

ENHANCING OPPORTUNITIES FOR NUTRITION EDUCATION IN PUBLIC SCHOOLS IN THE PHILIPPINES

Oro, Emilita;Agdeppa, Imelda;Itliong, Kirstein;Sarmiento, Ian Kurt;Baguilat, Irish;
Gonsalves, Julian;Capanzana, Mario;

© 2018, EMILITA ORO, IIRR



This work is licensed under the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/legalcode>), which permits unrestricted use, distribution, and reproduction, provided the original work is properly credited.

Cette œuvre est mise à disposition selon les termes de la licence Creative Commons Attribution (<https://creativecommons.org/licenses/by/4.0/legalcode>), qui permet l'utilisation, la distribution et la reproduction sans restriction, pourvu que le mérite de la création originale soit adéquatement reconnu.

IDRC Grant/ Subvention du CRDI: 108156-001-Improving food and nutrition security in the Philippines through school interventions

Enhancing Opportunities for Nutrition Education in Public Elementary Schools in the Philippines

Emilita Monville Oro, RN, MPH

Country Director, Philippine Program
Regional Center for Asia
International Institute of Rural Reconstruction
Km 39, Y.C. James Yen Center, Biga, Silang, Cavite 4118
Philippines
Tel: 63-46 430 0016
E-mail: emily.monville@iirr.org

Imelda Angeles-Agdeppa, PhD

Assistant Scientist
Food and Nutrition Research Institute-Department of Science and Technology (FNRI-DOST)
FNRI Bldg., DOST Compound, Gen. Santos Ave., Bicutan, Taguig City, Metro Manila, Philippines
Tel: 837-2934, 837-2071 to 81 loc 2284
E-mail: iangelesagdeppa@yahoo.com.ph

Project title:

Improving Food and Nutrition Security in the Philippines through School Interventions

Project Implementation:
2016-2018

working paper



Project Team

Principal Investigators

Emilita Monville Oro, RN, MPH
Imelda Angeles-Agdeppa, PhD

Researchers

Ma. Shiela S. Anunciado
Ronnie M. De Castro
Kirstein D. Itliong
Carmina Alicia N. Lainez
Ian Curt R. Sarmiento

Project Manager

Irish P. Baguilat

Department of Education

Rizalino Jose T. Rosales
Ella Cecilia G. Naliponguit
Maria Corazon C. Dumlao
Magdalane Portia T. Cariaga
Ferdinand M. Nuñez
Mei-Ling V. Duhig
Diosdado M. San Antonio
Annaliza T. Araojo
Neil B. Evangelista
Romeo E. Endraca
Rolando B. Talon, Jr.

Department of Agriculture

Felix Joselito H. Noceda

Technical Advisers

Mario V. Capanzana
Julian F. Gonsalves

Virgilio O. Guevarra
Yolanda S. Oliver
Galileo L. Go
Sentinel Research Schools
Julugan Elementary School Personnel
Sunnybrooke Elementary School
Personnel
Tinabunan Elementary School
Personnel
Region IVA Lighthouse Schools
Personnel

Table of Contents

Section	Page
I. Introduction	1
II. Objectives	5
III. Methodology	5
IV. Limitations	11
V. Research Findings	11
VI. Discussion	23
VII. Conclusion	27
VIII. Recommendations	27
IX. References	29
Annexes	31

List of Tables

Table 1. Fifty-eight (58) lighthouse schools (LS) in Region 4A.....	5
Table 2. Prevalence of PinggangPinoy and 10 Kumainments in 55 lighthouse schools.	15
Table 3. Number of lighthouse schools integrating nutrition and related themes per subject area.....	19
Table 4. Summary table on nutrition education modalities in the 55 lighthouse schools.	22

List of Figures

Figure 1. Participatory nutrition education activities done in the three sentinel schools.	12
Figure 2. Number of lighthouse schools conducting nutrition education during PTA/PTC.....	13
Figure 3. Nutrition education during PTA/PTC in sentinel schools in SY 2016-17 and 2017-18.....	14
Figure 4. Commonly used methods of non-formal nutrition education activities in 55 lighthouse schools.	14
Figure 5. Frequency of nutrition education during feeding time in lighthouse schools.....	17
Figure 6. Frequency of nutrition education during feeding time in sentinel schools. *	18
Figure 7. Comparison of frequency of nutrition education during feeding in sentinel schools (SY 2016-17 and 2017-18).	18
Figure 8. Number of lighthouse schools integrating nutrition in various subject areas.....	20
Figure 9. Subject areas with nutrition integrated in sentinel schools.	21

I. Introduction

About 795 million people are undernourished globally (FAO, IFAD and WFP, 2015). In the Philippines, approximately 7 million children suffer from hunger and malnutrition (Mocon-Ciriaco, 2017). The Philippine National Nutrition Survey conducted by the Food and Nutrition Research Institute-Department of Science and Technology (FNRI-DOST) in 2015 showed that 31.2% of Filipino children aged 5-10 years old are underweight for their age, 31.1% are stunted or too short for their age, and 8.4 % are wasted or too thin for their height.

The Department of Education (DepEd) Nutrition Status Baseline Report for SY 2015–16 has recorded 1,845,687 severely wasted and wasted students in Kindergarten to Grade 6 levels, approximately 12% of the total enrollment for that school year (higher than the national prevalence) (Tabunda et al., 2016). Clearly, this is a reason for concern. Fortunately, this situation has in recent years been brought to the attention of the country's planners, policymakers, and legislators.

Another form of malnutrition is surfacing in the Philippines: obesity or overweight. The 2015 prevalence of overweight/obesity was 8.6 % among children aged 5 to 10, and, 9.2% among children aged 11 to 19 years old.

Schools as platforms for nutrition intervention

Schools provide strategic, targeted pathways for delivering nutrition interventions among children. Sometimes, it may be the only place children learn basic skills in food, nutrition, and health. The Food and Agriculture Organization (FAO) has cited how schools can play a vital role in addressing malnutrition (FAO, 2017):

- Children learn easily at their young age. With teachers whom they highly regard linking food and nutrition education with fun learning activities and other subjects, they effortlessly gain good nutrition and health habits.
- Feeding programs in schools alleviate short-term hunger. It also serves as an avenue for children to practice healthy eating habits and food safety.
- Healthy food served in the cafeteria, if combined with nutrition education, can improve child nutrition and help them develop healthy food choices.
- School gardens provide a platform to learn how to grow and prepare their own food, an approach shown to increase their preference for fruits and vegetables. In addition, it also promotes environmental awareness.
- Schools can facilitate policies that promote and support healthy eating and hygiene patterns—e.g. rules on handwashing or regulation of processed foods brought inside the school.
- Parents and families can be involved in the students' food and nutrition-related activities—e.g., gardening, extending the reach of nutrition interventions to the wider community.

Such activities help establish a conducive or enabling environment for a child to learn and adopt good nutrition practices.

Nutrition Education

Nutrition education, defined by Contento (2012), is “any combination of educational strategies, accompanied by environmental support, designed to facilitate voluntary adoption of food choices and other food and nutrition-related behavior conducive to health and well-being.” It may be through dissemination of science-based nutrition information, food and nutrition-related skills development (e.g., cooking or gardening), or provision of an enabling food environment.

Studies have shown that, if done well, nutrition education is effective in creating a positive attitude toward valuing and consuming fruits and vegetables. It can significantly decrease Body Mass Index (BMI) and overweight status, and it can improve academic outcomes of children^(*ibid*). In a study of Park (2000), elementary school children had significantly higher preference scores for vegetables after finishing a 6-week nutrition education program, which included teaching, guidance, and materials to familiarize children with vegetables. Nutrition knowledge scores significantly improved from 57.1 to 66.4 and breakfast skipping significantly decreased^(*ibid*). Significantly greater improvement in overall dietary behaviors such as consumption of fruits and vegetables were also seen from children in the treatment group than from the control group of another study on the effect of nutrition education program on the dietary behavior and nutrition knowledge of 2nd and 3rd grade students (Powers et al., 2005). Also, Kirks and Hughes in 1986 showed that children aged 5-9 years old whose parents received nutrition education alongside them consumed a better diet than those whose parents were not directly involved.

With children and parents voluntarily opting for healthy eating habits and dietary choices, the improvement in nutrition status achieved from other nutrition interventions such as a feeding program may be maintained. Consequently, in the 2013 Global Child Nutrition Forum meeting in Salvador, Brazil, delegates committed to promote integration of school feeding programs with effective complementary interventions such as nutrition education (“Schools as platforms,” 2015). The FAO basic framework for effective school health and nutrition (SHN) programs entitled “Focusing Resources on Effective School Health” (FRESH) includes skill-based health and nutrition education as one of its four core components. Such core actions are known to be feasible and effective even in the most resource-poor schools and hard-to-reach rural areas (WHO, UNESCO, UNICEF, and World Bank, 2000). In the FAO framework, the other three components were health-related school policies, provision of safe water and sanitation, and school-based health and nutrition services.

Nutrition education in Southeast Asian schools

Nutrition education programs such as those implemented in some Asian and Pacific countries, are a component of a more comprehensive SHN program; nutrition education is seldom a stand-alone subject (FAO, 2007). The 2016 report on School Health Care and Nutrition Policies and Programs in Primary schools of Southeast Asia has suggested initiatives to promote healthy lifestyle and behavior through skill-based education (SEAMEO INNOTECH, 2016).

In Brunei, an enabling food education environment is established through the provision of healthy snacks or lunch under the effort of the school feeding scheme services unit^(*ibid*). The Co-curriculum Department and Health Promotion Center ensure that healthy lifestyle is taught to students through campaigns, events, and promotional materials about health and nutrition issues. The Ministry of Health conducts health talks about dental and personal hygiene and diabetes along with their health screening

activities for selected grade levels. In Cambodia, food sold in the school canteen is monitored and access to clean food and drinking water is ensured—both of which are contributors to a conducive food environment, in view of the 2006 Policy on Child-Friendly Schools. Life skill education and health education programs are implemented based on the 2009 Policy on School Health and National Policy for Helminth Control. In Malaysia, the Healthy Kids Program promotes healthy eating and active living through health education modules (delivered with the help of an interactive website), while NutriFun roadshows promote proper and adequate nutrition among students. Parents are given resources such as meal plan templates, guidebooks, and easy but nutritious recipes. They also have Nutrition Month Malaysia, a month-long campaign to promote proper nutrition through activity workbooks for children and resource materials for teachers.

Thailand has programs that emphasize the development of nutrition-related skills and positive dietary behavior. The We Can Do Program includes food safety and dental hygiene among its targets^{ibid}. The food safety aspect teaches children food and nutrition knowledge, healthy consumer behavior, and control of food-borne illnesses while also ensuring supervision of cleanliness and handling practices in preparing food served in the schools. The dental hygiene component teaches students regular tooth brushing and emphasizes control of their sugar intake. Two campaigns have also been launched in schools namely, *Eat your Veggies* and *Sweet Enough*. The *Eat your Veggies* campaign is aimed at developing healthy eating behavior among children. It includes cooking workshops for children and professional development programs for school nutrition service managers. Meanwhile, *Sweet Enough* campaign is focused on reducing consumption of sugary foods and beverages plus the advocacy to ban sale of soft drinks in public schools. In addition to these, Her Royal Highness Princess Maha Chakri Sirindhorn also initiated the Agriculture for School Lunch Project in 1980¹¹. Through the different components—i.e., school gardening, school lunch, and school cooperative shop, children learn how to grow plants, raise livestock, sell and account for their products, and prepare their own meals—an approach that leverages on the concept of learning by doing.

Nutrition education in Philippine public elementary schools

Nutrition education in public elementary schools in the Philippines is also emphasized under different school health programs. DepEd Order 10 s. 2016 on the Comprehensive Water, Sanitation and Hygiene in Schools (WinS) Program requires all food handlers to have proper training on the Codes of Sanitation of the Philippines. DepEd Order 14 s. 2005 on the Instructions to Ensure Consumption of Nutritious and Safe Food in Schools mandates all schools to provide healthy food to students through a school canteen and to integrate basic food safety concepts in the curriculum.

Furthermore, the Operational Guidelines on the Implementation of School-Based Feeding Program (SBFP) for SY 2017-2022 (DepEd Order 39 s. 2017) mandates several modes of nutrition education in its different sections. Mechanics on feeding prescribes teaching the SBFP beneficiaries about the importance of good nutrition to health and development during feeding. SBFP coordinators/teachers are encouraged to discuss the menu for the day and its nutrient value among feeding beneficiaries every day. The guideline also cites the following complementary activities: food production training for parents; integration of nutritional guidelines for Filipinos in class discussions and other alternative modes of education; and use of the daily nutritional guide and other nutrition information and education materials from the National Nutrition Council.

