, community, and societal behavior change; and to maintain appropriate behaviors.
3	FHI360, 2012	BCC is the strategic use of communication to promote positive health outcomes, based on proven theories and models of behavior change. BCC employs a systematic process beginning with formative research and behavior analysis, followed by communication planning, implementation, and monitoring and evaluation. Audiences are carefully segmented, messages and materials are pre-tested, and both mass media and interpersonal channels are used to achieve defined behavioral objectives.

BCC arose out of the health behavior theories highly researched from the 1970s onwards. BCC, which was originally applied to health issues such as HIV/AIDS and smoking cessation, is the application of the health theory constructs to bring about change in the individual. For the past twenty years, the health theory constructs have been shown useful as the theoretical underpinnings of nutrition education (Contento, 2008a).

The terms “behavior change” and “behavior change communication” are very common in the field of public health in North America, the UK (United Kingdom), India and the developing countries where programs funded by the United States Agency for International Development (USAID) have had significant presence either through bi-



Nutrition Education in Malawi



Participatory cooking sessions in Cambodia

lateral support to governments or NGOs. The terminology has also spread through public health professionals returning from studies in the United States (US), the United Nations Children’s Fund (UNICEF) and the World Bank use “behavior change communication” as do donors including the UK Department for International Development (DFID), the Canadian International Development Agency (CIDA), and the Australian Agency for International Development (AUSAID). All of these entities use BCC for a wide range of health behaviors, including nutrition, particularly breastfeeding and complementary feeding. WHO staff report that the term is also entering the lexicon in Geneva. USAID-funded programs in agriculture and food security are also adopting the term and concepts of BCC (Feed the Future, 2012).

“Nutrition education” is the standard terminology used for domestic programs of the US government and by US universities to describe their professional development course. Nutrition education in the North American context encompasses campaigns, interpersonal communication, and advocacy. Within North American clinical settings, other phrases substitute such as “diabetes education”, “weight management training”, or “dietary counseling.”

“Nutrition education” is rarely used by many UN agencies or international NGOs. It is mentioned only once by name in the WHO Global Strategy on Diet, Physical Activity and Health (WHO, 2004), although nutrition education efforts are implied throughout the document. The United Nations Educational, Scientific and Cultural Organization (UNESCO) uses “nutrition education” in reference to school programs. While they do not often use the term “nutrition education”, as such, WHO and UNICEF are both deeply engaged in actions which are nutrition education. Examples include the promotion of IYCF, development of anti-obesity campaigns with governments of Eastern Europe, and much more.

Study of nutrition education, often called community nutrition at US universities, is most often within a nutrition department which is usually aligned with home economics or family studies or sometimes agriculture, but rarely within public health. Staff members of international NGOs surveyed for this paper revealed that most come from public health or social sciences, which may explain their adoption of the term “behavior change communication”. Indeed, those surveyed felt that “nutrition education” serves to create awareness and transmit knowledge while BCC motivates and enables people to change their practices.

FAO obviously has a much broader perception of nutrition education than information dissemination, and the challenge is to convey this to others. FAO, which focuses only on food-based approaches, includes in nutrition education the building of skills and creating a supportive environment. FAO also uses the phrases “nutrition education and communication” or “nutrition education for action”. When promoting healthy eating behaviors, interventions that are based on behavior change theory target specific audiences and go beyond disseminating information to creating an enabling environment. This might be called either nutrition education per Contento’s definition (see table on page 5; Contento, 2011) or BCC. On the other hand, interventions that aim to increase knowledge or raise awareness cannot be called BCC, although increasing awareness or knowledge is a first step in the behavior change process.

Whether interventions to promote healthy eating are called nutrition education, BCC, or something else, Contento (2011) asserts that these efforts must continue to be grounded in theory and research. She points out that food choices are influenced not only by personal and environmental factors but also by biologically determined predispositions (taste buds, hunger/satiety mechanisms, sensory-specific satiety) and by associative conditioning. These “sensory-affective” determinants are not covered in the prevailing health behavior change theories, and it is only in the sphere of nutrition education that research on these determinants is being conducted and educational strategies developed and tested to influence the sensory-affective determinants in order to change eating behaviors.

There is related terminology for some of the processes used by FAO and others to promote healthy food choices and associated behaviors. Social and Behavior Change (SBC) is a conceptual framework while Social Marketing is a specific approach. Health promotion is a broad concept of what is needed at the macro level to achieve health for all. The term Information, Education, and Communication (IEC) will not be discussed in this paper as it is fading out of use due to the fact that IEC implied only knowledge dissemination not promotion of behavior change.

Social and behavior change

Both USAID and UNICEF have endorsed the idea that individual behavior change must be supported by social change. They propose the following definitions.

	Source/Authors	Definition
1	C-Change, 2012 (USAID-funded project)	Social and behavior change addresses the behavioral, social and cultural factors related to individual and population health to promote and sustain healthy environments and healthy lives for individuals and populations.
2	Core Group, 2012 (USAID-funded project)	Social and behavior change includes not only communication, but also actions to create an enabling environment for sustained behavior change. The actions may be formulation of policy, provision of needed systems, services, or infrastructure, social support, or measures to sway social norms.
3	UNICEF, 2012a	Social change is understood as a process of transformation in the way society is organized within institutions, and in the distribution of power within various social and political institutions. For behaviors to change on a large scale, certain harmful cultural practices, societal norms and structural inequalities have to be taken into consideration. Social change approaches, thus, tend to focus on the community as the unit of change.

Social marketing

Social marketing is the application of commercial marketing technologies to the analysis, planning, execution and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of society (Andreasen, 1995).

Social marketing was applied to smoking cessation and other health behaviors in the 1970s and was first applied to promoting nutrition behaviors in the 1980s. It has gradually incorporated more health behavior change theory along with the marketing principles. It aims to “sell” a practice by getting the right message to the right target group through the right medium. Those using social marketing for health and nutrition use theory and formative research to identify behavioral determinants that can be modified through one-way communication. Although social marketing for promoting nutrition practices has been

shown effective in many contexts (Griffiths, 1994), it is expensive, requires considerable expertise for formative research and design, and does not provide interaction or on-going support to sustain the behavior changes (Evans, 2006). A classic example of social marketing is the Five-a-Day campaigns in the US, Spain, New Zealand and the UK to promote increased fruit and vegetable consumption, which had mixed results (Centers for Disease Control and Prevention, 2005; Herbert et al., 2010).

Health promotion

Nearly thirty years ago, the WHO (1986) defined the concept of health promotion in the Ottawa Charter of Health Promotion: **“Health promotion is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being.”**

The Charter emphasizes community ownership; that health promotion is done by the people not to or for them. The Charter identifies eight prerequisites for health of which food is one. It identifies the health promotion actions in the box below, which are overarching to achieve the eight prerequisites for health, but could be focused on a single one such as healthy eating. It clearly states that health promotion is about well being, not a single disease or health issue. The concepts of the Charter could be applied to being well-nourished.

Issues:

- Which terminology most appropriately describes FAO’s work?
- Which terminology is most universally understood to imply the process of helping people adopt healthy eating and related behaviors?

Ottawa Charter Health Promotion Actions
1. Build healthy public policy.
2. Create supportive environments.
3. Strengthen community actions.
4. Develop personal skills.
5. Re-orient health services.
6. Moving into the future.



Current actors in promoting healthy eating

Chapter 4

As noted earlier, there is greatly renewed interest in nutrition and in improving quantity and quality of food consumption. Many of the organizations and entities engaged in nutrition education or promoting behavior change around dietary practices have expanded their efforts due to the documented need, the increased availability of funding, and the urgency of achieving the Millennium Development Goals. Scaling-Up Nutrition (SUN) and Renewed Effort Against Child Hunger (REACH), two joint UN initiatives, do not specifically mention nutrition education as such, but both are facilitating governments to promote breastfeeding and adequate complementary feeding as well as improved maternal nutrition (SUN, 2010; Pearson and Ljungqvist, 2011)

Within the UN, there are various entities with differing mandates which provide some form of nutrition education. All of the UN agencies work with and through national governments, sometimes establishing pilot projects with a government service delivery agency to show a possible intervention for the government to scale up. Many of the UN agencies invest heavily in training national personnel working in various government posts. The UN agencies also provide guidance to governments on formulating policy.

