

Special Report: School Meal Program**Visit to a Japanese School Lunch: Perspective from a U.S. Registered Dietitian Nutritionist
No. 1 in a Series**

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As a U.S. Registered Dietitian Nutritionist living in Japan, I was excited to have an opportunity to visit a Japanese elementary school and experience its lunch program. The program originated following World War II, and has since developed impressively and achieved global recognition for its putative roles in promoting health and helping to maintain the relatively low obesity prevalence among Japanese youth. Perhaps the most noteworthy feature of the Japanese school lunch program is that its purview goes beyond the management and nutritional aspects of the food served to encompass (and even emphasize) integration of the school meal into children's educational, social, and cultural experiences. The purpose of this article is to share specific examples of this integration and inspire colleagues in the United States to consider how aspects of this program may be emulated in order to improve the health and the food and nutrition literacy of youth in the United States.

My Japanese school lunch visit was made possible through a connection with Shigeru Yamamoto, PhD, RD, Director of the Asian Nutrition and Food Culture Research Center at Jumonji University, where he is also Professor of International Nutrition. With an impressive academic career spanning more than 40 years, he is currently highly involved in promoting the Japanese school lunch program.

The visit was hosted by Nobitome Elementary School in the city of Niiza, northwest of Tokyo. Three of Dr. Yamamoto's graduate students in nutrition, two from Taiwan and one from Vietnam, also joined the visit.

Our guide for the afternoon was Ms. Yamaguchi, the school dietitian and nutrition teacher (Photo 1). In Japan there is a law with a provision stating that a dietetics and nutrition teacher is to give children practical guidance regarding the school lunch. Every school in Japan employs a school dietitian/nutrition teacher. School dietitians may hold a Nutrition Teacher License, which requires similar training as teachers of other subjects. A dietitian can obtain the license after accumulating 3 years of experience working in a school and 8-10 lecture credits. In 2014 there were more than 12,000 school dietitians; about 4,700 of those were also nutrition teachers.

Before entering the school, we changed out of our shoes into slippers. In Japan, shoes are not worn inside the home nor in some restaurants and other public buildings. Upon entering the school of 650 students, we were greeted with signs welcoming us in Chinese, Vietnamese, and English (Photo 2), as well as origami art featuring our native flags (Photo 3).

Our first stop was a peek into the kitchen to see the staff preparing homemade dashi (broth) in large cauldrons, using local vegetables and dried anchovies (Photo 4). Off to the side, racks of serving dishes decorated with small pictures of fruits and vegetables were piled into carts (Photo 5).



Photo 1: Me (second from right) with the graduate students and Ms. Yamaguchi



Photo 2 (left): Welcome signs in the languages of the visitors; Photo 3 (right): Origami art prepared by the students, featuring the flags from the visitors' native countries.



Photo 4 (left): School lunch workers preparing dashi (broth). Photo 5 (right): Serving dishes ready for the lunch meal.

After the glimpse into the kitchen, Ms. Yamaguchi led us to the library to share some of her teaching practices and materials while we sipped green tea. As the only other English speaker, Dr. Yamamoto kindly served as my interpreter for most of the conversation and to explain the content themes of the materials we were reviewing. Ms. Yamaguchi explained that the school meal teaches children how to make healthy food choices and embeds food and nutrition education including agricultural practices, food production and distribution, cultural traditions, and more in other academic subjects. For example:

- Geography and science: students may calculate the distance that the meal's ingredients traveled to reach their plates, as well as the amount of fuel used and its effects on the earth's ecology.

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- Biology: students chart their height and weight and learn about the nutritional contributors to their growth.

- English: students learn English words related to the daily menu, such as the names of foods, cooking methods, table manners, nutrients, etc.

The emphasis on integrating the school meal into children's formal educational environment is expressed in the concept of *shokuiku* (pronounced "show-coo-EE-coo"), a Japanese word meaning food and nutrition education. The Japanese national Shokuiku Basic Act became law in 2005 and in 2008 school curriculum guidelines were revised to include provisions related to the promotion of shokuiku.

One of Ms. Yamaguchi's responsibilities is to develop more than 200 menus for the school year. The menus must satisfy not only nutritional requirements but also student tastes and local and national food traditions and culture. Nutrition standards were established based on Japan's national nutrition surveys and recommended dietary reference intakes. A school lunch must provide one-third of daily nutrient needs, except for some nutrients with daily requirements that are more difficult to achieve (such as fiber); those nutrients are therefore provided in larger amounts. Photos 6 and 7 show examples of a meal calendar for Nobitome Elementary School. The calorie and protein content for each meal are listed at the bottom right of each box.



Photo 6 (top): Example of a monthly meal calendar for Nobitome Elementary School; Photo 7 (bottom): A closer look at the menu for the day of the visit (December 9, 2015).

Menu calendars are delivered to each student's family one month in advance so that family members

know what the children are eating. This also provides an interesting and common topic for family conversation. Many schools also post the daily lunch menu on the school's website, along with children's comments about the meal. When a certain meal proves to be very popular, Ms. Yamaguchi prepares a note on the recipes used and sends it home with each student (Photo 8).

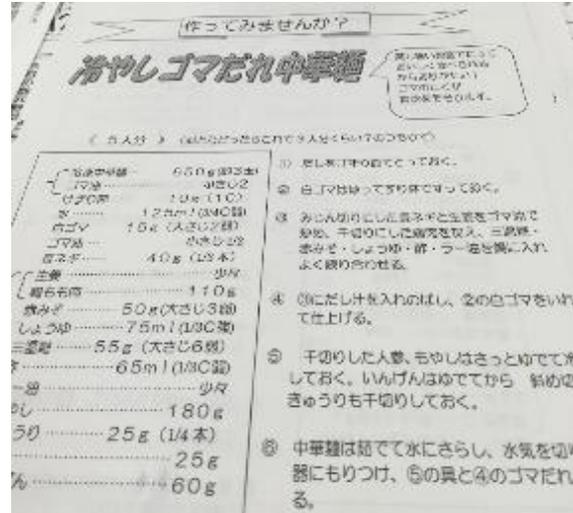


Photo 8: Example of one of Ms. Yamaguchi's recipe notes from a popular lunch menu.