Although the presence of national policies that promote nutrition education is a facilitating factor for success, there still remain some gaps between actual implementation and success of nutrition education interventions. In the Technical Meeting of the Asia Pacific Network for Food and Nutrition (ANFN) on School-Based Nutrition, the need for practical hands-on nutrition education was flagged. Learning by doing was emphasized (FAO, 2007). In another report on SHN programs, limited or insufficient funding and human resource was cited as impeding successful implementation (SEAMEO INNOTECH, 2016). Implementation and monitoring of SHN programs is challenging when the ratio of school staff to student population is very high. Also, lack of full support from parents is cited to affect the successful implementation of the SHN programs.

The integrated school nutrition model in the Philippines

Cognizant of these gaps, a 3-year action research project (Phase 1) funded by IDRC from 2012 to 2015 developed and tested an integrated nutrition model of gardening, supplementary feeding, and nutrition education among school children in Cavite Province, Philippines. It emphasized on building the synergy among the three interventions to maximize use of available resources and human power. Results showed enhanced knowledge, attitude, and practices (KAP) on gardening and nutrition among parents. Supplementary feeding of malnourished school children using iron-fortified rice and indigenous vegetables from school gardens significantly improved their nutritional status. The project tested and successfully sustained bio-intensive nutrition gardens and crop museums that aimed to retrieve and conserve crop cultivars while improving year-round availability of a diverse range of climate-resilient, locally adapted, and nutritionally important vegetables (Oro and Agdeppa, 2015).

The following key findings related to nutrition education were arrived at in the first phase of this action research project. Nutrition KAP of both students and guardians had various improvements as result of exposure to nutrition education sessions undertaken in conjunction with school feeding programs.

Among children:

- Increased knowledge (65.3–76.2%) and attitude (78.2–89.1%) of children on the importance of having home gardens and improved attitude toward consumption of a variety of foods (74.1–84.4%)
- Improved recognition of the negative effects of worm infestation (42.8–47.6%)

Among parents:

- Improved knowledge on the importance of consumption of fruits and vegetables to prevent sickness (93.9–100%), serving breakfast for children (42.4–78.8%), having home gardens (78.8–93.9%), and the negative consequence of worm infestation (33.3–60.6%)
- A more positive attitude (63.6–93.9%) and practice (27.3–87.9%) on proper preparation and serving of fruits and vegetables; and improved attitude (51.5–66.7%) and practice (51.5–93.9%) on the purchase of fortified foods for children
- Significantly increased baseline-to-endline mean scores concerning lessons in constraints and challenges in sustaining nutrition in home settings, proper nutrition guidelines and nutrition practices, encouraging children to eat vegetables, vegetable preparation and cooking, food fortification, and personal hygiene and health

However, it was also found that regular attendance of participants in nutrition education sessions is essential to build positive attitude and practice on good nutrition. Hence, the study sought to explore more platforms within the school in which nutrition education may be introduced regularly and sustainably.

Phase 2 of this project will deepen the understanding and operationalization of the integrated model by expanding the number of research schools. This working paper will specifically focus on the nutrition education component, exploring the potential of schools as platform for hands-on nutritional and environmental learning with the ultimate intention of influencing school health and nutrition programming (currently targeted toward 2 million malnourished school children). The objectives of the Phase 2 of the project are presented below.

II. Objectives

Goal

To institutionalize and scale up the implementation of a sustainable, holistic, gender-sensitive, and integrated school nutrition model to improve nutritional awareness and status of school-age children in the Philippines.

General objective

To use schools as platforms for nutritional and environmental learning and sharing

Specific objectives

1. Identify ways how schools can influence nutrition awareness of parents and communities
2. Identify prerequisites and enabling factors for schools to serve as local platforms for nutritional and environmental learning and sharing

III. Methodology

A. Research design and study sites

The research involved select public elementary schools in Cavite Province and in other provinces of Region IV-A. A total of 58 schools (40 schools in Cavite and 18 schools from Laguna, Batangas, Rizal, and Quezon provinces) were selected using purposive sampling. Table 1 shows the list of 58 lighthouse schools (LS).

Table 1. Fifty-eight lighthouse schools (LS) in Region IV-A.

School	District
Division of Cavite Province	
1. Upli ES	Alfonso
2. Amadeo ES	Amadeo
3. Mariano Anakay ES	Amadeo
4. Carmona ES	Carmona

5. Bailen ES	Gen. E. Aguinaldo
6. General Gregorio S. Aloña Sr. MES	General Trias I
7. Sunny Brooke ES	General Trias II
8. San Gabriel 2 ES	GMA
9. Indang CS	Indang I
10. Alulod ES	Indang II
11. PotoI Sta. Isabel ES	Kawit
12. Medina ES	Magallanes
13. Maragondon ES	Maragondon
14. Panungyan ES	Mendez
15. Naic ES	Naic I
16. San Roque ES	Naic II
17. Noveleta ES	Noveleta
18. Bagbag 2 ES	Rosario
19. Kalubkob ES	Silang I
20. Bulihan Sites & Services Project ES	Silang I
21. Maguyam ES	Silang I
22. Pulong bunga	Silang I
23. Malabag ES	Silang II
24. Carlos Batino MES	Tagaytay
25. Isidro Cuadra ES	Tagaytay
26. Julugan ES	Tanza
27. Ternate CS	Ternate
28. Lapidario ES	Trece Martires City
City Division of Bacoor	
29. Talaba ES	Bacoor II
30. Bacoor CS	Bacoor I
31. Malipay ES	
City Division of Imus	
32. Imus Pilot ES	Cluster I
33. Governor Camerino ES	Cluster II
34. Tinabunan ES	Cluster III
City Division of Dasmarinas	
35. Dasmariñas II CS	Cluster V
36. Dr. Jose P. Rizal Elementary School	Cluster VIII
37. Langkaan ES	Cluster II
38. Malinta ES	District III
39. Paliparan ES	District IX
City Division of Cavite	
40. Sangley ES	N/A
City Division of Binan	
41. Timbao ES	Cluster 1

City Division of San Pablo	
42. San Roque	Fule Almeda
Division of Laguna	
43. Liliw CES	Liliw
44. Majayjay ES	Majayjay
City Division of Lucena	
45. Lucena East III ES	East
City Division of Tanauan	
46. Tinurik ES	Tinurik
City Division of Antipolo	
47. Kaysakat ES	Kaysakat
City Division of Sta Rosa	
48. Caingin ES	Caingin
City Division of Batangas	
49. Malitam ES	District IV
Division of Quezon Province	
50. San Antonio CS	San Antonio
51. Pitogo CS	Pitogo
Division of Batangas Province	
52. Ayao-iyao ES	Lemery
53. Pinagtungulan ES	San Jose
Division of Rizal Province	
54. Wawa ES	Tanay
55. Binangonan ES	Binangonan
City Division of Lipa	
56. Lumbang ES	Lumbang
City Division of Calamba	
57. Eduardo Barretto Sr. ES	East I Cluster I
City Division of Tayabas	
58. North Palale ES	North

All schools received direct support from the project. Out of the 58 LS, three schools were selected to serve as sentinel research sites, namely: Tinabunan Elementary School (ES) from the Division of Imus City; Sunnybrooke ES and Julugan ES both from the Division of Cavite Province. These sentinel schools are where the integration of the three components— gardening, supplementary feeding, and nutrition education— were introduced. Intensive supervision and monitoring including the provision of technical and operational assistance was extended by the project team to these three schools. For the nutrition education component, the research was directed towards determining requirements and enabling factors for schools to become platforms for nutritional and environmental learning and sharing. On the other hand, LS had a wider mandate to implement (under limited supervision, with no special financial allocations) the integrated approach, maintain a crop museum, and share these experiences with other schools in the district and division where they were located. Sentinel schools were the primary research sites and the LS were the outreach sites where a more limited scale of research was

undertaken. Nutrition education was undertaken in both the categories of research schools and subjected to data collection and analysis.

B. Program components

Development of implementation guidelines

The research project team worked closely with partners from DepEd to develop implementation guidelines for the integrated school nutrition model, using a collaborative, joint and participatory process. Guidelines were formulated carefully to review the functional and structural challenges encountered in Phase 1. A guideline specifically for nutrition education in schools was developed (Annex 1).

Capacity-building strategies

Consistent with the findings of the Technical Meeting of the Asia Pacific Network for Food and Nutrition on School Based Nutrition that the lack of trained teachers in nutrition is a major constraint to effective nutrition education, the research project looked at various strategies to build the capacity of participating teachers.

1. Training of trainers

A capacity-building program for the 58 LS in Region IV-A was conducted. The school administrators and teachers from the 58 schools were trained in two batches: Batch 1 (May 2-3, 2016) consisted of 40 schools from Cavite and Batch 2 (May 23-24, 2016) comprised the remaining 18 schools from other divisions in Region IV-A. The training program provided a platform for the LS to discuss the implementation of the model in their respective schools. It also enabled transfer of knowledge and skills in a very short period of time, utilizing experiential learning and a combination of interactive lectures and hands-on sessions. A plan of action was developed by the participants for each lighthouse.

2. Learning exchange events

Aside from the division- and school-initiated learning events, there were also two learning exchanges organized by the project team in coordination with two of the research schools to model how schools can serve as a platform for nutrition and environmental learning.

On February 28, 2017, a Learning Exchange for non-government organizations, government agencies, local media, and other schools was held in Tinabunan Elementary School, one of the sentinel schools. It served as an avenue for 98 delegates from different agencies to learn about the integrated school nutrition model as well as to share their work related to the research project. It also provided a forum for the delegates to exchange good practices on gardening, nutrition education, and feeding programs.

An interdivision learning and recognition event was also held on March 24, 2017 in Pinagtung-Ulan Elementary School, one of the LS in Batangas Province. The event attended by 90 participants became a venue to recognize and promote in Region IVA some innovative strategies that the schools developed to help them implement the integrated nutrition model effectively and efficiently. Some of the good practices being undertaken by lighthouse schools are presented below.

- Strong integration of school gardening and feeding programs
- Innovation of various gardening techniques
- Consistency in use of the school garden as a learning laboratory
- Maintenance of year-round school garden diversity
- Distribution of the largest quantity of seeds/planting materials shared to Parents & Schools
- Promotion of indigenous vegetables to parents and children
- Innovation of recipes using indigenous vegetables

3. Consultative Workshop on Improving Food Security in the Philippines through school interventions

A consultative workshop among school heads of the 58 LS was held on October 24-26, 2017. It served as an avenue to gather feedback for further enhancement of guidelines for the integrated school nutrition model. It also served as a platform to strengthen the capacity of school administrators in implementing ISNM through technical update sessions, benchmarking visits, and a study tour to the Institute of Plant Breeding in University of the Philippines-Los Banos and the International Rice Research Institute.

4. Monitoring and provision of technical assistance

Implementation and integration of the three project components (gardening, supplementary feeding, and nutrition education) in the 58 LS were monitored thru four rounds of data-gathering and mentoring visits:

- 1st round: Jul 4–Aug 24, 2016
- 2nd round: Sep 21–Nov 15, 2016
- 3rd round: May 16–Jul 18, 2017
- 4th round: Oct 9–Nov 23, 2017

The project team documented good practices and challenges encountered through key informant interviews (KIIs) and, for the nutrition education component, records were reviewed. Pertinent information drawn from these interventions was used to determine what technical assistance had to be provided to school coordinators and administrators.

The three sentinel schools were also visited weekly or twice a month to closely monitor project implementation and provide immediate mentoring on challenges they faced.

Enhancement and distribution of information, education, and communication (IEC) materials

The IEC materials developed during the Project's Phase 1 were enhanced based on feedback and lessons learned. Contents were updated and each module/poster was kept as concise as possible to help teachers and other users get the key messages easier. Its visual appeal was also upgraded to catch and sustain the interest of readers. These posters and modules were distributed to the LS during monitoring visits to help teachers better integrate nutrition topics into their daily lesson plans and to help them introduce nutrition promotion activities to their regular parent-teacher meetings.

A recipe book highlighting iron-rich dishes was also developed by FNRI-DOST to help the schools serve alternative iron-rich food sources (when iron-fortified rice was not available). This recipe booklet also helped promote the utilization of legumes in the SBFP menu.

Nine designs of nutri puzzles were also developed for younger children. These were provided to the three sentinel schools while a soft copy of the designs and low-cost production instructions were shared with the remaining LS to encourage them to test, refine, and further adapt these educational support materials.

Establishment of school nutrition bulletin board and nutrition learning resource center

Among the non-formal nutrition education strategies tested in the current research phase were the nutrition bulletin board and the nutrition learning resource center (LRC).

All LS were encouraged to maintain a bulletin board in a strategic location where children and adults could read nutrition facts or trivia. Schools were guided on site selection and possible content for the bulletin board. This included posters and other IEC materials shared by the project. For the three sentinel schools, financial support was given by the project to enable them to put up a sturdy nutrition bulletin board in an area most visible to parents and students.

The LS were also encouraged to have a nutrition LRC, an area with informative and interactive educational materials about nutrition, in a location most feasible for the school, using their own budget. For sentinel schools, the project solicited from the National Nutrition Council (NNC) and the Nutrition Center of the Philippines (NCP) for IEC materials. This was in addition to the nutri-puzzles, flash cards, and game cards developed by the team for the project. Good practices developed in each sentinel school were shared with other schools.