UN Agencies with Nutrition Education	
Food and Agriculture Organization (FAO)	The UN's refugee agency (UNHCR)
Joint program on HIV/AIDS (UNAIDS)	World Food Program (WFP)
United Nations Educational, Scientific and Cultural Organization (UNESCO)	World Health Organization (WHO)
	The UN Population Fund (UNFPA) United Nations Children's Fund (UNICEF)

NGOs tend to integrate nutrition education with broader health programs, activities in water and sanitation, child survival, emergency response, and food security programs which sometimes include distribution of supplementary food. Nutrition expertise within the international NGOs varies over time and between countries. In the 1990s, many USAID-funded NGOs came together to form the Collaborations and Resources Group now known as the CORE Group. The CORE Group is comprised of various technical working groups including the Nutrition Working Group, which has created a number of tools, training materials, and approaches for nutrition education. The CORE Group now has over 50 international NGO members from a number of countries and an easily accessible website from which all nutrition education and other

materials can be obtained by the public allowing for wide dissemination (Core Group, 2012).

There are also strong local NGOs working in nutrition education, particularly in South Asia. Some implement community level activities directly, others implement for the government or international NGOs, and others focus on advocacy. Notable examples include the Centre for Health Education Training and Nutrition Awareness (CHETNA) in India and the Bangladesh Rural Advancement Committee (BRAC). The latter is an example of a multi-sectoral NGO engaging in nutrition education, often integrated with economic development activities.

Support for programs in developing countries promoting IYCF and maternal nutrition is currently coming from a range of multilateral organizations and governments. A partial listing includes the World Bank, the Asian Development Bank, and the governments of Germany, Holland, Sweden, Spain, the US, and the UK. The USAID has funded a series of nutrition education and promotion programs to assist government to strengthen their policy and programs starting with WellStart, LINKAGES, the recently concluded Infant and Young Child Nutrition Project (IYCN), and now, SPRING. In addition, USAID has supported FANTA for over ten years to link nutrition and food security within USAID-funded food security projects and to provide support to national governments on food security issues.

In spite of the obvious need for nutrition education to improve maternal and child nutrition status, few countries have a nutrition education policy or national strategy. A recent FAO review of national nutrition or food policies or plans from eight countries found explicit mention of nutrition education in all of them, but none mentioned which entity would be responsible for nutrition education (FAO, 2011a). The objectives or indicators for nutrition education were for knowledge or awareness, not behavior change. In some cases, the strategies did not align with the objectives or the nutrition situation in the country. The SUN and REACH initiatives and donor priorities may result in more and better policies.

Some NGOs with Nutrition Education Programs
Actions contre la Faim (ACF)
CARE USA
Catholic Relief Services
Child Fund International
Concern Worldwide
Food for the Hungry
Helen Keller International
Save the Children Federation
World Relief
World Vision Canada

Issues:

- There is a need to clearly document who is doing what in promoting healthy eating and not only to coordinate actions to build synergy. Documenting and disseminating successful programs and approaches is essential.

Integration and cross-sectoral collaboration

Chapter 5

As FAO has done for many years, the Scaling Up Nutrition movement initiative (SUN, 2010) calls for cross-sectoral collaboration and integration to achieve progress against undernutrition. This includes engaging not only entities concerned with food security and health, but also the sectors of commerce, education and social protection. Bringing the sectors together at the policy level to focus on nutrition is a major step forward. Many countries are doing this as part of strategies to improve food security or meet the Millennium Development Goals. Integrating nutrition education into each of these sectors is a major challenge.

Integration in the health system

The health sector (public and private) is integrating nutrition education in many countries. They have mainstreamed nutrition education, often based on behavior change theory, to the extent that it has become part of overall maternal child health education, diabetes control or weight management programs. The interventions are no longer thought of as “nutrition education” but as part of overall health education. An example of this integration in Africa is the approach known as Nutrition Assessment, Counseling and Support (NACS), which is being expanded beyond the original application in health services for HIV (Core Group, 2012).

While part of government nutrition programs focus on distribution of micronutrients, use of supplementary foods etc., the reality at the community level is that health personnel are actively promoting use of food, particularly local foods to improve nutritional status of women and children, as observed during visits to health centers in twelve countries of three continents between 2010 and 2012.

The most common method of nutrition education is counseling, but increasingly, health facility staff or community health volunteers also conduct cooking demonstrations for groups or make home visits to assist families with skills for improving food preparation



A government nurse in Ayacucho (Peru) with a poster she made to show age-appropriate diversified meals for young children.

and food hygiene. The WHO/UNICEF training package for promoting IYCF at the community level stresses counseling and hands-on learning activities to promote food-based nutrition (UNICEF, 2012b). Working through national governments, UNICEF has trained health personnel in 65 countries in this approach (UNICEF, 2012c).

Another training package widely used for government health workers in Africa is Essential Nutrition Actions (ENA), which evolved from UNICEF to BASICS to LINKAGES during the past two decades. The ENA curriculum also trains government health personnel to provide food-based counseling for maternal nutrition and complementary feeding (Core Group, 2012). Guyon et al. (2009) reported success in improving dietary diversity and other practices through ENA training.

Integration into schools

FAO has invested considerable resources and technical assistance to integrate nutrition and health into schools to promote lifelong healthy eating, with particular accomplishments in Central America (FAO, 2010a). Many of the FAO school interventions are linked with school gardens to actively promote healthy foods and FAO has produced some excellent materials for this (FAO, 2005; FAO, 2010b). One of the challenges is getting the nutrition education and gardens incorporated into the curriculum permanently at the national level.

Several child-centered NGOs are also working to institutionalize nutrition education into primary schools in various countries, most often as part of a larger health education curriculum. Save the Children has successfully used the Child-to-Child approach to mobilize youth to actively promote health and nutrition in their communities (Save the Children, 2006). The USDA supports a program called McGovern-Dole Food for Education, which specifies improved nutritional status as one of the indicators (USDA, 2012a). Part of the funding for this program must be used for nutrition education and activities such as school gardens.



As found in the FAO review of school nutrition education in fifty countries, nutrition education is rarely given specific time; it is rather integrated into other subject matters (Olivares et al., 1998). Few countries have specific curricula or teacher training for nutrition education in schools, but most have a policy to include nutrition education. Many new programs are putting more emphasis on creating a healthy environment at the school by working in concert with officials to remove foods and drinks of low nutrient value, support vendors to offer healthy snacks, and to improve lunch menus. In designing nutrition education curricula, there is a balance between informing students as future parents and not creating frustration by giving them information they cannot act on due to family constraints, such as food insecurity. There is a need for research to show the long-term effect of nutrition education in schools on the eating behaviors of adults who received the education.

Integration with agriculture and food security

There is currently considerable momentum around the importance of the agriculture-nutrition nexus as a means of improving nutritional status. In 2011, IFPRI sponsored a conference in New Delhi called “Leveraging Agriculture for Nutrition and Health”, which brought together nearly 1,000 experts, policy makers, and practitioners to discuss the linkages between agriculture, health and nutrition, and the challenges and opportunities for leveraging agriculture to improve nutrition and health (IFPRI, 2011).

A World Bank review of multiple food security programs highlighted the role of nutrition education in enhancing food security outcomes, clearly showing that food security alone does not improve nutritional status (World Bank, 2007). The evidence for this integration is so compelling that the USAID initiative to reduce food insecurity and hunger, known as Feed the Future (Feed the Future, 2012), integrates nutrition education with agriculture to meet outcome goals of improved child nutritional status and dietary diversity of target populations. Results of this combined effort will be available in four to five years.

The USAID-funded Infant and Young Child Nutrition Project (IYCN) conducted a review of agriculture projects going back forty years to determine the nutrition and food security impacts (IYCN, 2011a). The review identified improvements in food security from a wide range of projects, often for the poor laborers involved as well as for the landowners. The review found that the measurable impacts on dietary diversity or micronutrient status, or anthropometric measurements of children were minimal, concluding that the improvements in food security did not translate into improved nutritional status of children. The report

concludes that “in order for this translation to be more significant for these younger children, the increased food availability normally would have to be accompanied by some combination of improved caring and feeding patterns, better access to health services, and reduced morbidity - sometimes affected, in turn, by improved hygiene and sanitation.” The review cites two projects in Bangladesh which included explicit nutrition messages promoting home consumption of some of the produce that did increase consumption of nutrient-rich foods. One of these projects significantly decreased stunting among children and increased the body-mass index for women even though there was no long-term improvement in family income.

