

Thematic Evaluation Series

**Evaluation of FAO's contributions to
Sustainable Development Goal 2 - "End
hunger, achieve food security and improved
nutrition and promote sustainable
agriculture"**

Nutrition education

Abstract

Unhealthy diets remain one of the main contributors to the global burden of malnutrition and disease. According to the World Health Organization Global Nutrition Report 2018, poor feeding of infants and young children remains a key cause of infant malnutrition. Thus, actions to improve diet, including holistic nutrition education, are key to achieving SDG 2 target 2.2 on ending all forms of malnutrition.

FAO has been working for many years to support countries in promoting healthy diets through school, community and professional nutrition education. Its nutrition education approach uses diverse strategies to foster lifelong healthy eating habits and promote environments that support good nutrition and healthful food choices. This study focuses on those initiatives with the potential to be upscaled and to make a significant contribution to the achievement of SDG 2 targets. It assesses achievements linked to SDG 2, ties to the key principles of the 2030 Agenda, lessons learned and the factors behind successes and challenges to implementation, replication and upscaling.

The study found human and financial resources to be among the main constraints on FAO's nutrition work. While nutrition education is crosscutting and often included in projects, it receives few resources and has low visibility. Most interventions are small-scale pilots that depend on rare regular budget allocations.

The study recommends that nutrition education be included as part of other measures to promote healthy food environments and that it be integrated into the curriculums of agricultural and rural development training institutions to bolster human capacity to promote nutrition-sensitive agriculture and food systems and healthy diets.

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Abbreviations and acronyms

| | |
|-------|---|
| ENACT | Education for Effective Nutrition in Action |
| ENAF | Education for Effective Nutrition in Francophone Africa |
| FAO | Food and Agriculture Organization of the United Nations |
| FBDG | Food-based dietary guidelines |
| LAC | Latin America and the Caribbean |
| SDG | Sustainable Development Goal |

1. Introduction

1. This is one in a series of “signature product” reviews conducted as part of the Food and Agriculture Organization of the United Nations (FAO) evaluation of its work on Sustainable Development Goal 2 (SDG 2). It undertakes a critical analysis of FAO’s work on nutrition education to support countries in achieving the SDG 2 targets and principles, identifying key achievements, lessons learned and challenges to implementation and upscaling.
2. It is widely recognized that unhealthy diets remain one of the main contributors to the global burden of malnutrition and disease. According to the World Health Organization (WHO) Global Nutrition Report 2018, poor feeding of infants and young children remains a key cause of infant malnutrition everywhere (WHO, 2018).¹ The diets of school-aged children and adults are often high in refined grains, sugary foods and drinks, but low in healthy foods, such as fruit and vegetables, legumes and whole grains.² Thus, actions to improve diet, including holistic nutrition education, are key to achieving SDG 2 target 2.2 on ending all forms of malnutrition. In this context, in the Sixth Report on the World Nutrition Situation, the United Nations System 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” (UNSCN, 2010).
3. FAO has been working for many years to support countries in promoting healthy diets through nutrition education (at school and community level, through professional training, etc.). FAO’s nutrition education approach aims to foster lifelong healthy eating habits and promote environments that support good nutrition and healthful food choices through diverse strategies (FAO, n.d.a). Nutrition education actions, particularly at community level, are usually linked to agriculture, horticulture or other productive investments, leveraging their contribution to better nutrition. This study focuses on those initiatives with the potential to be upscaled and to make a significant contribution to the achievement of SDG 2 targets (particularly 2.2). Thus, the key areas identified for analysis were:
 - i. school-based food and nutrition education;
 - ii. linking agriculture and nutrition education;
 - iii. professional training in nutrition education; and
 - iv. food-based dietary guidelines (FBDGs) as a fundamental tool for guiding nutrition education interventions.
4. The analysis looked at: i) indications of achievements relevant to SDG 2, ii) links to the key principles of the 2030 Agenda (acting at scale, holistic view and social inclusion) and iii) lessons learned, factors of success and challenges to implementation, replication and upscaling.
5. The study was based on a broad review of documentation, both internal and external to FAO (such as policy documents, evaluations, technical briefs, programme implementation documents, communication materials, specific research and studies) and a few interviews with key informants

¹ Data on infant diets show that the proportion of babies being exclusively breastfed (up to six months of age) had increased as of 2018, but only to 41 percent from 37 percent in 2012. Sales of infant formula are growing rapidly. Fewer than one in five children (16 percent) aged 6 to 23 months eats a minimally acceptable diet, while only half (51 percent) of children aged 6 to 23 months get the recommended minimum number of meals (WHO, 2018).