C. Data collection and analysis

The research employed both quantitative and qualitative methods. Baseline data were collected at the start. Interviews were conducted to document the nutrition education interventions in schools prior to the implementation of the integrated nutrition model. The questionnaire used can be seen in Annex 2.

As part of the research, schools were provided four types of nutrition education forms in which activities were recorded. These were undertaken during feeding, during Parent-Teacher Association meetings/conferences (PTA/PTC), and during classroom discussions. The last form was used for recording all other nutrition education activities and platforms (Annex 3-6). Records included the date, topic, and mode of delivery. This served as reference for the project team during monitoring and mentoring visits. These visits were done weekly or twice a month for sentinel schools and on a bi-annual basis for all 58 LS. In addition, KIIs and focused group discussions (FGDs) were undertaken in the sentinel schools to further explore nutrition education opportunities, challenges, and priorities.

At the end of the research period, the same questionnaire used at the start of the research was administered again. The nutrition education records (the four forms mentioned above) maintained by each school provided additional data sources. These were consolidated to document the status of nutrition education interventions *after* adoption of the integrated nutrition model.

IV. Limitations

The conduct of nutrition education interventions in schools were not directly observed by the research team and were only validated through attached documentation/photos and interview.

V. Research findings

In recent years, among the various settings used for delivering nutrition education, schools probably received the most attention for two reasons: school-age children are at the age when they form life-long habits and students act as an important link between the school, home, and the community (Hawkes, 2013).

The nutrition education methods studied in this research were divided into two main modalities: non-formal and formal. Non-formal methods are targeted to parents, teachers, and the general community, whereas the formal modes are directed specifically toward students.

Non-formal nutrition education modalities

Participatory nutrition education activities for communities and parents

Participatory nutrition education activities for the community and parents included experiential learning activities. This included activities such as recipe development and garden tours, which require involvement of the target audience.

Forty-six of the 55 LS, 83.64%, recorded nutrition education interventions for parents and the general community done outside of feeding time and during classroom discussion, and PTA meetings/PTCs; these are considered (and consolidated) as participatory nutrition education activities. In comparison with the baseline data, only 41 LS reported conducting nutrition

education activities for parents and the general community. There was thus a 12.19% increase in the number of LS schools conducting nutrition education for parents.

Most of these activities, 34 of the 46 LS (73.91%), were held in July during the nutrition awareness month celebration, which is mandated through Presidential Decree No. 491, also known as the Nutrition Act of the Philippines, issued on June 25, 1974 (Medina, 2017).

The second commonly used platform for nutrition education was during the orientation for programs such as the School-Based Feeding Program (SBFP), Gulayan sa Paaralan Program (GPP), and WASH in Schools (WinS).; This was observed in 30 of the 46 LS (65.22%). Such orientations were done only once a year for each program.

Other platforms used for participatory nutrition education activities were the regular learning action cell meetings and volunteer parents' gardening sessions. A full list can be seen in Annex 7.

Records from the three sentinel schools showed that average frequency of participatory nutrition education activities during the first year of model implementation ranged from zero to three times in a month (Figure 1). The mean average frequency was once a month. The highest average frequency was observed in July. In school year 2017-2018, the average monthly frequency of participatory nutrition education activities ranged from zero to five times a month from June to November. The mean average frequency was 1 to 2 (1.6) per month.

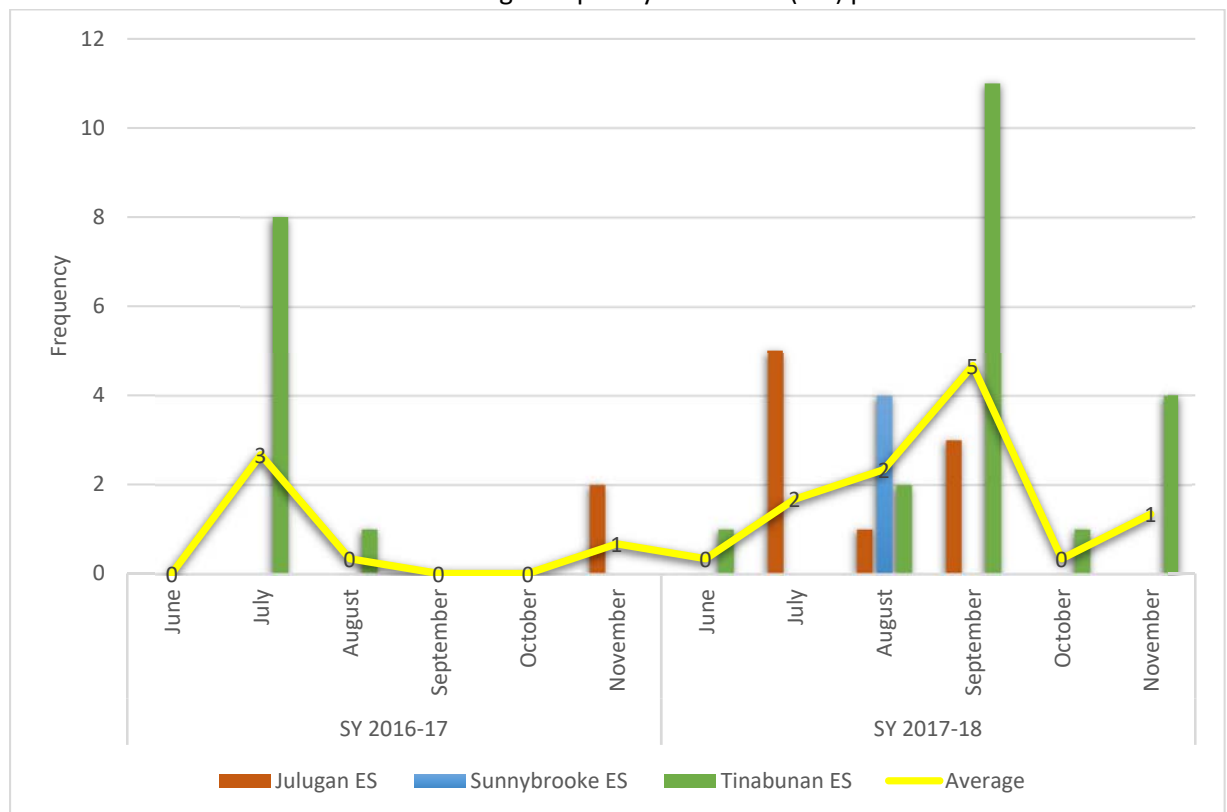


Figure 1. Participatory nutrition education activities done in the three sentinel schools.

Nutrition education during Parent-Teacher Association meetings/conferences (PTA/PTC)

Every elementary and secondary school is mandated to organize a Parent-Teacher Association (PTA) to provide “a forum for the discussion of issues and their solutions related to the total school program and to ensure the full cooperation of parents in the efficient implementation of such program (DepEd, 2009).” Also, as per DepEd Order 54, s. 2009, members of the PTA which include parents, students, teaching, and non-teaching personnel of the school “shall be convened as may be necessary but in no case less than twice a year ^{ibid}.” Hence, another modality explored in the research is the conduct of nutrition education during this regular PTA/PTC. Depending on the dynamics in each LS, individual classroom advisers or the nutrition education coordinator in the school conducts nutrition education during PTA/PTCs.

Data from LS showed that a total of 37 out of 55 LS (67.27 %) used the PTA/PTC as a platform to deliver nutrition information to parents and teachers. It was observed that, in the first year of model implementation, most LS inculcate nutrition education in PTA/PTCs in September, before the semester break in October. On the other hand, the number of LS integrating nutrition education in PTA/PTC in the first 3 months of school year increased in year 2, SY 2017-2018 (Figure 2).

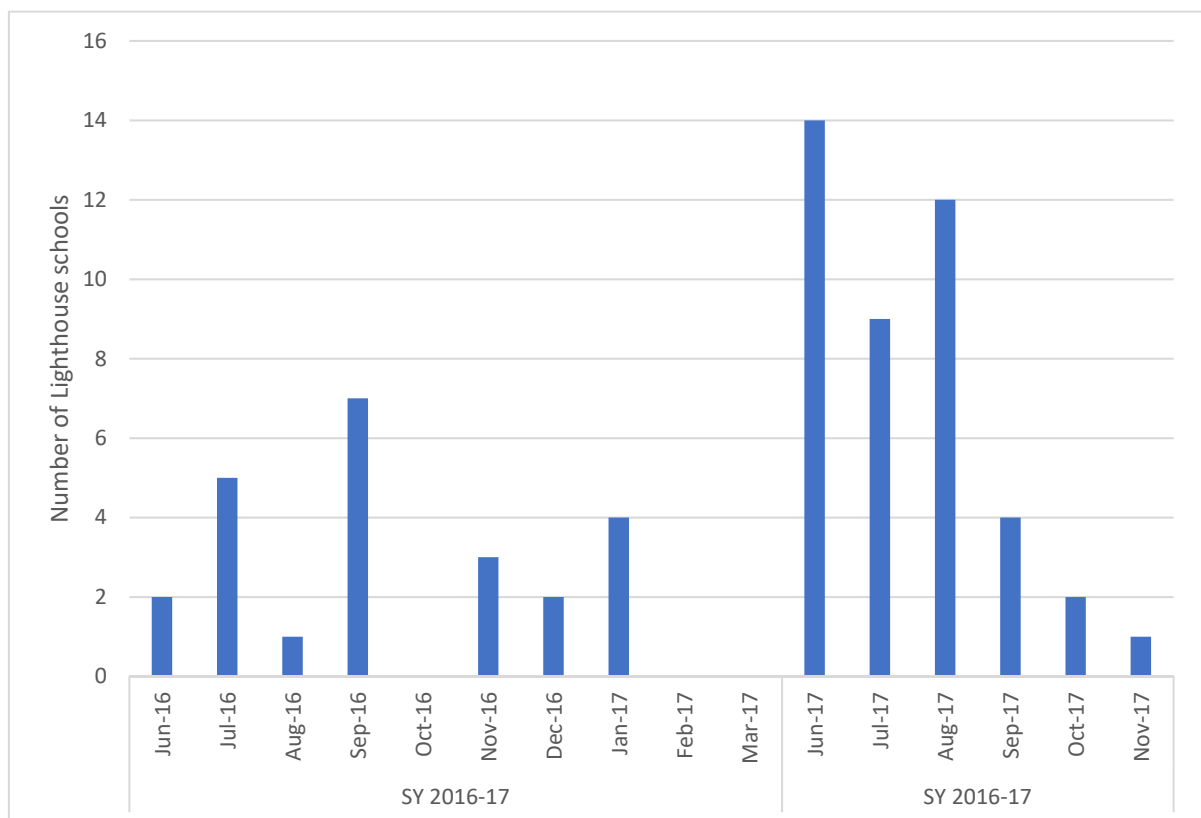


Figure 2. Number of lighthouse schools conducting nutrition education during PTA/PTC.

In sentinel schools, records show that only one of the sentinel schools was able to consistently conduct and record nutrition education during the quarterly PTA/PTCs in the first year of model implementation (Figure 3). In the second year of implementation though, all three sentinel schools were able to include nutrition education in the quarterly PTA/PTCs.

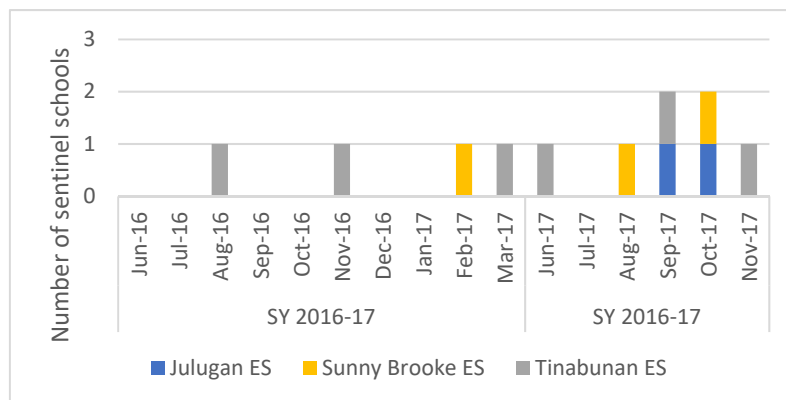


Figure 3. Nutrition education during PTA/PTC in sentinel schools in SY 2016-17 and 2017-18.

Methods used during non-formal nutrition education activities

The commonly used methods for different non-formal nutrition education interventions among 55 LS are summarized in Figure 4. It can be seen that lecture is the most commonly used method, followed by demonstrations or cooking festivals. Also, audio-visual presentations are usually given during participatory nutrition education activities for the general community and during PTA meetings/PTCs. Other methods used by LS and sentinel schools were visits to the garden or other food-production-related sites, setting up of food-tasting booths, and involvement in food preparation activities (Annex 8).