The World Bank has started an on-line forum for practitioners to share experiences in integration. The introduction states: “Although the world produces a surplus of food, we have yet to achieve the right balance between the production of food and achievement of good nutrition. A new World Bank-hosted knowledge platform will generate better understanding of the links between agriculture, food security and nutrition, to help countries reach the Millennium Development Goal on hunger (MDG 1). The knowledge platform (<https://www.securenutritionplatform.org/Pages/Home.aspx>) offers an opportunity to share experiences and foster collaboration and coordination.”

Integration efforts too often tend towards parallel nutrition education and agriculture interventions rather than the agriculture intervention incorporating direct nutrition education of participants; for example, agriculture extension agents providing basic nutrition concepts in Farmer Field Schools. On the other side, those promoting healthy eating from the health sector are often reluctant to request collaboration from the agriculture sector to promote home gardens or nutritious crops for family consumption (IFPRI, 2006).

FAO recently commissioned Anna Herforth to document existing guidance and statements which various institutions have published to assist program planners to maximize nutrition impact through agriculture programs. As evidence of the great interest in this topic, she found that twenty-six development institutions have published forty-three documents on the topic (Herforth, 2010). Herforth (2010) found guidance documents for integrating nutrition and agriculture among ten institutions, including international NGOs, donors, FAO and UN inter-agency groups. All ten of the guidance documents stressed the incorporation of nutrition education into agriculture projects to improve the nutrition impact (family dietary habits and child feeding practices). While there was some divergence on strategy and target groups, there was agreement on the promotion of consumption of locally produced nutrient dense food and on developing messages

based on local perceptions, barriers and incentives for behavior change. Hereforth questioned the feasibility of implementing the often mentioned strategy of having agricultural extension workers disseminate the nutrition education due to their lack of training and their other time demands.

Aside from linking nutrition education to agriculture and food security programs to benefit the same target population, there is a need for agriculturalists to have a nutrition “lens” or perspective when planning crop promotion, value chains, etc. This may mean sensitizing commercial interests about the nutrition situation of the farmers and their families. Because of high interest in this topic, tools are beginning to emerge. ACIDI-VOCA has just released a series of leaflets to orient agriculture staff to family nutrition needs and the relative nutrient content of various common crops (ACIDI-VOCA, 2012). The USAID-funded IYCN project developed and tested a tool designed to help agriculture and food security program planners assess the potential positive and negative impacts of proposed interventions on family nutrition during the design phase (IYCN, 2011b). According to IYCN, this is “a tool for maximizing the positive impacts of agricultural interventions on nutritionally vulnerable and food insecure populations.”

An example of integration is Bioversity International, part of the Consultative Group on International Agricultural Research (CGIAR), with a goal of improving food security, resilience, health and nutrition, economic security, and natural resources conservation. Bioversity International realized in 2009 that they needed to add nutrition outcomes to their goal and to incorporate nutrition education to promote consumption of the diverse nutritious foods being produced. In a major evolution from their original thinking, Bioversity International now sees their work in promoting agricultural diversity as a tool for overcoming undernutrition. Their nutrition strategy spells out research that will lead to improvements in nutrition for small-holder farmers using sustainable agriculture systems.

An advanced example of cross-sectoral collaboration is the Crops for Health research program of Colorado State University which brings together the fields of bio-agriculture sciences, nutrition, biology, health, horticulture, and crop and soil sciences (Colorado State University, 2012). The goal of Crops for Health is the identification, development and production of food crop varieties that show maximum potential to benefit human health while retaining adapted traits that make them profitable to grow and distribute in the global market place. Collaborating with four of the CGIAR entities, Colorado State University researchers are facilitating communication between sectors to link food crop production to prevention of chronic diseases.

Integration into other sectors

Nutrition education has been well-integrated into many social protection programs, particularly those in more developed countries which assist the elderly, the very young, and the marginalized. Examples include the senior meals program and the food voucher programs in the US and the UK (USDA, 2012c; Department of Health, 2012). As social safety net programs, in both countries, low income women who are pregnant or have small children receive nutrition education along with vouchers to purchase healthy foods. At a very large scale, the Government of India has integrated child development, nutrition and health in the Integrated Child Development Services (ICDS) scheme, which has been functioning now for decades (UNICEF, 2011). Nutrition education on local foods is one of the key components of ICDS. While there is considerable room for improvement in effectiveness, the reach and continuity of ICDS is admirable.

Through early child development programs, UNICEF and NGOs are introducing nutrition concepts in education of parents of children under three and into early child development centers for children three to six years of age. During these critical early years, children acquire tastes or dislikes for certain foods. Nearly one-third of children in East Africa are enrolled in such programs with countries like Uganda and Rwanda having national early child development policies that include nutrition promotion (UNICEF, 2006). As early child development programs are becoming institutionalized by more governments in developing countries, this venue could be better utilized to promote healthy eating. Staff will need support and additional training.

Cross-sector collaboration

Cross-sector collaboration is presented here as somewhat the reverse of integration of nutrition promotion into other sectors. Here cross-sector collaboration means the nutrition sector reaching out to integrate expertise from another sector into their programming. In the design phase, plans should include specific collaboration with other sectors to remove barriers and create an enabling or supportive environment before or simultaneous to launching nutrition education. For example, in situations of severe food insecurity, families need access to food before they can follow advice to eat a diverse diet. A classic example of removing a barrier – lack of access to vitamin A source foods – is the promotion of cultivation of orange-fleshed sweet potatoes in areas where there are few existing vitamin A-source foods. More and more programs are including components of home gardens and small animal production with nutrition education for families. All

of these examples require collaboration with the agriculture sector; that is, integrating agriculture into nutrition education.

There are many other examples of cross-sector collaboration including links with health services for access to de-worming, adding savings group or microenterprise opportunities for women convened for the purpose of nutrition education, or bringing in experts on appropriate technology such as solar food dryers. Integration of expertise from other sectors with nutrition education creates synergy for better results. It also brings in the “whole family” perspective by expanding focus to broader needs of the family rather than nutrition-specific messages for certain family members.

Achieving cross-sector collaboration carries its own challenges. Many of these are similar to the challenges faced when integrating nutrition into other sectors. Nutrition professionals may not be comfortable talking about themes with which they are not familiar or may feel that staff members from other disciplines do not have much to offer or are impinging on their “territory”. The nutrition educators may have to provide the follow-up support for an agriculture or village savings group activity after the initial training. Donors may fund one activity but not the other, requiring searches for additional funding.

Issues:

- One of the challenges to integrating nutrition education into other sectors is assuring the technical capacity of front-line workers including health professionals, agriculture extension workers, teachers, or social workers, as will be discussed in more detail in the next pages.
- Assuring the quality of nutrition education or behavior change interventions implemented by any sector is paramount. Quality assurance tools and guidelines are needed. (Further discussion on quality is found in [Chapter 7](#).)
- Monitoring and evaluation within integrated programs does not always capture the impact on nutritional status sufficiently or in a timely manner to allow for improving implementation.



Professional capacity

Chapter 6

A key challenge facing nutrition education is assuring the technical capacity of those involved at different programmatic levels including program managers and supervisors, project or program designers, technical specialists, those leading monitoring and evaluation activities, and the personnel responsible for facilitating learning by families and communities. UN agencies and NGOs agree that there is a decided shortage of personnel with requisite knowledge and skills in nutrition education in most developing countries.



With support from the German Federal Ministry of Food, Agriculture and Consumer Protection, the FAO's Nutrition and Consumer Protection Division carried out an assessment of the need for professional training in nutrition education and communication, with a specific focus on Africa, as a preliminary developing a distance-learning/blended learning module with the possibility of an on-line option (FAO, 2011a). Results of the assessment in seven African countries

show that professional training for nutrition education is rare or non-existent (FAO, 2011b). In academic institutions some elements are dispersed in other subject matter such as home economics, health promotion, or dietetics. The assessment further found that in-service training in nutrition education is usually occasional or ad hoc, often linked to a specific intervention. Complete details of the assessment report can be found at <http://www.fao.org/ag/humannutrition/nutritioneducation/69725>

Training for nutrition educators

Academic training in nutrition education, sometimes called community nutrition or public health nutrition, is available in the US, Europe, Japan, Canada, and Australia. In the FAO assessment of African countries mentioned above, such training was found to be rare or non-existent (FAO, 2011a). Considering the great need for nutrition education in developing countries, particularly in sub-Saharan Africa, there is a great need to prepare nutrition educators in their own countries. FAO is currently working with national universities in eight African countries to develop pre-service training.