Menus incorporate seasonal foods from local producers as much as possible. Packaged and processed foods are not commonly used in the meals. Sometimes meals even incorporate vegetables harvested earlier that day. Ms. Yamaguchi assembles a display of the ingredients (even the seasonings!) used in the day's lunch, labeled with the name and locations of the producers who supplied them. Photos 9, 10, and 11 are the display from my visit day.



Photos 9, 10, 11: Display of the ingredients used in the lunch meal on the day of my visit.

Local food producers are invited to visit the school and explain their trade to students. Students also visit food producers and become familiar with

how food is produced. This broad perspective on food and nutrition and connection with food producers helps instill in children a sense of gratitude and respect for the food they are eating as well as an appreciation for and interest in its origins. This practice may also be a contributor to the remarkably low levels of food waste reported by many schools.

After our discussion about meal ingredients, we joined a fourth-grade class for lunch. The students were excited to have visitors, and had prepared a colorful welcome mural for us on the chalkboard. After introducing ourselves to the students and hearing about their favorite foods, it was time to eat.

My own childhood experiences with school lunch had formed my expectation that we would eat in a cafeteria, so I was surprised as the classroom quickly transformed into a convivial setting for the meal. After a quick trip to the hallway sinks to wash our hands, the students quickly rearranged their desks and spread out colorful napkin cloths while the teacher put on music.

The fruit and vegetable dishes I'd seen in the kitchen earlier were rolled into the classroom alongside serving trays holding delicious-smelling food. A subset of students quickly donned blue sanitary smocks, hair caps, and cloth face masks as they took their places to dish up the meal for their classmates (Photo 12).



Photo 12: The lunch line in a fourth-grade classroom.

As is typical throughout Japan, younger children do not bring their own lunches from home. All the students are served the same meal, and à la carte options and vending machines are not usually available. Municipalities provide funding for the lunch program's labor costs, and parents/guardians of students pay for the food, an average \$2.50/day USD.

The students waited until everyone had been served before they began eating. When everyone's meals had been placed at their desks, one student went to the front of the room and with clasped hands and a slight bow led everyone in a chorus of "Itadakimasu!," a common Japanese phrase spoken at the start of a meal or "bon appétit," but it also conveys an offering of thanks to the chef and to those who produced the ingredients, as well as an expression of gratitude for the food itself. The essence of the word is related to the Buddhist principle of respect for all living things; Buddhism is a prevalent religion in Japan.

The meal included milk, rice with light seasoning, miso soup with mixed seasonal vegetables, and maguro (a type of tuna) in a light breading and sauce with vegetables and peanuts (Photo 13). It was all delicious, but the tuna was my favorite (Photo 14). Overall, the meal was a thoroughly enjoyable

experience (Photo 15).



Photo 13 (left): The lunch meal on the day of the visit: milk, rice, miso soup, and tuna with vegetables and peanuts; Photo 14 (right): Close-up of the tuna dish.

When everyone finished eating, the clean-up was executed as quickly as the set-up. Each student helped stack dishes and flattened their milk cartons. All around the room, I heard students saying "gochiso sama deshita," a Japanese expression of thanks for a good meal (literally, "it was a feast").

Ms. Yamaguchi explained that for the entire school (approximately 650 students), food waste averages around two cups per meal.

Before we departed, the students serenaded us with "The 12 Days of Christmas" in English as well as their school anthem, then we posed for a group photo (Photo 16).

As we prepared to leave the classroom, dozens of origami figures appeared from inside the desks and were pressed into our hands as parting gifts (Photo 17).



Photo 15: Here I am enjoying the meal with Dr. Yamamoto and some of the students.



Photo 16: The students and visitors.



Photo 17: The students presented the visitors with origami gifts at the end of the visit.



Photo 18: Example of a near-empty serving dish from a classroom at the school.

On the way to our last stop at the school, the principal's office, Ms. Yamaguchi paused in the hallway where carts of used serving dishes from each classroom were waiting to be rolled back to the kitchen for cleaning. Any uneaten food from the students' dishes is placed back in the serving dishes so that it can be inventoried daily. As Ms. Yamaguchi pulled the lid off each serving dish, I was stunned to see how little food waste remained (Photo 18).

In the principal's office, we were served another round of green tea as we discussed current events influencing the school lunch. One of the discussion topics was related to the fact that funding for the 2020 Olympics (to be hosted in Tokyo) and funding for the school lunch program was housed in the same department of the Ministry of Education. Hosting the Olympics would be costly, and there was speculation that the school lunch program funding would be reduced as a result. As part of the effort to prevent this consequence, Dr. Yamamoto's research center published a collection of short articles and essays about the school lunch program on the Asian Nutrition and Food Culture Website in hopes of increasing the Japanese public's and policymakers' recognition of the value and significance of the program. Positive comments from foreigners will help make their efforts even more compelling.

The visit made clear to me that the Japanese school lunch program is commendable both for the quality of the food and the integration of the meal into the broader educational milieu. The program is truly outstanding in the context of global attempts to structure school settings and meals to cultivate students' knowledge and interest in food and nutrition, improve their health, and foster lifelong healthful eating habits.