

BEST PRACTICES

**Farm Fresh Food to
Healthy Kids:
Fresh Food Education
in Early Learning**

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Abstract

Family Farm to Healthy Kids (FF2HK) program was a collaboration between farmers, culinary students, early learning centers, and parents with the goal of increasing familiarity of local produce to promote increased vegetable and fruit acceptance and intake. A local farm cooperative provided seasonal produce, recipes were developed for culinary students to prepare samples for tasting, which were then delivered to early learning centers. Teachers incorporated harvest activities at circle time and harvest recipe sheets were delivered to parents to extend food education at home. An increase in familiarity of local produce was reported by culinary students, teachers, and parents. This paper describes program development, implementation, and lessons learned.

Farm Fresh Food to Healthy Kids: Fresh Food Education in Early Learning

Teaching children to consume and enjoy more fruits and vegetables is a promising way to help them eat healthy. Research has shown that repeated exposure has a direct and positive impact on food acceptance (Spill, et al., 2019). If a child is not familiar with eating a particular food, he/she is more likely to reject it. The current food environment does not encourage families to serve fruits and vegetables, and their high cost may prevent low-income families from buying them (Scalioni, et al., 2018).

Literature Review

Food preferences are influenced by taste (Liem & Russell, 2019; May & Dus, 2021). It is not uncommon for children to prefer sweets and dislike vegetables. Top reasons why kids hate vegetables are lack of exposure, bitter taste, and texture (Gibbs, 2022). Vegetables, in general, are slightly bitter since they contain calcium and beneficial constituents such as phenols and flavonoids (Tordoff & Sandell, 2009). Produce that is over or under cooked changes the food texture resulting in children adverse reaction to the food (Tournier & Forde, 2023).

Typically, in the American diet, ultra-processed foods represent more than half the calories and contribute nearly 90% of all added sugars (Steele, et al., 2016, Gupta, et al., 2021). This shift away from whole and lightly processed food to a diet dominated by highly processed food that are energy rich but nutrient poor has contributed to the development of chronic diseases and particularly obesity (Poti, Braga, & Qin, 2017; Crino, Sacks, Vandevijvere, Swinburn, & Neal, 2015). Washington State Public Health reported in 2016 that approximately 12% of children aged 2-4 years receiving WIC benefits met the criteria for obesity (Washington Dept. of Health, n.d.). The 2021 National Survey of Children's Health reported 32% of children aged 1 to 5 years did not eat fruit daily and 49% did not consume vegetables daily (Hamner, Dooymea, & Blanck, 2021).

Recognized by the Centers for Disease Control and Prevention (CDC) as an opportunity to increase healthy environments, an increasing number of early childcare and education providers are engaging in Farm to Early Care and Education (ECE) activities (National Farm to School Network, 2021). The term "Farm to ECE" encompasses efforts to serve local or regional produce, provide hands-on learning activities such as gardening, farm visits and culinary activities, and integrates food-related education into the curriculum. Program coordination, teacher and care provider training, and facilities for safe preparation of produce samples are components of a successful program (McCloskey, Kesterson, Mena, Dellaport, & Bellows, 2020; Nekitsing, Hetherington, & Blundell-Birtill, 2018).

Purpose and Objectives

Family Farm to Healthy Kids (FF2HK) was developed and implemented at thirteen early learning centers to (1) increase familiarity and improve food acceptance/preference for produce grown in the Skagit Valley region, (2) provide markets for local farmers, (3) and engage teachers and parents in learning about produce grown in the Skagit Valley