Developing a training curriculum for pre-service training of nutrition educators should be based on the national context to some degree, but there topics identified as universal to assuring that the graduates can carry out effective nutrition education. Rogers and Schlossman (1997), on the basis of an extensive survey of nutrition professionals, outlined a core curriculum for a public nutrition course (postgraduate and in-service). Although nutrition education represents only one thread in the curriculum, all the proposed elements appear to be relevant to “public nutrition education training” and useful for developing course content:

- Applied research skills.
- Communication skills, including the ability to:
 - ▶ translate technical data into lay language
 - ▶ do community education
 - ▶ carry out advocacy at administrative and policy levels
 - ▶ train others
 - ▶ work in a multidisciplinary/multisectoral team
- Knowledge of:
 - ▶ Programme design, management and administration, including planning, monitoring and evaluation, and the ability to write proposals.
 - ▶ Nutrition science, a basic but thorough understanding of human nutrition and the nutritional aspects of food.
 - ▶ Nutrition and food policies and programmes (e.g. cases of success and failure, selecting interventions from a range of policy options). This applies equally to nutrition education policies and programmes.
 - ▶ Social science concepts, particularly household economics and behavioural science.
- Fieldwork experience, internships and practica. Classroom learning must be complemented by field application.

These learning areas have been endorsed or expanded by others. Hosmer et al. (1997), referring specifically to nutrition education training in developing countries, suggested that learners should also be acquainted with the principles of adult learning. They support the need for training in communication and “behaviourally oriented techniques”, and particularly emphasize the need for skills in project management, saying that nutrition educators must learn “all aspects of the training cycle: the needs assessment of the audience and the endeavour, developing clear, measurable goals and objectives consistent with the desired approach, strategies for implementation and development of the training curriculum and teaching methodologies, and delivering and evaluating the training.”

International NGOs, which would be very likely to hire nutrition educators, identified similar skills:

- Program management.
- Nutrition assessment (anthropometrics and survey methods).
- Training skills.
- Report writing capacity.
- Formative/qualitative research skills.
- Development of educational materials and methods such as mass media.
- Development of training curricula for training community level personnel.
- Monitoring and evaluation including use of data.
- Application of behavior change theory.
- Adult/learner centered/dialogue education methods.

Since many of the skills mentioned above are best acquired through practice, internships and mentoring programs will be helpful. The international NGOs surveyed indicated great willingness to provide such internships and reported that this is already happening in some countries. There was discussion of whether nutrition educators should be prepared for a role in advocacy, but this is more of a skill learned over time than one learned through training.

The Caribbean Food and Nutrition Institute is quite advanced in promoting professional development. They have worked with their member countries to establish professional titles and qualifications for nutrition and dietetics professionals, including nutrition educators in the region and to define the core competencies for entry level (PAHO, 2012). One consideration in promoting a field of study in nutrition education to create a cadre of qualified nutrition educators for the future is where they will find employment. This was mentioned as an issue in the FAO training needs assessment (FAO, 2011a).

Issues:

- How many nutrition educators can the government absorb?
- The capacity of local and international NGOs to hire nutrition educators is entirely dependent on the ebb and flow of funding streams.
- In the current global environment of such renewed interest in promoting nutrition, there is ample donor funding and many new programs on the ground. Whether this level of interest and funding will still be available in five or ten years when young people graduate remains to be seen.

Training for the health professions

The FAO professional training needs assessment reported that while most nutrition effort and nutrition education falls under the health sector, many health professionals including nurses and physicians have very little training in either nutrition or nutrition education as part of pre-service training. The in-service training they receive is most often related to a specific intervention such as nutrition, HIV and IYCF. The FAO needs assessment as well as others conducted earlier by USAID-funded programs such as LINKAGES and FANTA have consistently identified the need to improve counseling skills as well as technical basics of nutrition (FAO, 2011a; Linkages, 2012; Jennings and Beyero Hirbaye, 2008). A recent Lancet article mentions the need for adding nutrition to training for health professionals (Frenk et al, 2010).

For health professionals to promote healthy eating and related behaviors to either patients or as preventive services, they need the minimum of:

- Basic nutrition knowledge.
- Understanding of the relationship of food security and nutrition, particularly diet diversity.
- Skills in essential formative research and use of findings.
- Elements of behavior change concepts – that more than knowledge transfer is needed.
- Counseling skills.
- Adult learning principles.
- Ability to evaluate behavioral outcomes.

The challenge with enhancing nutrition knowledge and nutrition education skills of health professionals at academic institutions is the already heavy course load and also the lack of faculty to teach these subjects, but this would be a more cost-effective approach than repeated in-service training. In spite of the challenges, the LINKAGES Project succeeded in getting seven universities in Ethiopia to integrate Essential Nutrition Actions (ENA) training in to all pre-service medical curricula (Linkages, 2006a). The academic training must be accompanied by sufficient practical experience to enable trainees to acquire proficiency in such indispensable skills such as counseling and adult learning.

Investment in in-service training comes largely from NGOs and donors. In-service training is most effective when adequate supportive supervision is provided as follow-up to ensure that trainees effectively apply the skills learned. UNICEF's assessment of IYCF training cited the lack of supportive supervision as a major impediment to trained health workers

providing counseling to improve IYCF practices (UNICEF, 2012c). Both government health facilities and NGOs encounter challenges from investing in-service training when there is high rotation of personnel. In Uganda, the district health officials trained 33 government health staff in counseling on nutrition within Integrated Management of Childhood Illness. After two years, only 9 of the trained staff members remained in those districts (Medical Teams International, 2012).

Preparing other professionals in nutrition education

At a minimum, professionals in other sectors such as social work, education, and agriculture need orientation in basic nutrition and effective methodologies for promoting learning and adoption of healthy eating practices. For teachers, this would include using interactive learning as opposed to didactic teaching; for those professionals working with adults, comprehension and application of adult learning principles is essential.

A country-level needs assessment will be required to ascertain where pre-professional preparation can be enhanced to facilitate nutrition education in other sectors. For example, in Guatemala, among five government normal schools and six private schools which prepare most teachers for rural areas, none offer any subject matter covering basic nutrition. Two offer a practicum in school gardens, but the focus of one of these is on medicinal plants (Personal communication with Enrique Rafael Chiyal, Director of Western Regional Normal School and Bro. Francisco Perez, Colegio La Salle, Guatemala). Neither the Guatemala National Agriculture School nor the Panamerican Agriculture School Zamorano offer any course in human nutrition, let alone nutrition education, and the curriculum focus is on value chains rather than family consumption (ENCA, 2012; Zamorano, 2012). A needs assessment could be incorporated into the Nutrition Landscape Analysis that WHO is facilitating with the 38 countries which have the highest burden of malnutrition. Countries which have cross-sectoral collaboration through SUN or a food security coalition may find champions among these groups to promote review and revision of pre-service curricula of related professions to include nutrition and nutrition education concepts.

Potential for distance education

Based on the findings of the assessment of needs for professional training in nutrition education and communication in Africa (FAO, 2011a; FAO, 2011b), FAO initiated a follow-up project named ENACT (Education for effective Nutrition in Action) (FAO, 2012). As a key to future capacity development, the ENACT project will produce, pre-test and disseminate a basic certificate at undergraduate level which will implement the best practices of professional training in dietary promotion and also satisfy local demand. The materials will be available for online, face-to-face or blended use and will be piloted in all these formats with both national and international partners, in order to adapt them to local context and consumer need. The proposed distance learning/blended learning module offers another avenue to reach students and professionals of nutrition health and of other sectors, but will need promotion and the students need some motivation to take the course.

USAID's Global Health Bureau has also developed a free on-line course for professionals (USAID, 2012). The first installment, now on-line focuses on nutrition basics, and will be followed by another on nutrition promotion for behavior change.

Interim measures

The lack of professional capacity for nutrition education in many countries with the highest burden of malnutrition has inspired international development programs to create solutions to overcome the gap in the short-term. This includes designing comprehensive training packages, such as the UNICEF IYCF Counseling Package (UNICEF, 2012d) and the USAID-funded Essential Nutrition Actions Training Guide for Health Workers (Guyon et al., 2009). These training materials include advice on how to adapt them for a particular country, enabling national governments and NGOs to provide in-service training to personnel without existing national experts. In both Madagascar and Ethiopia, after ENA training, the LINKAGES Project measured not only substantial improvement in health worker capacity for nutrition counseling and promotion, but also significant improvements in dietary diversity and related practices (Linkages, 2006b).