² About a third (30.3 percent) of school-aged children do not eat fruit daily, yet 43.7 percent consume fizzy drinks every day. Analysis of more than 23 000 packaged food products shows that 69 percent are of relatively poor nutrient quality, with the proportion higher in low- and middle-income countries than in high-income countries (WHO, 2018).

at various levels both in (headquarters, regional offices and country offices) and outside the Organization. The list of documents reviewed can be found in the bibliography, while a list of people interviewed is available in Appendix 1.

2. Background

2.1 History of nutrition education at FAO

6. FAO's nutrition education work dates back to the 1980s. Its approach has developed gradually as evidence has evolved and in line with emerging trends in global nutrition thinking, although there is no clear-cut history in the application of various paradigms, as many approaches have been used at the same time. In the late 1980s and early 1990s, the approach was based more on knowledge transmission with a view to changing individual health- and nutrition-related behaviours. An example of such an approach is the public education campaign on food safety in the English-speaking Caribbean, which aimed to reduce food-borne diseases through the adoption of safe food habits at home and in communities. Niger's public nutrition and nutrition education experience aimed to communicate nutrition information to reduce vitamin A deficiency, through the increased consumption of locally grown food rich in vitamin A. FAO also promoted nutrition education in schools, including its integration into school gardening, to improve children's food-production skills, as it did in Ecuador (Smith, 1997).
7. Around 2010, following the global financial and food crisis, the international community recognized the importance of food and nutrition security as a critical factor in socioeconomic development, prompting renewed commitments to reduce malnutrition. Nutrition education became a critical pillar of nutrition policies and programmes, and FAO maintained a leading role, emphasizing a food-based approach as the primary way to improve diets.
8. In 2010, FAO launched its nutrition education and communication project in several African countries to assess the need for professional training. In 2012, it initiated the Education for Effective Nutrition in Action (ENACT) course, aimed at training nutrition and agriculture students on nutrition education planning, methods and implementation. In 2014, it launched the adaptation and French version of ENACT, Education for Effective Nutrition in Francophone Africa (ENAF).
9. From 2015 to 2018, FAO developed a corporate approach to its work on school food and nutrition. One of the key aspects of this approach was to ensure a healthy environment in schools through school meals, nutrition education and school gardens, involving the entire education community and focusing on children as actors of change.
10. Over the past four years, FAO has reviewed the evidence, identified programmatic best practices and lessons learned, and worked with experts around the globe to strengthen its approach to nutrition education, with an emphasis on school-based food and nutrition education. This approach is based on a model of effective nutrition education and goes beyond personal dietary aspects to empower consumers as key players within their food environments, shaping demand for healthy and affordable foods. The model draws on internationally recognized principles to effect behavioural change.

2.2 Different forms of implementation

11. In all its initiatives, including nutrition education, FAO promotes food-based approaches as sustainable strategies for improving diets and nutrition (FAO and CABI, 2014). Consequently, its approach to nutrition education emphasizes: i) the importance of access to food and household food security; ii) the importance of creating healthier food systems that encompass healthy food production; iii) the preservation of food and the reduction food losses and waste; iv) the distribution and marketing of healthy food; v) awareness-raising to promote the recognition of

good food values and the rejection of junk food; and vi) food preparation and consumption within the household. It promotes nutrition education in many settings (such as schools, communities, rural and urban areas) through diverse interventions and communication channels. It also plays a major role in providing public information on nutrition (FAO, n.d.b).

12. FAO’s role in supporting its Members on nutrition education comprises:
- i. advocacy, technical assistance and guidance on integrating nutrition education into relevant policies and legislation;
 - ii. capacity needs assessments and strategy development for effective design, implementation and evaluation of nutrition education programmes and interventions;
 - iii. the development and dissemination of knowledge products, such as policy papers, guidelines for planning and implementing nutrition education, educational materials, including awareness-raising for the general public and children;
 - iv. the generation of evidence bases to inform the design, implementation and evaluation of nutrition education policies and programmes, through research, various types of study and impact assessments, including studies on culturally sensitive topics;
 - v. the promotion of intersectoral coordination and policy dialogue on education for healthy diet initiatives; and
 - vi. the facilitation of knowledge and experience exchanges between countries.

2.3 Implementation partners

13. Table 1 lists the primary stakeholders and partners working with FAO (or independently) in the field of nutrition education.