Program Design and Implementation

Funding from USDA-FNS (CN-F2S-IMPL-20-WA-3) supported farm to ECE activities in 13 early learning centers in Skagit County, WA for the 2020-2022 school years. The program's protocol and survey questions were reviewed and approved for exemption status by Washington State University IRB. Collaborations between key stakeholders were established with each one having a specific task and role in the project. WSU Skagit Extension Ideas for Healthy Living Program designed and distributed harvest recipe sheets, offered teacher training, and curriculum guidance. Viva Farms, an incubator farm cooperative, provided bilingual training for farmers with limited resources on organic farming practices and supplied local, organic seasonal produce once a month during the school year. Northwest Career and Technical Academy (NWC-TA) ProStart Culinary Program, a two-year, industry-backed culinary arts and restaurant management program for high school students, prepared and packaged samples to be delivered to the early learning centers. The teachers at Mount Vernon School District (MVSD) Early Childhood Education and Assistance Programs (ECEAP) and Skagit/Islands Head Start providing center-based early learning for children aged 3-5 years distributed the samples during snack/circle time and incorporated nutrition and fresh food education into the learning environment. Parents were engaged in the program through the harvest recipe sheets that were sent home each month or shared online.

Food education programming was modeled on Harvest for Healthy Kids (Izumi, Greenough, Hallman & Barberis, 2014). Seventeen harvest recipe sheets were created based on local, seasonal produce grown in Skagit County, WA and included a descriptive introduction on the featured produce, easy-to-prepare recipe, yield of edible portion, and preschool activity to extend learning to the home. Each recipe followed the safe recipe style-guide and listed safe food storage tips to extend shelf life and reduce waste (Kranias, & Thesmar, 2020). Kid-friendly learning activities, Kids in the Kitchen, aligned with early learning outcomes (Head Start, 2010), were included to engage preschoolers in learning through science, math, art and language activities, using the produce item featured. The harvest recipe sheets can be downloaded from <https://extension.wsu.edu/skagit/healthy-harvest-for-kids/>. Research points to the importance of early learning of food groups which can be foundational in increasing familiarity with different foods and healthy food choices (Toomey, Schweitzer, & Agenbroad, 2021); therefore, a component of the curriculum provided by WSU Skagit Extension included a series of in-classroom lessons based on Discover My Plate (USDA, 2023).

ProStart students referenced the harvest recipe sheets to prepare tasting samples from produce sourced from Viva Farms. Once a month, a seasonal crop was harvested and prepared following the recipe and delivered to ECE centers in compliance with local health department guidelines. Preschool teachers used circle time to introduce the produce to their students and shared information about the farmer who grew the food. They also discussed food gardening, and talked about the food flavor, taste, and texture.

Methods

Thirteen ECE centers serving 231 preschool-aged youth participated in FF2HK during the 2020-2022 school years. An initial planning meeting established the FF2HF foundation, and subsequent follow-up convenings provided guidance to each stakeholder group participating in the program. A master calendar of monthly harvests was created, delivery route for distribution to each ECE center was established, and supplies needed for sampling at the preschool were provided. Audience specific survey tools developed incorporated

Knowledge, Attitude and Practice (KAP) questions to gather feedback from four target audiences—ProStart students, Parents, Teachers, and Preschool Youth. Questions were designed to gather feedback on novelty of the produce, ease of recipe preparation, intention to purchase the featured produce item, and intention to prepare the recipe. The preschool youth survey was designed as a circle time activity with students raising their hands in response to questions: “Is this fruit/vegetable new to you?”; “Did you like it?”; “Would you try it again?”. To encourage parents to provide feedback, a postcard with a QR code linked to an online survey was sent home and a drawing for a gift card was offered as an incentive. A year-end meeting with teachers reviewed the food and nutrition education instruction and activities, logistics of the delivery and service of the samples, and recommended changes.

Survey Results and Findings

The surveys were completed by 29 ProStart students on the last day of class, 6 parents by online survey, 7 teachers in a listening session, and 8 preschool classrooms (n= 120) during a circle time activity.

Farmers from Viva Farms through conversations, described the benefit of the training opportunity to learn about the Good Agricultural Practices (GAP) certification process required to sell to public entities. The modest earnings from the FF2HK program contributed to their overall earnings for the year.