Another means of jump-starting nutrition promotion while building capacity is the provision of "how to" guides and materials. Personnel using these step-by-step manuals or materials learn basic concepts of nutrition, nutrition education, and behavior change while implementing activities that promote improved food-based nutrition practices at the community level. The FAO guide A Teaching Toolkit for School Gardens (FAO, 2010b) is one

example of this kind of guide, as is the Positive Deviance/Hearth Guide which promotes use of local foods to rehabilitate moderately malnourished children and to prevent malnutrition in the community (Core Group, 2003). As yet, there is no impact evaluation data to evaluate the effectiveness of the Toolkit for School Gardens, but programs using the Positive Deviance/Hearth Guide have been extensively evaluated leading to publication of an addendum to the Guide in 2005 (Core Group, 2005) and a revision of the Guide planned for 2013. Similarly, provision of training curricula based on adult learning principles enables trainers to experience and acquire those principles.

As with all nutrition education, the outcomes of interim measures are reliant on the quality of the materials, training curricula and skills, and the support that personnel receive. Additionally, the users of materials and guides must be willing and able to follow the instructions as written and pre-tested.

Issues:

- Do governments have the interest, commitment and resources to support professional development in nutrition education?
- Will there be sufficient employment opportunities, particularly in the public sector, to attract people into a career as nutrition educators?
- Where will academic institutions and other programs find expertise in-country to teach nutrition education or develop training materials for in-service training?



Assuring quality and effectiveness of nutrition education

Chapter 7

Whether integrated or mainstreamed within related efforts or, as a stand-alone program, nutrition education must include certain process elements of high quality in order to achieve changes in policy, social norms or individual behaviors. Ensuring quality in the design, implementation, and monitoring and evaluation of nutrition education is often a stretch of capacity, particularly when taking model approaches or strategies to scale. There is a tendency to want to skip key elements such as formative research, thorough planning, monitoring and evaluation, either due to lack of capacity, lack of resources, or an unrealistic time-frame.

Formative research

Formative research is the basis for overall program design and for designing messages and activities that will bring about adoption of the desired nutrition related behaviors. Most formative research is qualitative in nature and the techniques can be learned by field staff. In recent years, many tools have been developed to enable program staff to conduct their own research in the target area.

PAHO worked with Emory University in the US, the Nutrition Research Institute (Instituto de Investigación Nutricional) in Peru, and the National Institute of Public Health (Instituto Nacional de Salud Pública) in Mexico to create a formative research process and tools called ProPAN for use by government or NGOs to discern existing practices, beliefs, and context around IYCF (PAHO, 2003). A revised versions of ProPAN was published in March 2013 (PAHO/WHO/UNICEF, 2013).

The Academy for Educational Development adapted and validated a semi-structured interview tool originally developed with the Centers for Disease Control for use on a wide range of health and nutrition behaviors (Middlestadt et al., 1996). This brief interview tool known as “doer/non-doer”, which is based on health behavior theories, makes it possible to rapidly identify salient differences in knowledge, beliefs, skills, self-efficacy, and barriers between those who have adopted a recommended practice and those who have not. A related tool called Barrier Analysis, which is analyzed quantitatively, goes into more depth using the precepts of various behavior change theories, but has not undergone

rigorous testing to validate that it provides superior information (Davis and Thomas, 2004). Another methodology originally developed specifically for nutrition is the Positive Deviance Inquiry which seeks existing positive health and nutrition practices among families of well-nourished children living with the same limited resources where malnutrition is highly prevalent (Berggren and Wray, 2002). Trials for Improved Practices (TIPS) was also developed specifically for nutrition education (Dickin et al., 1997; The Manoff Group, 2007). Through first having a sample of the target population try out a new behavior, their experiences can be used to design how best to promote the behavior including strategies for overcoming barriers.

Participatory approaches allow for engagement of the target population, which becomes the first step in “praxis”, stimulating them to reflect on the current situation compared to the ideal. Positive deviance is one methodology that promotes this, but tools of Participatory Learning and Action (or Rapid Rural Appraisal) can be adapted (Travers, 1997); for example, using a transect walk to identify food sources within the community. No published articles were found on how effective participatory methods are in achieving dietary change.

Formative research for nutrition education can too easily become focused on what people eat, yielding detailed descriptions of foods and their preparation, rather than investigating the many social-affective elements that lead to food choices, how it is served, who in the family is involved in decisions about food or the feeding process between mother and child. It may be necessary to apply more than one of the tools described above to fully learn underlying reasons for eating behaviors. Formative research is a reiterative process in that additional research may be needed if the initial design does not result in the desired behavior changes. At the same time, there is concern, particularly from donors, that programs spend too much time on formative research instead of the direct nutrition education activities.

A primary concern is whether formative research is conducted using reliable methods that will generate useful information. Another concern is whether staff will have the capacity to interpret the findings and use them to clearly define which behaviors to target, to tailor program messages and activities, and to select appropriate approaches to promote behavior change and consumer awareness. Interpreting and applying formative research results is not an inherent capacity and seems to be acquired only through repeated practice with guidance from someone skilled. Learning to conduct rapid formative research and to interpret and apply findings is not generally included in pre-service training.

Planning nutrition education interventions

The planning phase requires several key decisions by the planners, many of which flow from the formative research. Evaluations of many programs find similar flaws in decisions at the planning stage, which ultimately diminish project outcomes. The following are key decisions that must be made based on project goal, context, and capacity.

- Setting learning objectives that measure outcomes of behavior change, not only acquired knowledge. Programs are only effective if they achieve behavior change.
- Defining the audience to be targeted, including those who make decisions for or influence the individual. Most interventions will have more than one audience.
- Examining the audience in relation to the Stages of Change to determine what type of intervention the audience needs for the stage they are in. There is still a strong misconception that increasing knowledge or awareness will bring about behavior change, but all evidence is to the contrary. People need other motivation, skills, and an enabling environment before they can adopt most behaviors.
- Selecting messages tailored to the needs of the audience versus using all generic messages on a topic. There is a tendency to overload the audience with messages. Formative research and baseline survey results help to clearly define which behavior to address or which determinants around that behavior. Messages and program actions can then be minimized and focused.
- Assessing capacity and training needs of the educators who will ultimately deliver the messages and community-level activities. Building their capacity up-front through training or through on-going supportive supervision must be in the work plan and budget.
- Matching approaches or methods to the audience, messages, and context. There are many options for approaches, but not all work equally well in all contexts. Factors to consider include gender dynamics, other demands on women's time, access to men, dispersion of households, availability of community volunteers, constraints of government workers (time and transport), etc.

Methodology of nutrition education

The manner in which nutrition education is presented to individuals or groups greatly affects outcomes. Not only is a learner-centered approach required, but also application of adult learning principles is necessary to impact older adolescents and adults. The adult learning principles (Vella, 2002) which are based on the concept that the learner brings a lifetime of experience to the learning session, are largely ignored or given only lip service

in many programs. The adult learning principles emphasize dialogue, building on life experience of the learners, active learning including problem-solving in small groups, practical application, engagement of learners' intellect and emotions, and affirmation.

Other methodological issues which hamper effectiveness of nutrition education for groups include convening groups that are too large (more than ten), which does not create an environment for enabling people to express their ideas or concerns nor enabling them to hear and see well. Visual aids are often too small or of colors that do not show up well in outdoor settings.

Individual counseling can be more easily tailored to the needs and situation of each learner, but there is the challenge of assuring that the counselor has good interpersonal skills and conveys not only accurate information but also dialogues with the individual to discern issues or barriers and helps to strategize helpful solutions. Learning good counseling skills requires much practice with feedback to make improvements. One-off trainings with little follow-up are often the norm for in-service training. The challenge of building capacity of health and nutrition professional in counseling greatly affects governments as they roll out programs.

Use of mass media has become ever more sophisticated as a tool for nutrition education. Mass media has expanded beyond broadcast and print media to include the range of opportunities available on the Internet and through other technology like cellular phones. The limitation with use of mass media is how to go beyond information transfer and motivational appeals to action to help people learn skills related to healthy eating. A serious challenge posed by mass media is the dissemination of supposed nutrition information from unreliable sources. Advertisers or commercial interests also spread supposed nutrition information. Nutrition educators must now address how to help people separate fact from fiction when they seek nutrition information on the Internet or the many print sources, or obtain information from advertising.