Table 1. List of primary stakeholders and partners working with FAO on nutrition education

| Stakeholder/partner | Main roles |
|--|---|
| Public sector – education, health and agriculture | <ul style="list-style-type: none"> • Ministries of education are responsible for designing and implementing school nutrition education policies and programmes. • Ministries of health often define national priorities and guidelines for nutrition education and the content of communications and messaging. • Ministries of agriculture support the implementation of agricultural and horticultural programmes, in some countries delivering nutrition education through farmer field schools or agricultural extension services. |
| Academia – national and international universities and research centres | <ul style="list-style-type: none"> • Professional training for nutrition education. • Support the design, development and implementation of nutrition education programmes (ENACT/ENAF). • Provide evidence through research to support the design and evaluation of nutrition education programmes. |
| United Nations agencies – World Health Organization (WHO), United Nations Children’s Fund (UNICEF), World Food Programme (WFP), International Fund for Agricultural Development (IFAD) | <ul style="list-style-type: none"> • Provide technical support, normative guidance and capacity development support to governments on policies related to adequate feeding practices. • Implement nutrition education projects and train personnel. • Partner with FAO on joint national programmes (for example, IFAD is integrating nutrition education into productive and market-oriented investments). |
| Joint initiatives – Scaling Up Nutrition (SUN)/Renewed Efforts Against Child Hunger and Undernutrition (REACH) | <ul style="list-style-type: none"> • Support governments in promoting adequate infant/young child feeding and maternal nutrition. |

| Stakeholder/partner | Main roles |
|--|---|
| Nongovernmental organizations (NGOs) – international and national | <ul style="list-style-type: none"> • Implement nutrition education projects, often integrated into activities on water and sanitation, health, food security. • Participate in the design, personnel training and evaluation of nutrition education projects jointly with FAO. • Local NGOs and community-based organizations are the main implementing partners at community level. |
| United States Agency for International Development Food and Nutrition Technical Assistance Project (USAID–FANTA) | <ul style="list-style-type: none"> • Supports national governments and USAID-funded projects on linking nutrition and food security. • USAID-FANTA’s approaches and guidelines on nutrition education and social behaviour-change communication are often used by governments as a basis for national guidelines. |
| Health and Education Advice and Resource Team (HEART) | <ul style="list-style-type: none"> • A consortium of leading international development, health, nutrition and education organizations, HEART works to promote evidence- and expert advice-based policymaking. |
| Global Alliance for Improved Nutrition (GAIN) | <ul style="list-style-type: none"> • Works to engage private-sector support for nutrition activities through its social responsibility programmes. |
| Professional networks on nutrition education | <ul style="list-style-type: none"> • Multidisciplinary networks of professionals and technicians aimed at exchanging knowledge, experience and resources on nutrition education. |

3. Effectiveness and relevance to SDG 2

3.1 Relevance to FAO's work on nutrition education to SDG 2

14. "The problems of undernutrition, vitamin and mineral deficiencies, obesity and diet related chronic diseases increasingly exist side by side across the world" (Hawkes, 2013). An inadequate diet at any time of life is a key cause of nutritional imbalances. Unhealthy diets can be the result of limited access to food, but also to nutrition knowledge, attitudes and behaviours that can be addressed by nutrition education.
15. At global level, the 2014 Second International Conference on Nutrition (ICN2), the WHO Assembly, the 2030 Agenda and the Decade of Action on Nutrition have led to renewed commitments to address all forms of malnutrition by recognizing that nutrition is a key factor in ensuring socioeconomic development and achieving the ambitious targets of the 2030 Agenda. This renewed attention on nutrition has resulted in growing demand from countries for support on nutrition actions and education to promote healthy diets.
16. FAO promotes food-based approaches to reduce malnutrition in a more sustainable way, by transforming food systems to provide healthier and affordable foods. FAO is well positioned to offer such support. As the lead United Nations Agency on food production, food security and nutrition, FAO's mandate includes ensuring adequate nutrition. Interviewees for this review observed that in some countries, organizations such as the United Nations Children's Fund (UNICEF), Save the Children and the World Food Programme (WFP) defer to FAO on the design and implementation of nutrition education programmes in schools. As a technical agency, FAO is well positioned to advocate for, develop evidence-informed policy and programmatic guidance on, and support capacity development for the design, implementation and evaluation of effective and holistic nutrition education interventions. Nutrition education is, therefore, central to its activities and an important element in FAO's support for countries on achieving the SDG 2 targets, particularly target 2.2 on addressing all forms of malnutrition.

3.2 Achievements

17. FAO's work on nutrition education has resulted in important advances in new concepts and approaches, capacity development, knowledge generation and replicable practical experience.