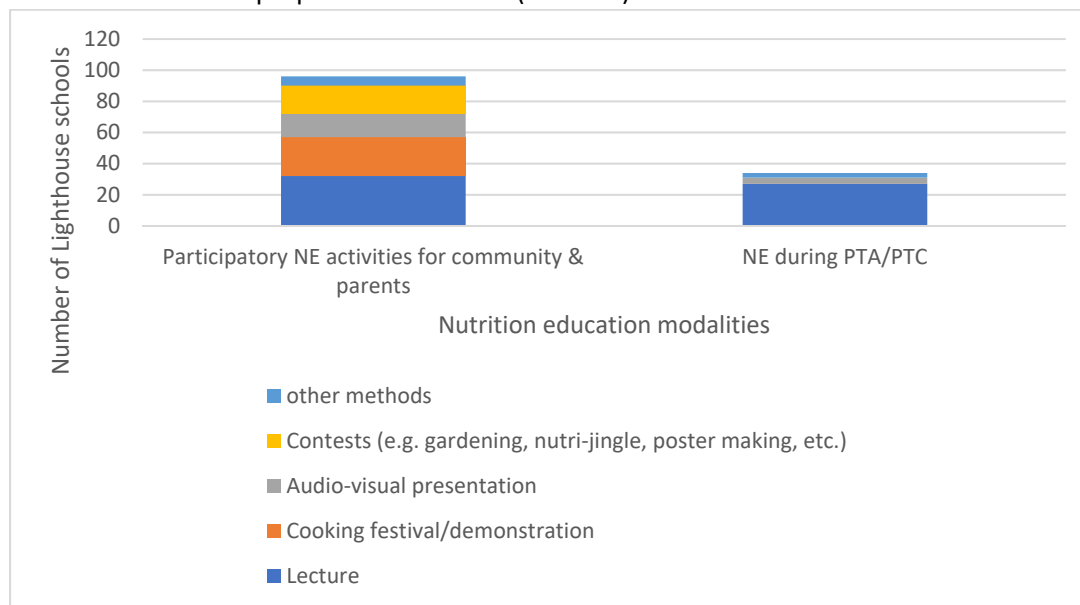


Figure 4. Commonly used methods for non-formal nutrition education activities in 55 lighthouse schools.

Other non-formal nutrition education modalities

Other non-formal nutrition education modalities tested in schools included the setting up of a nutrition bulletin board and establishing a nutrition learning resource center (LRC).

School nutrition bulletin board

The school nutrition board is a designated bulletin, located in a strategic place, with IEC materials such as posters, recipes, crop information, and other interesting articles and nutrition messages posted on it. Of the 55 LS, 27 schools (49.09%) were able to put up such bulletin boards in different variations: as a stand-alone nutrition bulletin for the whole school, as a portion of the health and nutrition corner in each classroom, or as a bulletin for nutrition messages in the feeding and/or canteen area.

In sentinel school sites, all three schools were given financial and technical assistance for putting up a stand-alone nutrition bulletin board. Teachers reported that it was challenging for them to think of topics to post in the bulletin board. They were also provided with a copy of the Department of Health calendar of health and related activities as a reference.

It has been observed that LS also display nutrition IEC materials in other areas within the school. The number of LS displaying up-to-date nutrition IEC materials (e.g., Pinggang Pinoy and 10 Kumainments) was documented and there was an observed increase in the number of LS displaying such after project implementation (Table 2).

Table 2. Prevalence of PinggangPinoy and 10 Kumainments in 55 lighthouse schools.

Updated IEC material	Baseline (%)	Endline (%)
PinggangPinoy	29 (52.73)	50 (90.91)
10 Kumainments	29 (52.73)	52 (94.55)

Nutrition learning resource center

The Nutrition LRC is a library of nutrition and health-related informational materials open to students, teachers, and the general community. Of the 55 LS, only four (7.27%) were able to put up an LRC for nutrition. Most commonly, it was set up in the feeding center because there is no other available space, and IEC materials are limited. Also, one of the LS integrated the nutrition LRC with the mini-library of each classroom such that individual advisers could raise/collect nutrition and health references for their respective students and take advantage of the available space in the room.

In the three sentinel schools, nutrition LRCs were established differently. One school incorporated it in the existing school reading center set up outdoors. Another school allocated half of their library for nutrition and health reference materials. The other sentinel school set up a nutrition LRC within the feeding center.

All three LRCs have space that can accommodate approximately less than 3% of the total school population and are located in a site accessible to students, teachers, and parents. However, two are exposed to weather elements such as rain and flooding.

The types of IEC materials used include magazines, storybooks, flyers, and posters (in a few cases, some flipcharts and model displays). Most materials were donated by students, teachers, and the City Health Office. The Schools Division Office (SDO) was instrumental in generating support from local government agencies (LGA). Additional materials were purchased through the school's Maintenance and Other Operating Expenses (MOOE) fund. All in all, the LRCs contain around 40–70 different IEC materials. In the three sentinel schools, 96-98% of their IEC material collection are dated 2006 onward.

Formal nutrition education modalities

Formal nutrition education encompasses interventions targeted for students. It includes nutrition education during feeding time, integration of nutrition and related themes in lessons, nutrition school-home link, and garden-based learning.

Nutrition education during feeding proper

As encouraged in DepEd Order 39 s. 2017, LS conduct nutrition education during feeding proper. Depending on the available human resources in schools, nutrition education during feeding is usually conducted by the feeding coordinator, nutrition education coordinator, other volunteer teachers, a parent volunteer, or a feeding program beneficiary. Commonly used methods are lectures, demonstration of hygiene practices or food preparation method, and audio-visual presentations. A few schools also brought the feeding beneficiaries to the school garden to familiarize children with indigenous crops and the source of their food.

Based on records, nutrition education during feeding proper was done in 41 of the 55 LS (74.55%). The data showed that the maximum frequency of nutrition education during feeding done within the 120-day feeding program, October 2016- March 2017, was 23 times a month in a school, while the minimum was zero (Figure 5). Majority of the schools were able to conduct nutrition education during feeding time less than five times a month.

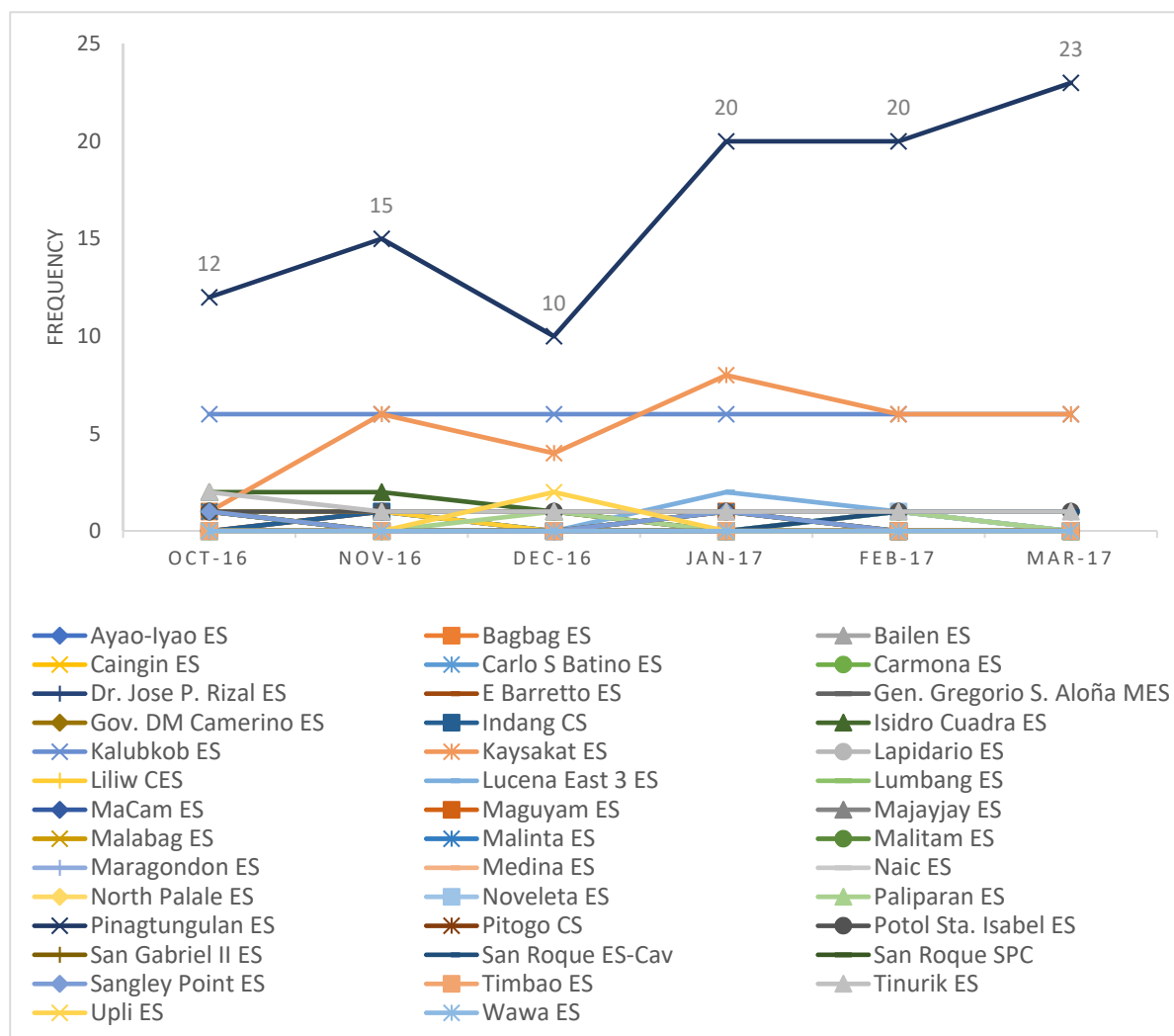


Figure 5. Frequency of nutrition education during feeding time in lighthouse schools.

In addition to these, the records showed that 20 of LS (48.78%) had parents and teachers among their audience in nutrition education during feeding.

On the other hand, records from sentinel schools showed that the maximum frequency of NE during the 120-day feeding program in SY 2016-2017 was 18 times per month and the minimum was zero (Figure 6).

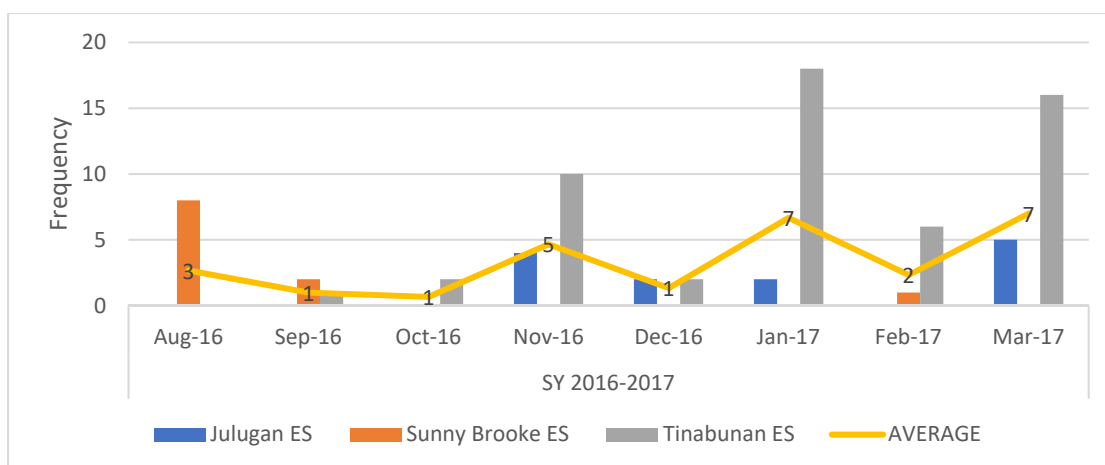


Figure 6. Frequency of nutrition education during feeding time in sentinel schools. *

*The 120-day feeding program during SY 2016-2017 in sentinel schools lasted from August 2016 to March 2017 because they were encouraged to avoid “double feeding” i.e. feeding children twice a day and counting it as two in the 120-day feeding program.

Due to limitations in the duration of data gathering, the comparison of frequency of nutrition education during feeding between SY 2016-17 and 2017-18 in sentinel schools only covered September to December, months in which there were feeding activities and nutrition education data in both school years (Figure 7).