Monitoring & evaluation

Building monitoring and evaluation into program plans and budgets from the beginning is crucial not only to measure project outputs and outcomes, but also to provide periodic assessments of progress towards objectives in order to make timely adjustments in implementation to assure success. Useful monitoring and evaluation can be kept simple and feasible and can be conducted by program staff rather than experts if the primary

purpose is program improvement. If the program intends to document outcomes for donor requirements or for publication, or wants to assess the effectiveness of a new approach or innovation, then, a more formal evaluation with external assistance may be required. Monitoring and evaluation of nutrition education outputs and outcomes is one area in which considerable progress has been made over the last decade. The WHO Consultative Group on IYCF has developed practical indicators to measure behaviors related to IYCF, dietary diversity of complementary feeding, and use of micronutrient supplements (WHO, 2010a). Particularly, the IYCF indicators are being applied to a range of programs and used in Demographic and Health Surveys in many countries. This standardization of indicators allows for some comparison of the effectiveness between programs or, of programs over time including national initiatives. Reports of the background research on indicator development as well as comprehensive manuals on their use and guides on evaluation frameworks and sampling are now readily available in the following websites:

- www.fantaproject.org,
- www.mchip.org,
- www.coregroup.org,
- www.measureproject.org,
- www.who.int/maternal_child_adolescent/documents/9789241596664.

More needs to be done to assure that the standardized indicators are adopted for all programs including national level initiatives.

For maternal nutrition, there is growing acceptance of the use of body mass index as an outcome indicator, in spite of its limitations for measuring status during pregnancy (Ota et al., 2011). Middle upper arm circumference is also being measured in women. More research is needed to validate these indicators and to develop population-based standards (WHO, 2010b). The FANTA II Project, with IFPRI, FAO and others, validated household dietary diversity indicators to assess the micronutrient status and diet quality of women in resource poor settings (FANTA, 2009).

There is little or no standardization of output indicators for improved dietary intake or behaviors in nutrition education efforts related to overweight, obesity and chronic disease. Programs tend to use outcomes such as blood glucose, hypertension and lipids, or body mass. By default, to measure dietary intake, many government programs are still using 24 hour recalls, with the continuing limitation of assessing quantity consumed. Research on this type of evaluation assessment is progressing, but slowly (Contento, 2008b).

Many programs measure indicators of nutritional status only at baseline and again at the end of the program. This does not allow implementers to assess whether the program is having the desired impact in time to adjust activities to improve effectiveness. While it is true that changes in population-based anthropometric surveys of nutritional status will not necessarily show up in the first year or two, such changes should be evident by the third or fourth year.

Quality of data collection and analysis continues to be a concern, as is the capacity to use the data for program design and improvement. There is a need to incorporate into pre-service training of epidemiologists and statisticians practical exercises based on the public health sampling methodologies, analysis of the standardized IYCF indicators, and analysis of anthropometric data. Likewise, nutrition educators need sufficient understanding of sampling frameworks, data collection rigor, and analysis to be able to plan, budget for, and oversee such work. Nutrition educators and program managers need practical training in synthesizing results and interpreting findings for assessing program progress and identifying where improvements in design or implementation are required.

Going to scale

- Many very successful models have floundered when scaled-up to a larger population or geographic area. Many believe the basic reason is because models generally receive more supervision, if not other resources, than can be provided when the same intervention is implemented over a much bigger area or population. Research is needed to document this hypothesis. How can effective models be implemented with no more inputs than will be available when the government takes the model to scale? If a very successful model does require more staff for supervision, or more technical support in the planning phase, how can governments be convinced of the need to allocate sufficient resources to assure the same level of support and staffing at scale?
- How can the available guides, tools, and materials for formative research, program design, monitoring and evaluation meant to assist program planners and implementers be catalogued in a central site with easy access by all?

Key findings and issues for further discussion

Chapter 8

Following is a summary of key findings from this review of challenges and issues in nutrition education, with particular reference to the situation in developing countries:

- The need for effective nutrition education to achieve positive changes in family diets and in IYCF practices is more pronounced than ever. There is ample evidence that improving food security alone does not necessarily improve dietary diversity or child nutritional status. On the other hand, a review of project evaluations shows that nutritional status can be improved through nutrition education even in the absence of improvements in food security.
- Evidence of the synergy in combining nutrition education with food security programs is generating interest from donors and many agencies, leading to requiring child nutritional status indicators for food security programs and to the development of guidance and tools to facilitate integration. Integration is taken to mean either closely linked parallel programs in food security and nutrition promotion, or, less often, food security program staff carrying out nutrition education activities.
- Whether explicitly called nutrition education or something else, many organizations and entities are promoting healthy food choices, dietary diversity, and optimal IYCF practices. Most often integrated into the health sector, these interventions are also widely found in early child development, social safety net programs, and somewhat less often in schools. The issue is often the quality of the intervention and whether staff members have adequate knowledge and skills to plan and execute programs and approaches to successfully promote desired behaviour changes related to nutrition.
- A widespread shortage exists of professionals, particularly in Africa, with knowledge and skills for implementing nutrition education interventions. An FAO assessment of training needs in various African countries found neither academic courses to prepare professionals nor the capacity in-country to teach such courses, although content is quite well-defined (FAO, 2011a). When speaking to integration of nutrition education into other sectors, there is a need to also integrate some very basic nutrition training into academic preparation of health professionals, teachers, social workers, agriculturalists, etc.
- Nutrition education alone or integrated into another sector must be well-planned based on behaviour change theory, formative research, and specific needs of the target population. The approaches and methods selected must fit the local context and take into account the capacity and time available of the staff who will implement

the activities. Monitoring and evaluation should be built in from the design phase, preferably using available standardized indicators developed collaboratively by WHO, UNICEF, IFPRI, FANTA and others.

In each of the previous chapters, issues were noted which warrant further discussion by all those involved in promoting strategies and interventions to improve food intake of children, women, and families. These issues are summarized here with points for discussion and follow-up:

- The term “nutrition education” is not universally understood, and thus, may not fully convey the focus and breadth of FAO’s work to promote adoption of healthy eating and related practices for families and consumer awareness. One option for further discussion is whether to change the term to more explicitly infer promotion of behavior change. Another option to discuss is the possibility of adopting a clear definition of nutrition education that encompasses behavior change, elements of health promotion, and policy change, which would be followed by a campaign to promote the chosen definition and educate others about this meaning of nutrition education.
- There is a need to clearly document which institutions, agencies and organizations are engaged in promoting healthy eating and what each is doing. Which institution is best-positioned to lead this? It will serve to not only coordinate actions to build synergy, but also facilitate efforts to document and disseminate successful programs and approaches for replication by others. This will be particularly useful in view of the current momentum around nutrition and around integration of nutrition education with food security and agriculture. Given the turn-over of personnel within many organizations and donor agencies, how could readily accessible documentation of efforts be kept current?
- While nutrition education, often referred to as promotion of dietary diversity, improving IYCF, or promotion of maternal nutrition, is being integrated into other sectors, the over-riding concern is whether the quality of the activities is sufficient to bring about the desired nutrition practices. How can we assure that program staff members have the requisite knowledge and skills or access to appropriate technical assistance? Is there a call for quality assurance tools that could be used in a wide variety of contexts from program design phase through implementation phase? Considering the availability of well-validated standardized indicators to measure changes in dietary and feeding practices, who can influence programs to adopt these and use the monitoring results effectively for program improvement?

- There is urgent need to build national-level professional capacity in nutrition education, particularly in sub-Saharan Africa. How can this be done in a short time frame considering government resources, and lack of academic faculty and curricula? How can we build government commitment to build this capacity rather than continuing to rely on outside expertise for program design and in-service training? Is there a greater role for distance learning? What is the incentive to attract people to study the field of nutrition education and will there be a market for their skills when they finish studying? What organization is best-placed to assist countries in developing professional capacity in nutrition education?



References

ACDI-VOCA. 2012. Nutrition Integration Fact Sheets - Website. Available at: www.acdivoca.org/site/ID/news-Linking-Agriculture-Nutrition-Fight-Poverty-Event-2012

ADA. 2011. International Dietetics and Nutritional Terminology - Reference Manual: Standard Language for the Nutrition Care Process (3rd edition) Chicago, IL: American Dietetic Association.

Agencia Española de Seguridad Alimentaria y Nutrición. 2007. La alimentación en la Educación Secundaria Obligatoria. Guía didáctica. Madrid: Ministerio de Sanidad y Consumo. Available at: www.aesan.msc.es/AESAN/docs/docs/publicaciones_estudios/nutricion/guia_ESO-alimentacion2.pdf

Andreasen AR. 1995. Marketing Social Change: Changing Behaviour to Promote Health, Social Development, and Environment. San Francisco, CA: Jossey-Bass.