A new vision and approach to nutrition education

18. The shift in the concept of nutrition education – from transmitting nutrition information to empowering people to take stock of their diets and health and to be key players in shaping their food systems by demanding/consuming healthy and affordable foods – is an achievement in itself. It is transformative and in line with the scale of change needed to achieve the SDG 2 targets.
19. Some key elements to advance this vision include: i) interventions based on evidence and best practices; ii) multi-sectoral processes, including all relevant sectors, and capacity-building; iii) linking nutrition education to the improvement of food environments to enable healthy food choices; and iv) context-specific and participatory educational activities, involving all people who can help or hinder dietary change (FAO, n.d.c). Undoubtedly, this approach has the potential to make nutrition education more effective in promoting and supporting the adoption of healthy diets, but it is still being developed and needs time to be mainstreamed into FAO's work, especially at country level.

Development of knowledge products

20. FAO has developed a vast array of knowledge products, including guidelines on nutrition education planning and programming, educational materials and self-learning manuals (for different target groups, including the general public), some of them adapted to specific contexts and cultures. Certain products have been adopted by governments and are being used in national public nutrition education programmes (for example, in schools in Honduras and El Salvador). Although these products are tailored to various audiences, there are few products suited to field personnel or decision makers that require brief, practical guidance.

Capacity development and professional training

21. FAO has also improved the general nutrition capacity of a wide range of stakeholders at national and sub-national level, in addition to nutrition education planning and implementation methods at community and school level. There are various examples of successful capacity development in nutrition education, such as the ENACT/ENAF initiative, which saw the course included in more than 40 university courses and the curriculums of agricultural extension worker training institutions.
22. ENACT/ENAF involved developing a curriculum to provide professional training in the principles and practices of nutrition education, including the planning, design and implementation of small-scale nutrition education interventions. The method was innovative and based on a mix of independent individual work and interactive tutorials, complemented by outside/practical activities. The course was initially designed for nutrition students and expanded to include students with a nutritional or agricultural background. The material was developed, tested and piloted in close collaboration with African universities in seven English-speaking and five French-speaking African countries.³ The content and approach of the courses were found to be of excellent quality and relevant to the needs of the countries in question. Professionals and students received enhanced capacity in nutrition education and communication as a result. Importantly, the ENACT courses were adopted and integrated into the undergraduate academic programmes of the participating universities. One relevant example was the integration of the course into the training curriculum of agricultural extension workers in the Polytechnic University of Bobo-Dioulasso/Institute of Rural Development (IRD/PUB) in Burkina Faso. The initiative has the potential to fill a gap in practical nutritional courses at university level in many developing countries (FAO, 2016a).

School-based food and nutrition education

23. FAO has been working on nutrition education in schools for many years, particularly in Latin America and the Caribbean (LAC). Its approach to nutrition education has altered substantially in recent years, particularly with the launch of its school food and nutrition framework in 2019 (FAO, 2019a). The aim of the framework is to better support governments in developing, transforming or strengthening their national school-based or school-relevant policies, programmes and initiatives, for an enhanced and synergistic impact on diets, child and adolescent nutrition, community socioeconomic development and local food systems. School-based food and nutrition education is one of the four areas of work at the heart of the Organization's mandate and capacity under the framework. The other three are: i) stimulating inclusive procurement and value chains for school food; ii) creating an enabling political, legal, financial and institutional environment; and iii) promoting a healthy school food environment and adequate and safe school food. On the latter, FAO has made significant contributions to the formulation of norms and regulations to

³ Benin, Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Ghana, Kenya, the Niger, Nigeria, Uganda and the United Republic of Tanzania.

restrict the sale of processed and ultra-processed low-nutritional-value foods in school canteens (in Peru, Brazil, Chile and El Salvador, for example) by providing evidence and participating in discussion and development processes.

24. The key elements of FAO's model for school-based food and nutrition education are: i) the involvement of the whole school community to foster healthier and more sustainable food practices (parents, teachers, community, local authorities); ii) that children and their communities are not passive actors, but take ownership of their food learning processes to become agents of change in their local food systems; and iii) there is active learning beyond the mere transmission of information in the classroom. This has been promoted in several countries (Brazil, Chile, Ecuador, El Salvador and Zambia). Importantly, to ensure sustainability and upscaling, FAO has promoted the incorporation of school-based food and nutrition education into national curriculums and legal and policy frameworks.⁴
25. However, despite its significant achievements in integrating and scaling up school-based food and nutrition education and its long history of work in this area, one of FAO's weaker areas is the monitoring and evaluation of school-based food and nutrition education programmes, which does not allow for the collection of evidence on the performance and effectiveness of such interventions in terms of knowledge, skills and food behaviour. In addition, educational materials are not well aligned with the new approach, as most were developed beforehand and based on the transfer of information on nutrients and adequate diets, not necessarily the promotion of behavioural change, and do not include aspects such as food systems.⁵