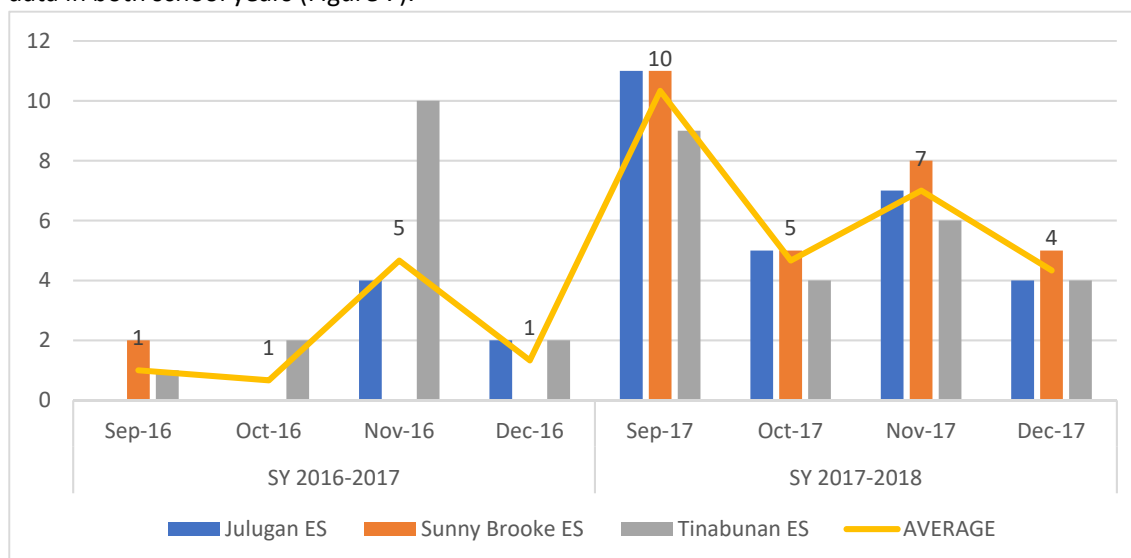


Figure 7. Comparison of frequency of nutrition education during feeding in sentinel schools (SY 2016-17 and 2017-18).

The frequency of nutrition education during feeding among the sentinel schools in the first year of implementation ranged from once a month to five times a month. The mean average frequency was twice a month. The graph shows that, during this period, there were months when one or two of the sentinel schools had no nutrition education during feeding. In the second year of implementing ISNM, the data showed that the frequency of nutrition education during feeding ranged from 4 to 10 times a month, with mean average frequency of six times a

month. Also, all three sentinel schools conducted nutrition education during feeding from September to December 2017.

Nutrition integration in lessons

As mentioned in the introduction, nutrition-related messages are already present in Science, Health, and Technology and Livelihood Education (TLE) in the current curriculum. In Science, nutrition is included in topics on healthful habits of taking care of the sense organs (Grade 3), and functions and care of major organs and body systems (Grades 4 and 6). In Health, nutrition is the topic every first quarter from Grades 1 to 4. In TLE, nutrition is discussed under Home Economics (Grades 4-6), while food production is discussed in Agriculture (Grades 5 and 6). Hence, the study focused more on nutrition integration in other subjects.

Based on submitted records, 37 out of the 55 (67.27 %) LS were able to integrate nutrition and related themes in other subject areas. Table 3 shows the number of LS per subject area. The most common is Mathematics (70.27%), whereas more than half of the 37 LS integrated nutrition in Araling Panlipunan (Social Studies), Edukasyon sa Pagpapakatao (Values Formation), English, and Filipino. All these subjects are taught from Grades 1 to 6. There were LS that integrated nutrition in Mother Tongue-Based Multilingual Education (MTB-MLE), a subject taught in Grades 1 to 3 and in Kinder activities, but these were below 50%.

Table 3. Number of lighthouse schools integrating nutrition and related themes per subject area.

Subject area	LS (no.)	Percentage (N=37)
Mathematics	26	70.27
<i>AralingPanlipunan and/or Sibika, or Social Studies (AP)</i>	21	56.76
<i>Edukasyon sa Pagpapakatao (ESP)</i>	20	54.05
English	19	51.35
Filipino	19	51.35
Mother-Tongue Based Multilingual Education (MTB-MLE)	17	45.95
Kinder activities: Sensory Perception, Meeting Time, Indoor/Outdoor Activity, Story Time	3 and below	≤ 8.11%

A further examination of the data showed that nutrition was usually integrated in Grade 1- 1st quarter topics of Math, AP, and ESP (Figure 8). In Math, nutrition was usually integrated in the topic of whole numbers (1-100), where teachers used fruits or vegetables as visual representation. Teachers also inculcated the importance of eating fruits or vegetables while reading ordinal numbers (1st, 2nd, 3rd, etc.). In AP (Social Studies), good nutrition was commonly integrated in the discussion of personal needs and favorite foods from the garden, a part of exploring their self-identity. Good nutrition was also taught in ESP (Values formation), under the topic responsible care of one's self.

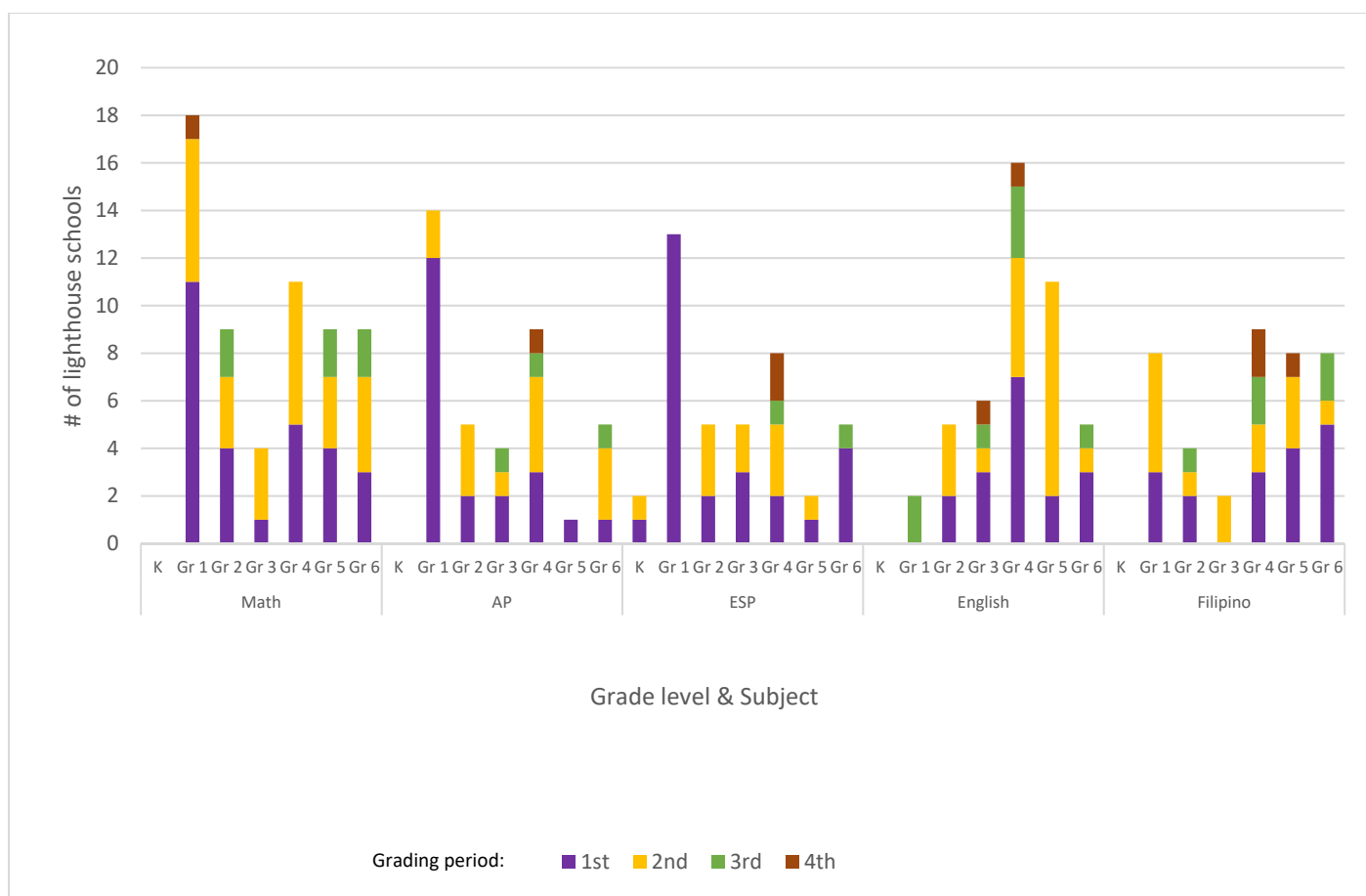


Figure 8. Number of lighthouse schools integrating nutrition in various subject areas.

Nutrition was commonly integrated in English and Filipino during the 1st grading of Grade level 4. Different forms of English and Filipino literature such as poems, stories, or news articles about gardens and nutrition were used in the writing, reading, and comprehension exercises of students. Familiarization with the proper use of Filipino adjectives and adverbs to describe garden scenery was also a common platform of nutrition integration.

Data showed that, on the average, the number of subjects with nutrition integration in the three sentinel schools increased from three to six subjects from the 1st to the 2nd year of model implementation (Figure 9).

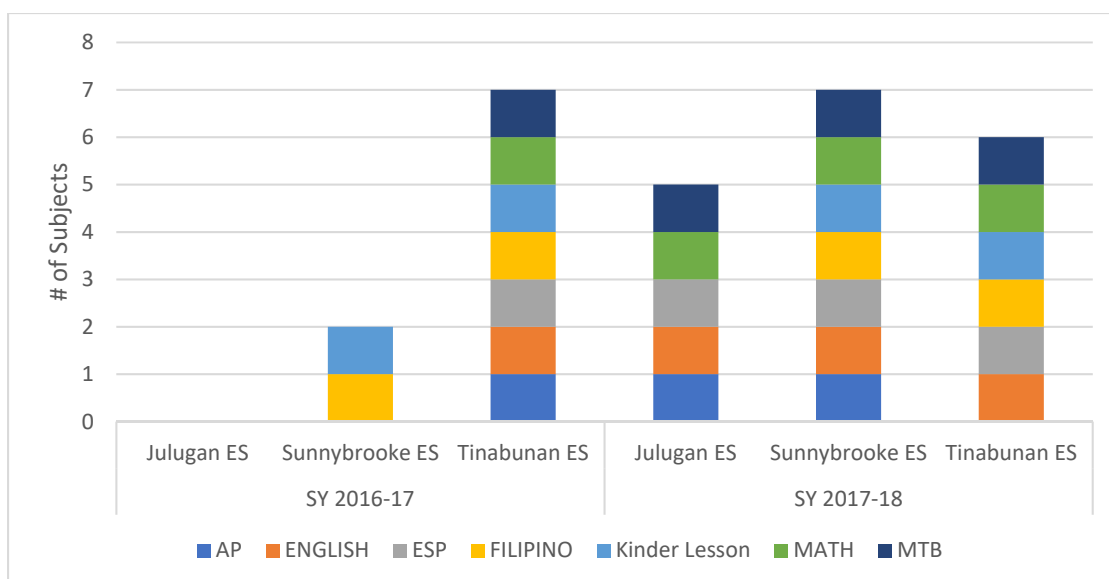


Figure 9. Subject areas with nutrition integration in sentinel schools.

Nutrition school-home Link

The teacher-child-parent (TCP) approach was developed by the Nutrition Center of the Philippines (Solon, 2006). As the name implies, it employs the child as the medium of knowledge transfer from school to the home. It features a set of manuals per subject area, containing lesson plans on nutrition and health messages. The TCP approach was included as a component of Educational Technology for Basic Education of the Education for All Programs of the Philippines from 1991 to 2000.

Though the actual use of the TCP workbooks is no longer applicable due to the transition from Basic Education Curriculum to K to 12, 25 of the 55 LS (45.45%) expressed that they still employ different school activities and homework that encourage parent involvement in the nutrition learning process of children. Some of the most common methods are gardening project at home, take-home food preservation and menu planning assignment, and interview of parents about nutritious foods.

Garden-based nutrition education

In the past years, school gardens have evolved into avenues for learning into what is now called “garden-based nutrition education (Oro and Agdeppa, 2015).” Garden were use as platform for learning and sharing nutrition and environment information in 52 out of 58 lighthouse schools. Furthermore, 36 out of the 55 LS (65.45%) reported using their school gardens as learning venue of children for various subjects. As discussed above in the section of nutrition integration in class, school gardens were used to help children identify their food preferences or as a subject in writing literary forms about nature among intermediate students.

Comparison of various interventions

In summary, the most widely used mode of nutrition education is participatory activities for community and parents (83.64%), followed by nutrition education during feeding (74.55%), nutrition integration in lessons and nutrition education during PTA/PTCs both at 67.27%, and garden-based nutrition education (65.45%) (Table 4).

Table 4. Summary table on nutrition education modalities in the 55 lighthouse schools.

Intervention	Utilization in LS	
	Number of LS	Rate (N=55)
Non-formal		
Participatory NE activities for community & parents	46	83.64%
NE during Parent-Teacher Association meetings/conferences (PTA/PTC)	37	67.27%
School nutrition bulletin board	27	49.09%
Nutrition learning resource center	4	7.27%
Formal		
Nutrition integration in lessons	37	67.27%
Nutrition education during feeding time	41	74.55%
Nutrition school-home link	25	45.45%
Garden-based nutrition education	36	65.45%

Potential impact of nutrition education and the integrated approach

Aside from quantitative data, stories of children and families who learned about good nutrition and who started their own gardens for homestead food production were also gathered (Annex 9). These positive results were achieved through the integrated approach on implementing nutrition education, gardening, and supplementary feeding.