Ammerman AS, Lindquist CH, Lohr KN, Hersey J. 2003. The efficacy of behavioral interventions to modify dietary fat, fruit and vegetable intake: a review of the evidence. *Prev Med*; 35, 25-41.

Berggren WL, Wray JD. 2002. Positive deviant behavior and nutrition education. *Food Nutr Bull*; 23(4 Suppl), 9-10.

Bhutta Z, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, Haider B, Kirkwood B, Morris S, Sachdev HPS, Shekar M. 2008. What works? Interventions for maternal and child undernutrition and survival. *Maternal and Child Undernutrition Series. Lancet*; 371:417-440.

Centers for Disease Control and Prevention. 2005. A Day Works!. Atlanta: US Department of Health and Human Services.

C-Change. 2012. C-Change - Website. Available at: c-changeprogram.org/about-us

Colorado State University. 2012. Crops for Health - Website. Available at: www.cropsforhealth.colostate.edu/

Contento IR. 2008a. Nutrition education: linking research, theory, and practice. *Asia Pac J Clin Nutr*; 17 Suppl 1:176-179.

Contento IR. 2008b. Review of nutrition education research in the *Journal of Nutrition Education and Behavior*, 1998 to 2007. *J Nutr Educ Behav*; 40(6), 331-340.

Contento IR. 2011. *Nutrition Education: Linking Research, Theory, and Practice* (2nd edition). Sudbury, MA: Jones and Bartlett.

Core Group. 2003. *Positive Deviance/Heart - A resource Guide for Sustainably Rehabilitating Malnourished Children*. Available at: www.coregroup.org/storage/documents/Diffusion_of_Innovation/Hearth_Book.pdf

Core Group. 2005. *Positive Deviance/Heart – Essential Elements. A resource Guide for Sustainably Rehabilitating Malnourished children (Addendum)*. Available at: www.positivedeviance.org/pdf/manuals/addendum.pdf

Core Group. 2012. *Core Group - Website*. Available at: www.coregroup.org/our-technical-work/working-groups/social-and-behavior-change

Davis Jr, Thomas P. 2004. *Barrier Analysis Facilitator's Guide: A Tool for Improving Behavior Change Communication in Child Survival and Community Development Programs*. Washington, DC: Food for the Hungry. Available at: barrieranalysis.fhi.net/annex/Barrier_Analysis_Facilitator_Guide.pdf

Department of Health. 2012. *Nutrition – Website*. Available at: www.dh.gov.uk/health/category/policy-areas/public-health/nutrition-nutrition/

Dickin K, Griffiths M, Piwoz EG. 1997. *Designing by dialogue: a program planners guide for consultative research for improving young child feeding*. Washington, DC: Academy for Educational Development.

Eat Well. 2011. *Review of policy actions, data available for their analysis and existing evaluations throughout Europe. Deliverable 1.1 of Eat Well for the European Commission*. Available at: eatwellproject.eu/en/Eatwell-research/Project-Reports/

Ecker O, Breisinger C, Pauw K. 2012. *Growth Is Good, but Is Not Enough to Improve Nutrition*. In: Fan S and Pandya-Lorch R, editors. *Reshaping Agriculture for Nutrition and Health*. Washington, DC: International Food Policy Research Institute. Available at: www.ifpri.org/sites/default/files/publications/oc69.pdf

ENCA. 2012. ENCA- Escuela Nacional Central de Agricultura –Website. Available at: www.enca.edu.gt/enca2/

Evans WD. 2006. How social marketing works in health care. *BMJ*; 332(7551):1207-1210

FANTA. 2009. Dietary Diversity as a Measure of the Micronutrient Adequacy of Women's Diets in Resource-Poor Areas: Results from Five Countries. Available at: www.fantaproject.org/publications/wddp_countries2009.shtml

FAO. 2005. Setting up and running a school garden: A manual for teachers, parents and communities. Rome: Food and Agriculture Organization of the United Nations. Available at: <ftp://ftp.fao.org/docrep/fao/012/a0218e/a0218e.pdf>

FAO. 2010a. A new deal for school gardens. Rome: Food and Agriculture Organization of the United Nations. Available at: www.fao.org/docrep/013/i1689e/i1689e00.pdf

FAO. 2010b. Setting up and running a school garden: Teaching toolkit. Rome: Food and Agriculture Organization of the United Nations. Available at: www.fao.org/docrep/012/i1118e/i1118e00.htm

FAO. 2011a. The Need for Professional Training in Nutrition Education and Communication – Final Report. Rome: Nutrition Education and Consumer Awareness Group, Food and Agriculture Organization of the United Nations. Available at: www.fao.org/ag/humannutrition/29494-0e18d2bbf4a9299faa8945f84f3e08a07.pdf

FAO. 2011b. The Need for Professional Training in Nutrition Education and Communication – Report on seven case studies carried out in Botswana, Egypt, Ethiopia, Ghana, Malawi, Nigeria, and Tanzania. Rome: Nutrition Education and Consumer Awareness Group, Food and Agriculture Organization of the United Nations. Available at: www.fao.org/ag/humannutrition/29493-0f8152ac32d767bd34653bf0f3c4eb50b.pdf

FAO. 2011c. Why nutrition education matters - Draft. Rome: Nutrition Education and Consumer Awareness Group, Food and Agriculture Organization of the United Nations.

FAO. 2012. Nutrition Education and Consumer Awareness – Professional Training in Nutrition Education. Available at: www.fao.org/ag/humannutrition/nutritioneducation/69725/en/

Feed the Future. 2012. Feed the Future - Website. Available at: www.feedthefuture.gov/

FHI360. 2012. Behavior change communication. Academy for International Development. Available at: www.globalhealthcommunication.org/strategies/behavior_change_communication

Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T et al. 2010. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*; 376(9756), 1923-1958.

Gil A. 2010. Tratado de Nutrición: Tomo III - Nutrición Humana en el Estado de Salud (2nd edition, 3rd Volume). Madrid: Editorial Médica Panamericana, S.A.

Griffiths M. 1994. Social Marketing: Achieving changes in nutrition behavior, from household practices to national policies. *Food Nutr Bull*; 15 (1), 25-31.

Guyon AB, Quinn VJ, Hainsworth M, Ravonimanantsoa P, Ravelojoana V, Rambeloson Z, Martin L. 2009. Implementing an integrated nutrition package at large scale in Madagascar: the Essential Nutrition Actions framework. *Food Nutr Bull*; 30(3), 233-244.

Herbert G, Butler L, Kennedy O, Lobb A. 2010. Young UK adults and the 5 A DAY campaign: perceived benefits and barriers of eating more fruits and vegetables. *International Journal of Consumer Studies*; 34 (6): 657-664.

Hereforth A. 2010. Synthesis of Guiding Principles on Agriculture Programming for Nutrition. Rome; Food and Agriculture Organization of the United Nations. Available at: www.fao.org/fileadmin/user_upload/wa_workshop/docs/Synthesis_of_Ag-Nutr_Guidance_FAO_IssuePaper_Draft.pdf

Hosmer C, Dwyer JT, Villaroel A. 1997. Training needs for nutrition education: guidelines for in-service training of nutrition educators. In: Nutrition education for the public. Discussion papers of the FAO Expert Consultation - FAO Food and Nutrition Paper 62. Rome: Food and Agriculture Organization of the United Nations. Available at: www.fao.org/docrep/W3733E/w3733e05.htm

IFPRI. 2006. Biofortified Sweet Potatoes. Washington, DC: International Food Policy Research Institute. Available at: www.ifpri.org/publication/biofortified-sweet-potatoes

IFPRI. 2011. Leveraging Agriculture for Improving Nutrition and Health. Washington, DC: International Food Policy Research Institute. Available at: www.ifpri.org/publication/leveraging-agriculture-improving-nutrition-and-health

IYCN. 2011a. Nutrition and Food Security Impacts of Agriculture Projects. Washington, DC: United States Agency for International Development. Available at: www.manoffgroup.com/2IYCN_ReviewofExpereince_020911.pdf.pdf

IYCN. 2011b. Nutritional Impact Assessment Tool – A tool for maximizing the positive impacts of agricultural interventions on nutritionally vulnerable and food insecure populations. Washington, DC: United States Agency for International Development. Available at: www.manoffgroup.com/4IYCN_Achieving-nutritional-impact-and-food-security_0211.pdf.pdf

Jennings J, Beyero Hirbaye M. 2008. Review of Incorporation of Essential Nutrition Actions in Public Health Programs in Ethiopia. Washington, DC: Food and Nutrition Technical Assistance Project (FANTA). Available at: www.fantaproject.org/downloads/pdfs/FANTA_Review_of_Incorporation_of_ENA_FINAL.pdf

Linkages. 2006a. World Linkages/Ethiopia. Available at: www.linkagesproject.org/country/ethiopia.php

Linkages. 2006b. Experience Linkages – Results. Washington, DC: Linkages. Available at: www.linkagesproject.org/media/publications/Results-11-06.pdf

Linkages. 2012. Africa Regional PMTCT and IYCF Program. Available at: www.linkagesproject.org/country/africaregional.php

Mataix Verdú. 2000. El pediatra y la Educación para la Salud. Educación nutricional. Instituto de Nutrición y Tecnología de Alimentos. Universidad de Granada. Available at: www.sepeap.org/imagenes/secciones/Image/_USER_/MR_educacion_salud_educacion_nutricional.pdf

Medical Teams International. 2012. Mid-term Evaluation Report: Lira district Child Survival Project in Uganda. Portland, OR: United States Agency for International Development.