Food-based dietary guidelines

26. FAO has been supporting countries in developing and implementing their food-based dietary guidelines (FBDGs) for many years, as a fundamental tool for guiding and informing policy, nutrition education programmes and regulatory frameworks aimed at ensuring healthy diets for the population. This work continues and more than 90 countries around the globe have FBDGs in place. In LAC, since 2015, FAO, together with the nutrition departments of national ministries of health and academic researchers, has been supporting guideline updates in a number of countries (including Costa Rica, Grenada, Guyana, Mexico, Panama, Peru, Saint Vincent and the Grenadines, Suriname and Uruguay). In other regions, FAO is also working to support updates of national FBDGs.⁶
27. More and more countries are integrating sustainability considerations into the development of national guidelines, including sustainable consumption, food-waste reduction and convenient shopping. However, even countries that have already formulated and approved their dietary guidelines require technical assistance to translate them into practice, for instance, through education, communications approaches and their integration into national policies. A review on the situation of the FBDGs in LAC found that the existence of a standard methodology and FAO's technical assistance had helped countries to develop their FBDGs. However, some of the factors hindering their implementation were the lack of an appropriate communications strategy and the lack of political will and resources.

⁴ School feeding laws in El Salvador, Guatemala and Honduras include nutrition education.

⁵ For example, nutrition education materials in Honduras and Mozambique.

⁶ For instance, in Botswana, Eswatini, Ethiopia, Gabon, the Gambia, Ghana, Grenada, Guyana, Kenya, Kyrgyzstan, Liberia, Montenegro, Rwanda, Senegal, Serbia, Seychelles, Sri Lanka, the United Republic of Tanzania (and Zanzibar), Zambia, and Zimbabwe.

28. Another weakness was the absence of any evaluation of the impact of the guidelines in most countries. In terms of their contribution to the adoption of healthy food habits, while the dissemination of key FBDGs messages is important, it is not sufficient to trigger significant behavioural change. Successful interventions to promote healthy food habits include a combination of educational strategies, policies and actions to address the barriers preventing the adoption of adequate food practices and to ensure a healthy food environment (FAO, 2014). FAO can contribute to the latter by promoting policy coherence, so that food and agriculture, trade, finance, health and education policies are aligned with the FBDGs, to capitalize on their contribution to the adoption of healthy diets. FAO is also designing a new methodology to develop FBDGs anchored in the food-systems approach, which should increase their potential as a tool for enhancing policy coherence and promoting practical and feasible recommendations.

Linking agriculture and nutrition education

29. FAO also developed successful pilot projects linking agriculture and nutrition education at community level. In poor rural areas, one of the barriers to adopting better diets tends to be limited access to nutritious food (fruit, vegetables, animal proteins, etc.) all year round, so nutrition education alone has limited impact. To address this, FAO has implemented projects in several countries, integrating nutrition education with the promotion of agricultural diversification and home gardening. Here, families can produce more nutritious foods for their own consumption, resulting in significant improvements in the diets of children, women and the family in general. Successful experiences were documented in Cambodia, Malawi and Mozambique (Muehlhoff et al., 2017; European Union, FAO, the International Fund for Agricultural Development (IFAD), WFP and Government of Mozambique, 2020). These projects also used innovative social behaviour-change communication approaches, such as community-based service delivery (the use of community workers to deliver nutrition messages and promote behavioural change) and involved all actors affecting behaviour – not just mothers, but fathers, other relatives and community leaders – as well as culturally appropriate methods.
30. Nutrition education has been also integrated into farmer field schools at pilot level, particularly in Africa (the Niger, Senegal and Uganda), with significant results in terms of improved nutrition knowledge and practices among participating farmers. Nutrition education was also integrated into Dimitra discussion clubs, a community-driven approach to empower rural women and men. “In the Democratic Republic of the Congo, the Dimitra clubs were instrumental in reducing the influence of food taboos, which in some communities resulted in enhanced consumption of alternative high-protein source foods by women” (FAO, 2019b).
31. However, while successful, these initiatives were not replicated in or expanded to other regions or groups and remained at pilot level, similarly to ENACT/ENAF. FAO needs to systematically build new initiatives based on good practices and lessons learned from successful projects and to strengthen its advocacy work and resource mobilization, so that these best practices are adopted and scaled up by governments and other institutions. A good example on how a good practice can be scaled up is the incorporation of nutrition education into national legal frameworks, such as the school feeding laws of Brazil, El Salvador, Guatemala and Honduras.