Factors affecting successful implementation

In spite of the widespread conduct and proven effectivity of the different nutrition education interventions, there were some prevalent factors that greatly affected the successful implementation of nutrition education interventions in many of the LS.

Availability of sufficient human and material resources

Availability of sufficient human resources to coordinate, prepare for and implement nutrition education activities is the most common factor identified to affect successful program implementation. It is reported to affect 17 of 55 LS (30.91%) in conducting NE during feeding, 12 LS (21.82%) in maintaining a School nutrition bulletin board and/or Nutrition LRC, and 9 (16.36%) LS in preparing for and including NE in PTA/PTC agenda. In addition, 10 SBFP coordinators (18.18%) expressed that the high work demand on them hinders effective and complete endorsement of NE program between coordinators. As a result, new coordinators are

unaware of the need to conduct NE during feeding and were also unable to promote the use of school garden as a learning laboratory for subjects.

The database of SBFP coordinators, who also usually act as the nutrition education coordinators, showed that the average time spent for feeding activities was 224 minutes. The average teaching load of SBFP coordinators was 248 minutes. These total to 472 minutes or 7 hours and 52 minutes. Aside from this, two or more side duties are assigned to teachers, e.g., Girl scout coordinator, equipment custodian, etc.

Availability of nutrition IEC materials was also a determining factor, affecting the success of nutrition education in schools. Six (10.91%) LS reported that lack of nutrition references or pre-prepared lesson plans (with nutrition integration) is a concern. When asked about the nutrition reference modules given by the project, they reported lost or failure to open the soft copies. It requires extra time and effort to research and revise non-nutrition-sensitive lesson plans. Also, 10 of 55 LS (18.18%) pointed to scarcity of nutrition references as a barrier in the successful set up of the nutrition bulletin board and LRC; five LS further specified that financial resources to reproduce or procure nutrition IEC materials were lacking.

Support from parents/guardians

The second most commonly reported factor influencing effective nutrition education implementation is the level of parent support or participation. Of the 55 LS, 33 (60.00%) mentioned low turnout among parents (due to their own commitment at work) as a factor that hinders successful nutrition education during PTA/PTC gatherings. Low parent support to their child's nutrition-related homework was also reported to affect 9 LS (16.36%) in their efforts to establish nutrition school-home links.

Nutrition knowledge and skills of program coordinators/implementers

The effect of insufficient knowledge and capacity of coordinators on nutrition was observed to be most prominent in the classroom integration of nutrition education. Of the 55 LS, 16 (29.01%) reported difficulty in integration due to "lack of lesson connection with nutrition". As mentioned earlier, there are few available lesson plans with pre-prepared nutrition integration. Without formal background or preparation in nutrition, extra time is required for teachers to research on their own. Cognizant that lesson plans can also be nutrition-sensitive and not necessarily nutrition-specific, there is a need to further equip teachers on nutrition education and to provide them nutrition references and lesson plans.

VI. Discussion

The effectiveness of nutrition education in addressing malnutrition problems through positive behavior change has been established in previous studies. The current challenge lies in sustaining nutrition education programs and interventions to maximize their potential in bringing about the desired results. Data from LS could suggest which nutrition education

method is most feasible in public elementary schools, considering the current policies and levels of human and financial resources. On the other hand, data from sentinel schools represent the ideal situation, i.e., the potential of nutrition education when adequate assistance, funding, and regular monitoring are provided.

Nutrition education is most commonly done among LS usually every July. This may be attributed to the presence of a legal mandate, PD No. 491, that designates July as nutrition awareness month. This is congruent with the SEAMEO INNOTECH report in 2016, which cited that the common facilitating factor for effective SHN implementation in Southeast Asian countries is the provision of constitution, administrative orders, and memoranda with implementing rules and regulations (SEAMEO INNOTECH, 2016).

Nutrition education during feeding programs is the second most common intervention among LS (74.55%). This affirms research findings that school feeding programs have the potential to support nutrition education (Celebuski et al., 1996). Also, as seen from records, some LS reported participation of parents in nutrition education during feeding time. Hence, the school feeding event has served as a strategic venue to deliver nutrition education to those who need it most—i.e., severely wasted and wasted children enrolled in the feeding program and their parents.

Data from sentinel schools showed that the mean average monthly frequency during the first year of implementation, twice a month, is comparable with that observed from majority of the LS, less than five times a month. Low frequency may be attributed to the existing challenge of insufficient human resources vis-a-vis tasks required and the scarcity of nutrition reference materials. True enough, the mean average monthly frequency in sentinel schools increased to six times per month, after the provision of nutrition reference modules, proper planning, and the designation of a nutrition education coordinator for the school.

All three sentinel schools reported that the nutrition education modules helped teachers prepare for activities during feeding proper. Technical assistance to nutrition program implementers has such an impact to successful nutrition education program implementation that the United States Department of Agriculture's Food and Nutrition Service has established the "Team Nutrition" initiative (USDA-FNS, 2016). It provides schools and food and nutrition personnel with resource materials, training, and technical assistance to support them in implementing child nutrition programs in respective settings.

Previous research has also shown that schools who have a focal person for nutrition education have better coordinated interventions and has a point person for managing the repository of nutrition IEC materials (Celebuski et al., 1996). Indeed, the NE coordinator in sentinel schools ensured that different NE interventions are planned well, regularly done, and adequately documented. She also managed the nutrition reference materials given by the project and made sure these are disseminated to concerned teachers.

The advantage of designating a nutrition education coordinator separate from the SBFP coordinator has been observed in one of the sentinel schools as early as the first year of implementation. By first quarter of 2017, all sentinel schools have adopted this good practice and, in general, all three schools were able to conduct the different nutrition education interventions more regularly in the 2nd year of implementation.

The third most common intervention among LS was nutrition education during PTA/PTCs (67.27%). It may be noted from Figures 3 and 4 (in the previous section) that the number of LS and sentinel schools that integrated nutrition education during PTA/PTC was higher in year 2 than in year 1. This is similarly attributed to provision of nutrition reference modules and improved coordination. The coordinator regularly reminded class advisers to include nutrition education in their PTA/PTC agenda and made sure these milestones are adequately recorded. In addition, adequate planning and utilization of simple online reporting or monitoring scheme helped the nutrition education coordinators and project team track progress in these interventions.

Target topics and months/dates for each set of interventions were plotted in Google sheets. Upon accomplishment of each activity, the same form was filled out with other details. This facilitated real-time and up-to-date documentation and monitoring by nutrition education coordinators and project team. It also facilitated technical assistance or troubleshooting.

Teachers were also mentored during the four rounds of technical assistance visits so that nutrition education during PTA/PTC may be pursued, despite the low number of participating parents. Parent participation, it was assumed, will eventually increase through peer pressure and word of mouth.

Integration of nutrition in class lessons is equally common among LS (67.27%). Data from LS showed that nutrition was integrated in many subjects, namely—Math, Araling Panlipunan (Social Studies), Edukasyon sa Pagpapakatao (Values Formation), English, and Filipino. However, these are currently most common in Grades 1 and 4. This may be attributed to the insufficient knowledge and training of teachers on nutrition as evidenced by the reported challenge on “lack of topic relation to nutrition”. Previous research showing that teachers with no nutrition training were generally least likely to integrate nutrition in lessons confirms this (U.S. Department of Education, 2000). Yet, as the Wisconsin Department of Public Instruction suggests, students can be taught about food and nutrition throughout their learning experience, as part of many subjects such as social sciences, math, and health (Williams and Dill, 2014).

Sentinel schools reported that provision of nutrition education modules helped increase the overall number of subjects with nutrition integration toward the 2nd year of implementation. However, provision of reference materials alone might not ensure that teachers will continue to integrate nutrition in their respective subjects after project implementation. Capacity development of teachers on nutrition education is important. As the SEAMEO INNOTECH report stated in 2016, there is an expressed need among program implementers for more capacity development opportunities to help them better implement the program.

A study has shown that 35-50 hours per year of behaviorally focused nutrition education is ideal to motivate and equip students with skills to make healthy choices (Hard et al., nd.). This underpins the importance of sustaining nutrition education in class lessons, in which students spend most of their time. This may be achieved through formal integration of nutrition in the curriculum because teachers are mandated to follow the standard curriculum guide. Fortunately, the cost of doing so is minimal (IOM, 2013).

Several research studies have shown that school gardens can be used to promote learning about the environment, food systems, food safety, and good health; most importantly, it can influence food habits of children (Blair, 2009). True enough, 65.45% of the LS were able to use their school garden as a learning venue for various subjects. School gardens have also been useful to some LS in their conduct of the various nutrition education interventions. For example, these have been conducted during volunteer parents' gardening sessions and gardening program orientations. Some schools brought children to the garden to educate them on food and nutrition before feeding or during class discussion, similarly with parents during the PTA/PTC meeting. However, the low popularity of this strategy among LS emphasizes the untapped potential of gardens in schools.

It is worth noting that simple nutrition education methods such as lectures and use of audio-visual presentations were the most common method during PTA/PTC, feeding time, and participatory activities for the community. It reflects the efforts of schools to conduct nutrition education despite the limited human and material resources. Hence, investment in equipment such as LCD projector or television should be considered. With such hardware in place, readily prepared nutrition education and multi-media materials and you tube videos may be deployed for these efforts. This was observed in a few LS where such investment was made by the school administrator.

There is also a wide array of interactive nutrition education methods listed in Annex 8 that schools can choose from, depending on their intention and available resources. Other platforms for nutrition education aside from PTA/PTCs, feeding time, and classroom discussions are also documented in Annex 7. It shows that there are several more activities within the school, both special events and regularly scheduled ones, where nutrition education may be delivered. It is often just a matter of sharing these methods and platforms to more schools. This will help them maximize the school's potential as a venue for nutritional and environmental learning, for children and the general community.

Finally, though the establishment of the nutrition bulletin board and nutrition LRC and the use of the nutrition school-home link approach can greatly enhance nutrition education, this is currently not widely done among LS due to lack of sufficient resources and technical guidance. The experience of the sentinel schools, which though reported to be challenging to conduct/ set up, confirmed that these have helped promote good nutrition within the school. Probably, sufficient funding and guidance on how to scale this out to other schools may be addressed through an official guideline with implementing rules and regulations.

VII. Conclusion

- Nutrition education interventions that are feasible and sustainable in majority of LS include
 - a. Participatory nutrition education activities conducted for the general community
 - nutrition education (with emphasis on experiential learning methods) for parents, teachers, children, and other community members
 - b. Nutrition education undertaken during feeding time
 - nutrition education done during feeding sessions with SBFP beneficiaries (sometimes with their parents as audience)
 - strategic as nutrition education is delivered to those who need it most— i.e., the malnourished and their guardians
 - c. Nutrition education during PTA/PTC meetings
 - nutrition education for parents/ guardians done during the quarterly or bi-annual meeting among parents, teachers, and other stakeholders
 - d. Nutrition integration in class lessons
 - integration of food and nutrition themes in lesson plans for subject areas (excluding science, health and technology, and livelihood economics in which nutrition is already present in the current curriculum)
 - e. Garden-based nutrition education
 - utilization of school garden as learning laboratory for different subjects as well as for other nutrition education interventions
- Aspects presenting opportunities for further action/improvement include
 - a. Availability of sufficient human and material resources
 - rooted from the lack of official guidelines, there is currently no mandated technical working group and/or nutrition coordinator to spearhead and coordinate nutrition education initiatives; there is also no budget appropriation to procure/reproduce nutrition education IEC materials
 - b. Support from parents/guardians
 - due to demand from work, parents or guardians often fail to attend nutrition education sessions or even help in the nutrition-related homework of their children
 - c. Nutrition knowledge and skills of program coordinators/implementers
 - teachers who coordinate or implement nutrition education programs often encounter difficulty due to lack of formal education and/or basic skill training on nutrition education
- The potential of school gardens as a learning venue for different nutrition education methods needs to be recognized and popularized.

VIII. Recommendations

- Formulation of official mandate on nutrition education that includes but is not limited to
 - formulation of technical working group and designation of a nutrition education coordinator apart from the SBFP coordinator
 - guidelines on how to plan, conduct, monitor, and evaluate nutrition education interventions. It is highly recommended that the documentation or monitoring

scheme be concise and done online (for example, Google sheets) for real-time and easy monitoring

- budget appropriation for procurement and/or reproduction of nutrition IEC materials, AVP equipment, and capacity building of nutrition education coordinators and program implementers
- designation of maximum teaching load, four subjects or approximately 200 minutes, for the nutrition education coordinator to allow for preparation and coordination of nutrition education activities

A legal mandate will help set up and facilitate the mainstreaming and sustainability of nutrition education program in DepEd. It will also ensure sufficient allocation of human and other necessary resources. Most importantly, setting up of a simple but concise monitoring and evaluation scheme will put in place a mechanism to assess effectiveness and efficiency of the program.