Middlestadt SE, Bhattacharyya K, Rosenbaum J, Fishbein M, Shepherd M. 1996. The use of theory based semistructured elicitation questionnaires: formative research for CDC's Prevention Marketing Initiative. Public Health Rep; 111 Suppl 1, 18-27.

Ministère d'Éducation Nationale. 2013. De la maternelle au baccalauréat: La santé des élèves. Paris: République Française. Available at: www.education.gouv.fr/cid50297/la-sante-des-eleves.html#Éducation_nutritionnelle

Ministère des Affaires sociales et de la Santé. 2012. Nutrition – Programme National Santé Nutrition (PNNS) – Website. Paris: République Française. Available at: www.sante.gouv.fr/nutrition-programme-national-nutrition-sante-pnns,6198.html

Navas-Lopez. 2005. La educación nutricional: una herramienta imprescindible: Educaweb. Available at: www.educaweb.com/noticia/2005/10/10/educacion-nutricional-herramienta-imprescindible-1698.html

Olivares S, Snel J, McGrann M, Glasauer P. 1998. Nutrition education in primary schools. Rome; Food and Agriculture Organization of the United Nations. Available at: www.fao.org/docrep/X0051T/X0051T08.HTM

Ota E, Haruna M, Suzuki M, Anh DD, Tho le H, Tam NT, et al. 2011. Maternal body mass index and gestational weight gain and their association with perinatal outcomes in Vietnam. *Bull World Health Organ*; 89(2), 127-136.

PAHO. 2003. ProPAN: Process for the Promotion of Child Feeding. Available at: www.paho.org/English/AD/FCH/NU/ProPAN-index.htm

PAHO. 2011. Nutrition- Welcome - Website. Available at: new.paho.org/hq/index.php?option=com_content&view=article&id=1342&Itemid=1063%20%20Accessed%20May%202012

PAHO. 2012. Caribbean Food and Nutrition Institute. Available at: new.paho.org/cfni/
Pearson BL, Ljungqvist B. 2011. REACH: an effective catalyst for scaling up priority nutrition interventions at the country level. *Food Nutr Bull*; 32(2 Suppl), S115-127.

PAHO/WHO/UNICEF, 2013. ProPAN: Process for the Promotion of Child Feeding - A tool to improve infant and young child feeding. Available at: http://new.paho.org/hq/index.php?option=com_content&view=article&id=5668%3Apropan-proceso-para-la-propan-proceso-para-la-promociun-de-la-alimentaciun-del-niuo-2013

Perez-Rodrigo C, Aranceta J. 2001. School-based nutrition education: lessons learned and new perspectives. *Public Health Nutr*; 4(1A), 131-139.

Rogers B, Schlossman N. 1997. Public nutrition: the need for cross-disciplinary breadth in the education of applied nutrition professionals. *Food Nutr Bull*; 18(2): 120-133.

Save the Children. 2006. Final Evaluation Report for USAID CS16 Project. Available at: dec.usaid.gov/dec

Sherman J. 2011a. Nutrition Education and Communication Needs in the Literature. Rome: Nutrition Education and Consumer Awareness group, Food and Agriculture Organization of the United Nations. Available at: www.nutritionlearning.net/moodle2/mod/resource/view.php?id=300

Sherman J. 2011b. Nutrition Education and Communication Training Needs in the Literature. Rome: Nutrition Education and Consumer Awareness group, Food and Agriculture Organization of the United Nations. Available at: www.nutritionlearning.net/moodle2/mod/resource/view.php?id=301

Shi L, Zhang J. 2011. Recent evidence of the effectiveness of educational interventions for improving complementary feeding practices in developing countries. *J Trop Pediatr*; 57(2), 91-98.

Société Suisse de Nutrition. 2012. Geneva: Societé Suisse de Nutrition – Website. Available at: www.sge-ssn.ch/de/

SUN. 2010. A Road Map for Scaling Up Nutrition (SUN) (1st edition). Available at: siteresources.worldbank.org/NUTRITION/Resources/SUNRoadMapSeptember2010.pdf

The Manoff Group. 2007. Trials of Improved Practices (TIPs): giving participants a voice in program design [monograph on the Internet]. Washington, DC: The Manoff Group Available from: <http://www.manoffgroup.com/documents/summarytips.pdf>.

Travers KD. 1997. Reducing inequities through participatory research and community empowerment. *Health Educ Behav*; 24(3), 344-356.

UNICEF. 2006. Early Childhood – ‘Global Monitoring Report’ links early childhood care with lifelong benefits. Available at: www.unicef.org/earlychildhood/index_36356.html

UNICEF. 2011. Integrated Child Development Services. Available at: www.unicef.org/earlychildhood/files/india_icds.pdf

UNICEF. 2012a. Communication for Development – Behavior and Social Change. Available at: www.unicef.org/cbsc/index_42352.html

UNICEF. 2012b. Programming Guide on Infant and Young Child Feeding. New York, NY; United Nations Children’s Fund.

UNICEF. 2012c. Infant and Young Child Feeding Programming Status: Results of 2010-2011 assessment of key actions for comprehensive infant and young child feeding interventions in 65 Countries. New York City, NY: United Nations Children's Fund.

UNICEF. 2012d. Community-based infant and young child feeding. Available at: www.unicef.org/nutrition/index_58362.html

UNSCN. 2010. Progress in Nutrition: 6th Report on the World Nutrition Situation. Geneva: United Nations Standing Committee on Nutrition.

USAID. 2004. Monitoring HIV/AIDS Programs: A Facilitator's Training Guide, Module 6 - Monitoring and Evaluating Behavior Change Communication Programs. Family Health International. Available at: www.fhi360.org/NR/rdonlyres/

USAID. 2012. Global health E-Learning Center- Program and Course Catalogue. Available at: www.globalhealthlearning.org/programs.cfm

USDA. 2012a. McGovern-Dole Food for Education and Child Nutrition Program. Available at: www.fas.usda.gov/excredits/foodaid/ffe/ffe.asp

USDA. 2012b. Nutrition – Website: National Institute of Food and Agriculture. Available at: www.nifa.usda.gov/nutrition.cfm

USDA. 2012c. Nutrition Assistance Programs – Website. Available at: fnic.nal.usda.gov/nutrition-assistance-programs

Vella J. 2002. Learning to Listen, Learning to Teach: The Power of Dialogue in Educating Adults. San Francisco, CA: Jossey-Bass.

WHO. 1986. Ottawa Charter for Health Promotion. First International Conference on Health Promotion, Ottawa, Canada, 17–21 November 1986. Geneva: World Health Organization. Available at: www.who.int/healthpromotion/conferences/previous/ottawa/en/

WHO. 2004. Global Strategy on Diet, Physical Activity and Health. Geneva: World Health Organization.

WHO. 2010a. Indicators for Assessing Infant and Young Child Feeding Practices - Part 2: Measurement. Geneva: World Health Organization.

WHO. 2010b. Indicators to monitor the implementation of the comprehensive plan. Available at: www.who.int/nutrition/EB128_18_backgroundpaper4_nutrition_indicators.pdf

World Bank. 2007. From Agriculture to Nutrition: Pathways, Synergies and Outcomes. Washington, DC: The World Bank Agriculture and Rural Development Department. Available at: web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTARD/0,,contentMDK:21608903~pagePK:148956~piPK:216618~theSitePK:336682,00.html.

Zamorano. 2012. Departamento Currículo General – 1ero y 2do año. Available at: www.zamorano.edu/carreras-profesionales/general-curricula/1er-y-2do-ano/

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