3.3 SDG 2 and other SDG targets addressed by FAO’s work on nutrition education

32. Nutrition education more broadly has the potential to contribute to multiple SDGs, not just SDG 2. These include SDG 3 (good health and wellbeing by promoting healthy diets), SDG 4 (quality education, by including nutrition and food-system aspects into educational curriculums), SDG 8

(decent work and economic growth), SDG 10 (reduced inequalities) and SDG 12 (responsible consumption and production). FAO's school food and nutrition approach seeks to foster these synergies to advance sustainable development more efficiently through the school setting.

4. Links with the key principles of the 2030 Agenda

4.1 Acting at scale

33. Adopting and scaling up initiatives requires political will, which comes with recognition of the need for and relevance of nutrition education. Upscaling also requires resources, which governments should mobilize from national funds or donors. In LAC, linking nutrition education to support for legislation on food and nutrition security (FNS) allowed the upscaling of pilot projects to national policy – a good practice. School feeding laws, based on a holistic approach to school food, incorporated nutrition education in schools into national policy. Good examples can be found in Brazil, Ecuador, El Salvador and Honduras.
34. However, in some cases, the inclusion of nutrition education in FNS legal frameworks, policies and plans does not guarantee that it will be implemented, particularly if resources and budgets are not properly allocated and multilevel capacities are not strengthened. Nutrition education is a pillar of most national FNS plans, but usually the lowest priority when it comes to budget allocation.⁷ Here, FAO can play a role in supporting governments in the implementation, monitoring and evaluation of FNS laws and plans and advocate for a more balanced allocation of resources to put in place nutrition education strategies.
35. Interviewees noted that FAO was in the process of forging strategic alliances with regional and sub-regional forums and platforms, as well as with other United Nations agencies, to support ministries of education in incorporating nutrition education into the school system. This has the potential to scale up nutrition education and make it a public priority. FAO is also in the process of forming an alliance with the Sistema de la Integración Centroamericana (SICA), the regional forum of Central American countries and the Dominican Republic, for this purpose.

4.2 Holistic views and interconnectedness

36. Nutrition education spans various sectors, including agriculture, education, social protection and health. FAO's framework for school food and nutrition cites holistic and coherent school programmes and policies as key to achieving children's rights to food, education and health. It promotes a set of complementary interventions, such as healthy school food environments that include school meals and effective food and nutrition education, to improve children's diets, the development of healthier food practices and the extension of such practices to their families and communities. FAO's school-based food and nutrition education model engages the whole school community, including parents, family members, teachers, communities, local authorities, local food producers and vendors.
37. However, the main challenge is a lack of sectoral policy coherence to facilitate healthy food environments that enable the actual practice of behaviours promoted by nutrition education. For instance, interviewees noted that in Egypt, agricultural policy promotes wheat production and provides subsidies for sugar, oil and wheat, but not other foods that would facilitate dietary diversification. Trade and commerce policies that facilitate the import of ultra-processed food at lower prices and the export of healthy foods can also hinder the effects of nutrition education and result in the loss of traditional healthy food habits, as in Mexico under the North American Free Trade Agreement (Galvez, 2018).

⁷ Guatemala is a prime example: the nutrition education pillar of its strategy to reduce stunting has a near zero budget allocation over the years (Lovon, 2019).

4.3 Social inclusion to “leave no one behind”

38. There are examples of how nutrition education interventions can be culturally sensitive, such as the incorporation of indigenous people’s knowledge in Panama. There are also examples of nutrition education at community level including messages geared to promoting the more equitable distribution of household chores among family members, as in Mozambique and the “free of gender stereotypes and sensitive to culture FBDG” in Colombia.
39. However, the documents reviewed and interviews conducted for this study give the impression that gender and social inclusiveness aspects have not been systematically included in nutrition education initiatives. There is guidance on how cultural and gender aspects can be included in the design and implementation of nutrition education projects, but they are not implemented across the board.
40. For instance, FAO’s nutrition education approach states that interventions should start with a comprehensive needs assessment and formative research, to gain an understanding of the roles of children, women, men, beliefs, social norms, food distribution, food production patterns and influencing factors, such as the media and gender roles. Messaging, materials and educational actions should be designed around these and be specific to context and culture. The team’s review of some educational materials and evaluation reports, however, suggested that this was not put into practice in all interventions. For instance, the evaluation of the ENACT project states that gender equality and women’s inclusion were not sufficiently incorporated into project design and implementation and that no gender analysis was conducted (FAO, 2016a). Nutrition education in schools has enormous potential to transform unequal gender relationships associated with food (food distribution, distribution of roles in food processing, childcare) by providing key messages to children, yet FAO’s materials do not sufficiently include gender messaging and content.