- Provision of credible, updated, and accessible nutrition IEC materials and references to schools and teachers
 - strengthen official link of DepEd with the National Nutrition Council (NNC), Food and Nutrition Research Institute-Department of Science and Technology (FNRI-DOST), and other government agencies that formulate and reproduce nutrition education IEC materials to institutionalize provision to schools
- Integration of nutrition in the K-12 curriculum
 - formal integration in the curriculum will ensure sustainability and equip teachers with skills in delivering nutrition education in class lessons despite insufficient background in nutrition

IX. References

- Blair, D. 2009. The child in the garden: an evaluative review of the benefits of school gardening. *The Journal of Environmental Education*, 40 (2): p 15-38.
- Celebuski, C., E. Farris and J. Carpenter. 1996. Nutrition education in public elementary and secondary schools. Beltsville: National Center for Education Statistics.
- Contento, I.R. 2012. Improving the diets and eating patterns of children and adolescents: how can nutrition education help? *Adolescent Medicine: State of the Art Reviews*, 471-492.
- Department of Education. 2005. DO 14, s. 2005 - Instruction to Ensure Consumption of Nutritious and Safe Food Schools. Retrieved from <http://www.deped.gov.ph/sites/default/files/order/2005/>
- Department of Education. 2009. DO 54, s. 2009 - Revised Guidelines Governing Parents-Teachers Associations (PTAs) at the School Level. Retrieved from <http://www.deped.gov.ph>
- Department of Education. 2016. DO 10, s. 2016 - Policy and Guidelines for the Comprehensive Water, Sanitation and Hygiene in Schools (WinS) Program. Retrieved from http://www.deped.gov.ph/sites/default/files/order/2016/DO_s2016_10.pdf
- Department of Education. 2017. DO 39, s. 2017 - Operational Guidelines on the Implementation of School-Based Feeding Program for School Years 2017-2022. Retrieved from http://www.deped.gov.ph/sites/default/files/order/2017/DO_s2017_039.pdf
- DO_s2005_014.pdf
- FAO, IFAD and WFP. 2015. *The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress*. Rome, FAO.
- Food and Agriculture Organization. 2007. Report of the technical meeting of the Asia Pacific Network for Food and Nutrition on school-based nutrition. Bangkok: Food and Agriculture Organization.
- Food and Agriculture Organization. 2017. Schools – the beginning of the end of malnutrition. Retrieved from <http://www.fao.org/zhc/detail-events/en/c/462548/>
- Hard, A., C. Uno, M.L.I.S., and P.A. Koch. n.d. The importance of nutrition education in the 2015 child nutrition reauthorization. Columbia: Laurie M. Tisch Center for Food, Education and Policy.
- Hawkes C. 2013. Promoting healthy diets through nutrition education and changes in the food environment: An international review of actions and their effectiveness. Rome: Nutrition Education and Consumer Awareness Group, Food and Agriculture Organization of the United Nations. Available at www.fao.org/ag/humannutrition/nutritioneducation/69725/en/
- gov.ph/orders/do-54-s-2009
- IOM (Institute of Medicine). 2013. Nutrition education in the K-12 curriculum: The role of national standards: Workshop summary. Washington, D.C.: The National Academies Press.
- Kirks, B.A., C. Hughes. 1986. Long-term behavioral effects of parent involvement in nutrition education. *Journal of Nutrition Education*, 203-206.
- Medina, M. 2017. Did You Know: Nutrition Month. Retrieved from <http://newsinfo.inquirer.net/910971/did-you-know-nutrition-month-3>
- Mocon-Ciriaco, C. 2017. 7M Filipino kids suffer from hunger, malnutrition. *Business Mirror*. 27 Jan 2017. Retrieved from <https://businessmirror.com.ph/7m-filipino-kids-suffer-hunger-malnutrition/>
- Oro, E.M., I. Angeles-Agdeppa. 2015. Integrated approach to address food and nutrition security in the Philippines. Silang, Cavite. (unpublished).
- Park, S. 2000. The effect of nutrition education program for elementary school children: especially focused on being familiar with vegetables. *Journal of the Korean Dietetic Association*, 17-25.
- Powers, A.R., Struempfer B.J., Guarino A., and Parmer S.M. 2005. Effects of a nutrition education program on the dietary behavior and nutrition knowledge of second-grade and third-grade students. *Journal of School Health*, 129-133.

- Schools as Platforms to Deliver Integrated Nutrition: Review of Relevant Literatures. 2015. Retrieved from <https://schoolnutritionphils.wordpress.com/>
- Solon FS. 2006. Good governance for nutrition in the Philippines: Elements, experiences, and lessons learned. *Food and Nutrition Bulletin*, 27(4): 350.
- Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology. 2016. School health care and nutrition in primary schools in South East Asia: Policies, programs, and good practices. Quezon City: SEAMEO INNOTECH.
- Tabunda, A.L., J.R.G. Albert, and I. Angeles-Agdeppa. 2016. Results of an impact evaluation study on DepED's School-Based Feeding Program. Manila: Philippine Institute of Development Studies.
- U.S. Department of Education, National Center for Education Statistics. Nutrition education in public elementary school classrooms, NCES 2000-040, by Carin Celebuski and Elizabeth Farris. Shelley Burns, project officer. Washington, D.C.
- United States Department of Agriculture: Food and Nutrition Service. 2016. About Team Nutrition. Retrieved from <https://www.fns.usda.gov/tn/about-team-nutrition>
- WHO, UNESCO, UNICEF, and World Bank. 2000. Focusing resources on effective school health: a FRESH start to enhancing the quality and equity of education. Dakar, Senegal: Food and Agriculture Organization.
- Williams, K. and A. Dill. 2014. Wisconsin wellness: Putting policy into practice. Washington D.C.: Wisconsin Department of Public Instruction.



Nutrition Education in Schools Guideline



Overview

- Andrien (1994) defined nutrition education as "that group of communication activities aimed at achieving a voluntary change in nutrition related behaviour to improve the nutritional status of the population".ⁱ
- The role of Nutrition education in improving nutrition in schools has always been emphasized and has typically focused on *food groups* education for children. Nutrition education can complement some forms of resource transfer as in food assistance (Rogers, 1995) and is usually part of a more comprehensive school health and nutrition programme.
- Schools are perfect setting for nutrition education as it provides greater reach for most children and parents. Teachers are respected and have big influence on children's attitude and behaviour. Schools act as a multiplier for nutrition education, because schools can reach parents, families and communities both directly and through the children.
- Nutrition education contributes greatly in improving behaviours of mothers or caregivers and children themselves to gain desired nutritional outcome of the children. It should focus on building knowledge and skills, applying them, sharing them to the family and affecting the wider community. ^{ii iii}
- Nutrition education and nutrition programs that are linked to school gardens have resulted to improved academic achievement.^{iv v vi vii} To be effective, nutrition programs should elicit active involvement of learners in identifying their needs, make use of more than one channel of influence and present desired behaviour in an enjoyable manner. ^{viii ix xxi}

Schools are expected to deliver the following school-based nutrition education

Formal Nutrition Education Activities

1. Making lesson plans nutrition sensitive

Nutrition concepts and key messages can be better communicated to school children through integration/enrichment of the lesson plans to include nutrition concepts and messages. Below is an example of nutrition-sensitive lesson plans:

Grade I: English

I. Objectives

Answer questions about the story using a sentence that includes the word because
Use the pronoun I in polite expressions

II. Subject-Matter

- A. Using Because in Sentences and the Pronoun I in Polite Expressions
- B. Reference: K-12 Teaching Guide in English pp 47-48, LM pp:
- C. Materials: written words to be unlocked, written copy of Mother May I?
(to be posted on the board), or powerpoint presentation of the story

III. Procedure

A. Activating Prior Knowledge

Find the meaning of the words:

Ears of corn (picture)
Field (picture)
Spinach (picture)
Cross (demonstration)

B. Presentation

Ask these questions "Who among you loves playing outside the house or in the playground?"

What do you say to your parents or guardians before going out?"

"Let's find out what the characters tell their mother before doing something,"
Have the students listen to the story which uses the phrase "May I"

Mother May I?

One brown monkey woke up early
He saw yellow bananas at the top of the banana plant.
He asked his mother, "Mother, may I cross the river?"
"Yes you may," mother said.
So, the monkey crossed the river and ate the delicious bananas from the banana plant.

One black chicken woke up next.
She saw golden ears of corn in the field.
She asked her mother, "Mother, may I cross the river?"
"Yes, you may," mother said.
So the chicken crossed the river and ate the fresh ear of corn in the field.

One white rabbit woke up last.
She saw green spinach plants in the garden.
She asked his mother, "Mother, may I cross the river?"
"Yes, you may", mother said.
So, the rabbit crossed the river and ate the nutritious spinach leaves in the garden.

D. Modelling

Have the students listen as the teacher asks and answers why question.

Examples: "Why did the monkey cross the river? The monkey crossed the river because _____."

E. Guided Practice

Ask the students why questions:

"Why did the chicken cross the river?" The chicken crossed the river because _____."

"Why did the rabbit cross the river? The rabbit crossed the river because _____."

F. Independent Practice

Ask who, what, where questions and allow the children to answer

Who woke up early?

What did he see?

Where did he go?

Who woke up next?

What did she see?

Where did she go?

Who woke up last?

What did she see?

What kind of animal are they?(polite)

What is the reason why the animals cross the river?

Do you think they love to eat vegetables?Why?

If they have vacant lot or big lot at their backyard, what do you think they must do so that they will no longer cross the river to eat their favorite food or vegetables?(possible answer : they must plant their own vegetable or have a vegetable garden)

What indigenous vegetables can you plant in your vacant lot?

How will you plant them?

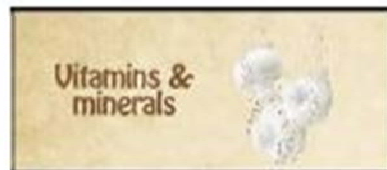
Do you eat vegetables too, children?

Are vegetables good for us? What benefits we get from vegetables?

C. Enrichment Activity: Sing a song, "I'd like to be Polite"

2. Nutri-gardens: Transforming the gardens to laboratory for learning about nutrition concepts

School garden and associated feeding and nutrition education programs have the potential in effectively conveying concepts related to food diversity, food safety and healthy and nutritious food.



3. Nutri School-Home Connection

This approach aims to link school and home by giving tasks to children that requires the participation of parents. Examples are nutrition sensitive projects, workbooks.

Non-formal Nutrition Education for teachers and parents

1. Nutrition education sessions

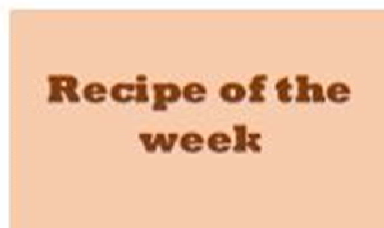
Nutrition education can be conducted during PTA meetings and other meetings, general assemblies, card distribution days, during nutrition awareness months and during the actual feeding activity etc. Nutrition education sessions are best done with the aid of the barangay nutrition scholar.

The following are the key messages that may be communicated.

- Module 1:** Undernutrition and over nutrition are both detrimental to an individual's health
- Module 2:** Eat variety of food to meet the Recommended Energy and Nutrient Intake for proper growth and development
- Module 3:** Nutritious meals are easy to prepare and affordable
- Module 4:** Eat a variety of foods everyday to get the nutrients needed by the body
- Module 5:** Eat a balance diet
- Module 6:** Exclusive breastfeeding for the first six months and healthy complementary food for children six months onward is the best way to support the optimal growth development
- Module 7:** It is important to serve fruits and vegetables to pre-schoolers and school age children. Healthy eating habits are established during this stage.
- Module 8:** Vegetables are rich source of vitamins and minerals. To preserve the quality of nutrients in vegetables, choose, cook and store them properly.
- Module 9:** Vitamin A, Iron and Iodine are micro nutrients added to staple food to broaden absorption opportunity and correct the high incidence of deficiency
- Module 10:** School and home gardens are good sources of safe and nutrition vegetables. Let us support and encourage parents, teachers and children to do gardening.
- Module 11:** Maintaining good personal hygiene is essential to one's health

2. Setting up of School Nutrition Board

A nutrition board located in a strategic place with be set up with information, education and communication materials developed by the project i.e posters, recipes, crop information may be posted in the board. Other interesting articles and nutrition messages can also be posted



3. Participatory Nutrition Education Sessions

Nutrition education can be delivered in an unconventional manner to draw community participation. The following are some of the activities that can be conducted:

- Participatory recipe development
- Nutri-bingo
- Nutri quiz

ⁱ Smith B., "Past experiences and needs for nutrition education: Summary and conclusions of nine case studies", FAO commissioned, 1995.