5. The factors behind successful initiatives

41. Key informants cited the following elements as contributing to the successful implementation and/or expansion of nutrition education initiatives:
- i. South–South cooperation, especially the exchange of experience with Brazil, was a facilitating factor in the expansion of the new school food framework in LAC, including nutrition education in schools.
 - ii. Alliances with national academies to conduct research to support plan and programme design to promote healthy diets was successful in certain countries. For instance, in Nicaragua, the national university conducted a study on the dietary patterns of university students and the results led to the design and implementation of a programme to promote healthy diets through the Ministry of Education.
 - iii. Nutrition education has a greater positive impact when it is part of multi-sectoral national public policy aimed at creating healthy food environments and fostering practices that facilitate healthy diets.
 - iv. Capitalizing on those periods in which school curriculums are revised and updated can be useful in integrating effective school-based food and nutrition education.
 - v. Investing adequate time and resources to conduct the necessary assessments that enable the contextualization and adaptation of the nutrition education intervention is important to ensure effective programmes.

6. Challenges and limitations

Within FAO

42. Human and financial resources are the main constraints on FAO's nutrition work at country and at regional level. Some regions, such as Europe, do not have any nutrition experts. In other cases, there was nutrition capacity, but not related to learning and pedagogy, affecting the quality of intervention design.
43. Most interventions are small-scale pilots. Scaling up depends on advocacy at governmental level, as well as regular budget allocations, which sometimes do not occur.
44. Nutrition education is cross-cutting. It is included in projects, but receives few resources and has low visibility. There are nutrition markers for programme design and management, but food production and availability still dominate the organizational culture. The role of consumers, and their potential to transform food systems through demand and activism, is still not well understood or adequately financed. Interviewees also noted that when nutrition education was integrated into the design of FAO projects, there was little room to adopt an effective approach in the implementation phase, due to limited resources, capacity and timeframes.
45. FAO's approach to nutrition education is context-specific, broad in scope and focused on people's empowerment, hands-on practice and skills development. It also fosters key links to food-environment interventions. None of this is well understood inside (or outside) FAO. The transfer of generic information on nutrients and food groups is still widespread, along with the misconceptions that disseminating information will automatically lead to behavioural change and that short-term actions are sufficient to generate long-term results.
46. Many of FAO's recent normative products on nutrition education need to be put into practice and, to this end, it is important to disseminate and enhance the capacity of FAO personnel at regional and country level.

External to FAO

47. Some of the challenges that commonly limit the effectiveness of school-based food and nutrition education are a lack of funding and other resources, unqualified educators, a lack of regular capacity development, the absence of or weak monitoring and evaluation mechanisms, insufficient time allocation and a dearth of mechanisms that involve parents and other influencers of student behaviour and practice. Also, poor coordination between entities, low policy priority and methodologies not being conducive to behavioural change and skills development were reported by about a third of countries in the school-based food and nutrition education global survey (FAO, 2021).

7. Use of innovation, digital technologies

48. FAO's nutrition education approach is innovative in essence, as it considers people to be the main actors of change and pursues the empowerment of consumers to shape their food environments. The new vision in school-based food and nutrition education is also the "educationalization" of food environments to facilitate the adoption of healthy diets.
49. The application of psychological approaches to promote behavioural change and to monitor progress in the improvement of dietary practices in schools is also innovative. In Panama, for instance, a system to monitor behavioural aspects has seen success in pilot schools.
50. New innovative initiatives are being planned, such as the LAC transformation of food systems for healthy diets, through multistakeholder networks to promote healthy environments for nutrition. FAO's Nutrition Education and Consumer Awareness Group is also evaluating the use of online tools for blended learning on school-based food and nutrition education in the context of the COVID-19 pandemic. There are also ENACT and ENAF online courses, as well as the virtual adaptation of a capacity needs assessment tool for school-based food and nutrition education, currently being piloted in El Salvador.

8. Conclusions and recommendations

8.1 Conclusions

Conclusion 1. The new approach to nutrition education, which focuses on the empowerment of consumers, is fully aligned with the need to ensure agency for all people by enhancing their capacity to consume healthy diets, collectively shape demand and become active in advocating for healthier food environments – a condition to achieving the SDG 2 targets. However, the approach is still not well mainstreamed within FAO, particularly at regional and country level and across programmes and initiatives.

Conclusion 2. FAO is recognized as a leading agency on nutrition education and has played a key role in strengthening the capacity of a broad base of national actors. It has developed a vast array of knowledge products to guide the planning and implementation of nutrition education programmes. However, there are areas with great potential, such as the inclusion of nutrition education in university curriculums, which need to be exploited further (ENACT is a good example of this, but it was not replicated in other regions, mainly due to a lack of funding).

Conclusion 3. Many of FAO's nutrition education initiatives are small in size. One of the best ways of scaling them up is to integrate nutrition education into national legal and policy frameworks. Some successful examples here are FAO's support for the formulation of school feeding laws that incorporate nutrition education and for legislation that promotes healthy school food environments as national policy.

Conclusion 4. FAO has implemented many successful community-level nutrition education initiatives, linking nutrition education and agriculture, using innovative methods and approaches to bring about behavioural change (participatory, community based, multi-sectoral), however, these were not disseminated (even at country level), replicated or scaled up sufficiently.

Conclusion 5. FAO's nutrition education initiatives were found to be socially inclusive to some extent. At the community level, nutrition education often takes into account cultural habits and traditional or indigenous knowledge. Nevertheless, the great potential of nutrition education to promote gender transformation in the context of food and nutrition has yet to be explored.⁸

8.2 Recommendations

Recommendation 1. Nutrition education should be part of other measures to promote healthy food environments, such as healthy food production, regulatory frameworks (such as those on unhealthy food marketing to children), restrictions on selling unhealthy food at schools, taxation, food labelling laws and price policies to improve healthy food supply and discourage the consumption of non-nutritious processed foods. In this vein, stronger policy engagement is required to promote environments that facilitate the adoption of healthy food choices and address the trade-offs between nutrition education and food production and trade policies. FAO's value added should span production support and the dissemination of evidence to inform policy and legislation to promote healthy diets and the creation of enabling environments, as in the case of Chile's food labelling law. Internal coherence of approach, messaging and policy support for countries is also key to ensuring enabling environments for healthy diets.

Recommendation 2. One of the promising ways in which to strengthen human capacity to promote nutrition-sensitive agriculture and food systems and promote healthy diets is to integrate nutrition and

⁸ For example, educational materials rarely incorporate gender considerations, such as food distribution within households.

nutrition education into the curriculums of agricultural and rural development training institutions. Thus, there is a need to adapt, improve and replicate successful experiences, such as ENACT, in other regions.

Recommendation 3. Alliances with food producers, gastronomic societies and other such organizations should be pursued to help promote healthy diets based, for example, on local nutritious foods.

Recommendation 4. Links between agriculture, nutrition education and positive, innovative experiences should be replicated and/or scaled up (as in Mozambique, where nutrition education has been incorporated into farmer field schools). More emphasis should be placed on the systematization and dissemination of successful nutrition education initiatives. One way to facilitate replication is to promote the exchange of experience between countries and regions.

Recommendation 5. FAO needs to develop the potential of nutrition education for gender transformation, particularly in schools. One practical step would be to review and update its nutrition education materials to take into account gender-transformative content on food systems and nutrition.

Recommendation 6. More resources should be allocated to the development of FAO's internal capacity and practical tools on how to properly incorporate and implement nutrition education into projects (in line with FAO's approach). One example of a practical tool could be to develop a short document or checklist that specifies the key elements that need to be integrated or considered in every nutrition education intervention. These should focus on formative research, setting learning needs and plans according to the research, hands-on learning, adequate frequency and duration, and monitoring and evaluation. Further advocacy is also needed to ensure adequate resource allocation to effectively implement nutrition education activities into projects.

Recommendation 7. More effort should be made to propagate FAO's approach to nutrition education, both internally and externally. Capitalizing on FAO's key global events could be one way to achieve this.

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Appendix 1. People interviewed

| Last name | First name | Organization/Division | Position |
|------------------|-------------------|---|---|
| Fracassi | Patrizia | FAO ESN, interviewed during inception phase | Senior Nutrition and Food Systems Officer |
| Hachem | Fatima | FAO ESN | Senior Nutrition Officer |
| Hernandez | Yenory | FAO ESN | Nutrition Specialist |
| Molina | Veronika | Independent consultant Guatemala | |
| Rios | Israel | FAO Panama | Nutrition Officer |
| Rodriguez | Lorena | University of Chile | Assistant Professor |

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