ⁱⁱ Florentino, R and Pedro M. The Food Assistance Program in the Philippines: The Issues Involved (Part 1 of 2), downloaded from: <http://www.fnri.dost.gov.ph>

ⁱⁱⁱ Food and Agriculture Organization (FAO), Regional Office for Asia and the Pacific. "Report of the technical meeting of the Asia Pacific network for food and nutrition, 1995

^{iv} "School Garden Statewide Survey – 2002, "Nutrition Services Division, California Department of Education, (unpublished)

^v Center for Ecoliteracy, *The Edible Schoolyard*. Learning in the Real World, Berkeley, California, 1999.

^{vi} Life Lab Science Program, *Getting Started – A Guide for Creating School Gardens as Outdoor Classrooms*. Center for Ecoliteracy, Berkeley, California, 1997

^{vii} Life Lab Science Program, *Getting Started – A Guide for Creating School Gardens as Outdoor Classrooms*. Center for Ecoliteracy, Berkeley, California, 1997

^{viii} Leonhauser, I. & Ruck, I. 1995. *Nutrition education, information and advice in the new Federal States of Germany since 1990*. Rome, FAO

^{ix} Chauillac, M. 1995. *School vegetable gardens in the rural Andes. A school nutrition education experiment as part of a global community project*. Rome, FAO

^x Mamadoulaibou, A. 1995. *Public nutrition and nutrition education experiences and requirements, Niger*. Rome, FAO

^{xi} Chauillac, M. 1995. *School vegetable gardens in the rural Andes. A school nutrition education experiment as part of a global community project*. Rome, FAO.

Annex 2. Nutrition education base line and endline survey forms

This survey will guide the project team in determining the needed technical support, information, education and communication support and in formulating recommendations to ensure quality program implementation.

Answers should be the situation **AS OF** _____.

Delivering school-based nutrition education

School name:
Interviewee:
Designation:

INSTRUCTIONS: Please check (✓) the box corresponding to your answer or provide a short and specific response to open-ended questions. Thank you.

A. FORMAL EDUCATION

Integration of nutrition (school head)

1. Learning area in which nutrition topics are discussed (check as many as applicable):

<input type="checkbox"/>	English	<input type="checkbox"/>	Sibika at Kultura
<input type="checkbox"/>	Filipino	<input type="checkbox"/>	Heograpiya, Kasaysayan at Sibika (HKS)
<input type="checkbox"/>	Mathematics	<input type="checkbox"/>	EdukasyongPantahanan at Pangkabuhayan (EPP)
<input type="checkbox"/>	Science and Health	<input type="checkbox"/>	Musika, Sining at EdukasyongPangkalusugan (MSEP)
<input type="checkbox"/>	Makabayan	<input type="checkbox"/>	Others: Please specify _____

For those you have checked, list the nutrition topics and nutrition-related topics commonly incorporated.

Learning area	Nutrition topic/s

Use of garden as learning laboratory (agri. teacher/school head)

2. In which learning area is the school garden (Gulayan sa Paaralan) used as learning laboratory? Check as many as applicable, then proceed to question #3. If garden is not used at all, check "None," then proceed to question # 4.

<input type="checkbox"/>	English	<input type="checkbox"/>	Sibika at Kultura
<input type="checkbox"/>	Filipino	<input type="checkbox"/>	Heograpiya, Kasaysayan at Sibika (HKS)
<input type="checkbox"/>	Mathematics	<input type="checkbox"/>	EdukasyongPantahanan at Pangkabuhayan (EPP)
<input type="checkbox"/>	Science and Health	<input type="checkbox"/>	Musika, Sining at EdukasyongPangkalusugan (MSEP)
<input type="checkbox"/>	Makabayan	<input type="checkbox"/>	None

For those you have checked, indicate frequency of use.

Learning area	Frequency (once a week, once a month, once per grading period, once a year)
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

Nutri-home link (school head)

(The project would like to explore ways to effectively influence parents to adopt good nutrition practices at home.)

3. Have you used the Teacher-Child-Parent Approach in the past? (TCPA was developed by the Nutrition Council of the Philippines where workbooks requiring parent's participation were distributed)

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
--------------------------	-----	--------------------------	----

If yes, in what learning area?

4. Is there any similar method being used by teachers, for example, homework, projects or other activities given to children that require the participation of their parents?

<input type="checkbox"/>	Yes. Please give examples: <hr/>
<input type="checkbox"/>	No

B. NON-FORMAL NUTRITION EDUCATION FOR TEACHERS AND PARENTS (SBFP)

1. Are there nutrition education sessions conducted targeted to parents?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
--------------------------	-----	--------------------------	----

If yes, how often are these conducted? **(Once a week, once a month, once per grading period, once a year)**

What are the common methods deployed for nutrition education?

2. Are there nutrition education materials posted in the vicinity of the school? If yes, check as many is applicable. If no, check "NONE".

<input type="checkbox"/>	Food pyramid
<input type="checkbox"/>	3 basic food groups
<input type="checkbox"/>	Pinggang Pinoy
<input type="checkbox"/>	10 Kumainments
<input type="checkbox"/>	Others: Please specify _____
<input type="checkbox"/>	NONE

3. Location where the education materials are posted, check as many is applicable. If no, check "NONE".

<input type="checkbox"/>	Home room bulletin boards/walls
<input type="checkbox"/>	School feeding area
<input type="checkbox"/>	Canteen area
<input type="checkbox"/>	School bulletin board
<input type="checkbox"/>	None
<input type="checkbox"/>	Others. Please specify:

C. Challenges and Innovations

	Factors that hindered or made it difficult	Innovations
1. Integrate nutrition topics in classroom discussion		
2. Use garden as learning laboratory		
3. Do homework/activities that promote school-home link		
4. Do nutrition education activities for parents and teachers		
5. Display nutrition information and education materials		

Thank you so much for your cooperation!

Annex 3. Nutrition Education during Feeding Proper

FREQUENCY OF NUTRITION EDUCATION

FORM No. _____

School: _____ Sheet No. _____

☐ Lighthouse School

☐ Sentinel School



FREQUENCY OF NUTRITION EDUCATION DURING FEEDING				
DATE	TOPIC OR KEY MESSAGE	MODE OF DELIVERY OR METHOD	TARGET AUDIENCE/PARTICIPANTS <i>(Parents/Guardian/school children)</i>	DOCUMENTATION ATTACHED OR REMARKS
EXAMPLE: Aug 21, 2017	Hand washing	video	SBFP beneficiaries, parents	photo

Data Reference Person/People:

Data collected by: _____ Signature: _____

Annex 4. Nutrition education during PTA/PTC meetings

NUTRITION EDUCATION INTEGRATION – PARENT TEACHERS ACTIVITIES

FORM No. _____

School: _____ Sheet No. _____

☐ Lighthouse School

☐ Sentinel School



INTEGRATION OF NUTRITION EDUCATION DURING PARENT TEACHERS MEETING				
DATE	PARENT TEACHERS ACTIVITIES	NUTRITION TOPIC OR KEY MESSAGE INCORPORATED IN MEETINGS	MODE OF DELIVERY OR METHOD	MEANS OF VERIFICATION
08/08/2016	Example: PTA MEETING	indigenous vegetables	Nutri quiz and Nutri Game	Activity output or photos

Data Reference Person/People:		

Data collected by: _____ Signature: _____

Annex 5. Nutrition education during classroom lessons

NUTRITION EDUCATION INTEGRATION - FORMAL

FORM No. _____

School: _____ Sheet No. _____

☐ Lighthouse School

☐ Sentinel School



INTEGRATION OF NUTRITION EDUCATION IN FORMAL EDUCATION/CURRICULUM							
DATE	SUBJECT LEARNING AREA	GRADE LEVEL	QUARTER	COMPETENCY	NUTRITION TOPIC OR KEY NUTRITION MESSAGE INCORPORATED IN SUBJECT	MODE OF DELIVERY OR METHOD PEDAGOGICAL APPROACH	MEANS OF VERIFICATION/ATTACHMENT
EXAMPLE: June 14, 2017	Math	4	1st	solves routine and non-routine problems involving multiplication of whole numbers including money using appropriate problem-solving strategies and tools.	costing of healthy meals for the family	solving word problems	DLL/ Lesson plan

Data Reference Person/People:

Data collected by: _____ Signature: _____

Annex 6. Other nutrition education methods

OTHER NUTRITION EDUCATION MECHANISMS

FORM No. _____

School: _____ Sheet No. _____

☐ Lighthouse School

☐ Sentinel School



OTHER MODES NUTRITION EDUCATION IN SCHOOLS				
<i>*Other modes of nutrition education that cannot be captured in other FORMS can be documented here</i>				
DATE	TOPIC OR KEY MESSAGE	FORM OR MODE OF DELIVERY / METHOD	TARGET AUDIENCE	DOCUMENTATION/MEANS OF VERIFICATION/ATTACHMENT
Example: July 19, 2017	Eating Indigenous vegetables	Film showing: Nutrition month celebration	Students & parents	Photos

Data Reference Person/People:		

Data collected by: _____ Signature: _____

Annex 7. Other platforms for nutrition education activities

<i>Regular school activities/platforms</i>
Semestral in-service training (INSET)
District schools learning action cell (DSLAC) consultative meeting
School learning action cell (SLAC)
Flag-raising ceremony
School/program orientation, e.g.: <ul style="list-style-type: none"> • School-Based Feeding Program (SBFP) • Gulayan sa Paaralan Program (GPP) • WASH in Schools Program (WINS) • Parent re-orientation after semestral break
Meetings among <ul style="list-style-type: none"> • 4Ps parents • Faculty • Parents of graduating students
Vacant time in the classroom
Learner-parents' activities
Festival of talents contests
State of the school address
Supreme pupil government meeting
Teacher's Day celebration
<i>Non-regular events</i>
Launching of nutrition learning resource center (LRC)
Private company/NGO-led nutrition education sessions
Nutrition education sessions led by local government agencies, e.g.: <ul style="list-style-type: none"> • Municipal Health Office • Municipal Nutrition Office
Volunteer parents' gardening sessions
Christmas party
Climate symposium
Fun runs or Zumba/exercise classes
Girl Scout of the Philippines activities
Interschool visit
"Kapihan sa Paaralan" i.e., Guardians waiting for children from the school are given short informal nutrition education while drinking free coffee/ginger ale/lemongrass tea made from garden harvest, in the school waiting area.
Stakeholder's feeding program
Value enrichment seminars
Youth for Environment in Schools Organization (YES-O) Camp

Annex 8. Other methods for non-formal nutrition and health education sessions among parents, students, and the general community

Field trip to nutrition/food production-related sites
Food tasting/food booth
Garden visit/tour
Immersion in food preparation
Nutri-games (e.g., puzzles, “Maria went to the market”, etc.)
Home interview
<p>Pabasa sa Nutrisyon</p> <ul style="list-style-type: none"> - a nutrition education approach developed by the Nutrition Center of the Philippines - Participative, circular gathering of 10 to 12 mothers per class informally discussing health and nutrition topics¹
Nutrition awareness parade
Peer teaching
Recipe development
Show and tell
Small group discussion/sharing
Storytelling
Symposium
Distribution of nutrition education flyers
<p>Nutrition-related contests:</p> <ul style="list-style-type: none"> • A1 child • Poster-making • Nutrition awareness costume • Essay writing • Gardening • Quiz bee/nutri quiz • Nutri jingle • Slogan making

¹www.ehealth.ph/media/kunena/attachments/554/Pabasa.pdf

Annex 9: Outcome stories from implementing the integrated school nutrition model

School children: Link between schools and the home



(Left) Mrs. Austria and her daughter, Rei Ane Mikaela, tell how they started home gardening through the initiative of Rei Ane. (Right) Home garden of the Austira family planted with alugbati.

Rei Ane Mikaela Austria is a Grade 5 student from Sunnybrooke Elementary School (SBES). Her father is a construction worker and her mother is a full-time housewife.

She and her brother are both SBFP recipients for 2 years. In 2017, Rei Ane brought home some planting materials from the school garden and asked their parents to plant them in pots. Now, they have pechay, malunggay, kamote tops, squash, okra, sitaw, and saluyot.

Rei Ane eats squash and sitaw; her father eats the vegetables they have and her mother is also starting to consume some of the vegetables they grow.

Homestead food production empowers families toward household food security.



Mrs. Alas (left), with her grandchildren, share with SBES teacher, Ms. Janice (right), how home gardening has given them a secure food source.

Marky Alas is a Grade 5 student from Sunnybrooke Elementary School (SBES). His mother is a barangay health worker, and his father is a construction worker.

Marky is a beneficiary of the school-based feeding program. He lives in a large household of 13 members composed of a grandmother, 10 children, and the parents. It has been his mother's initiative to plant vegetables at home to save money from buying vegetables. Now, they have alugbati, saluyot, patola, malunggay, and okra, and all family members enjoy the vegetables they get from their home garden.