NWCTA Feedback

An increase in familiarity with Skagit grown fruits and vegetables was reported by 38% of the ProStart students, and 17% reported purchasing at least one of the featured produce items to prepare at home. Other findings showed: 83% enjoyed the food sample made from the recipe; 60% reported increased familiarity with the produce grown in Skagit Valley; 62% were more familiar with farmers in Skagit Valley; and 17% reported increased consumption of fruits and vegetables.

The overall interest in the program was positive as conveyed by comments such as “do this more often”, “definitely do this again next year” and “yes, keep this going, I enjoyed it a lot”. Suggested improvements included (1) allow students to discuss and vote on the recipe to prepare for the seasonal, local produce; (2) add more food group variety to dishes, such as grains; and (3) increase the frequency from one to two samples each month. The favorite recipe among the students was Maple Syrup Roasted Carrots. Purple potatoes and delicata squash were novel produce items for the students.

Preschool Student Feedback

During a circle time activity, preschool teachers in eight classrooms asked students (n=120) to raise their hands in response to three questions about the produce samples tasted: “Is this fruit/vegetable new to you?”; “Did you like it?”; “Would you try it again?”. In responses by count of hands raised, at least 50% of harvest samples offered were new foods; about 40% liked the harvest sample especially delicata squash, kale, asparagus, radish, and purple potatoes; and 85% would try the produce items again.

Teacher Feedback

Teachers (n=7) described FF2HK as an added benefit to the teaching environment. Samples arrived just before circle time – a perfect opportunity to share and discuss the harvest. About 50% said they added Kids in the Kitchen activities in classroom learning, including five senses activities with different fruits and vegetables. All teachers stated that the program was beneficial, giving a “real-world” connection to farming and places in the community. One teacher stated, “This program gave us a chance to come together to share food that we might not normally have tried”. Head Start teachers shared that they rely on the nutrition education curriculum and lesson ideas shared by WSU Skagit Extension, including a themed fruit or vegetable each month, in their classroom instruction.

Teachers suggested ways to improve the program: (1) Connect with farmers with a picture or story delivered with the produce, or possibly Zoom presentation from the farm; (2)

Create a map of the county and pin where the farmer works and the food is grown; (3) Include a field trip to the farm; (4) Place seeds or tubers of the produce in a small plastic bag for children to observe; (5) List the ingredients used in preparing recipe for those kids with food sensitivities.

Parent Feedback

Six parents completed an online survey, shared in postcards sent home with a QR code link to the survey. Parent response ranked Apple Crisp, Overnight Raspberry Oats, and Roasted Asparagus as favorite recipes. Additionally, 85.7% reported that the asparagus, delicata squash and purple potatoes were a new food for their child; 71.4% tried at least one recipe at home; 100% of parents reported purchasing asparagus, radish, and kale; 85.7% of parents reported the recipe was easy to follow; 57.1% tried at least one of the Kids in the Kitchen activities described on the harvest recipe sheet; and 71.4% reported that they changed how they stored produce after reading the “how to store” section.

Summary and Discussion

The F2HK program, offered at 13 ECE centers during the 2020-2022 school years, was a collaboration between farmers, culinary students, early learning centers, and parents with the goal of increasing familiarity of fresh, local produce to promote increased fruit and vegetable acceptance and intake. Once a month, local, seasonal produce was provided by farmers, delivered to culinary students who prepared samples for tasting by preschool students. Curriculum support, harvest recipe sheets, and in-class education were strategies to enhance the overall quality of the food education experience. Seventeen harvest recipe sheets were developed for culinary students to follow in preparing tasting samples, for teachers to incorporate monthly harvest activities at circle time and as part of snack/lunch meal conversations, and delivered to parents to extend the food education at home.

This multi-agency collaboration served a diverse audience including preschoolers and high school students of color and Hispanic farmers; therefore, culturally responsive educational materials were developed including culturally relevant recipes, made available in Spanish and English to reflect the diversity, equity and inclusion considered in this collaboration. The ProStart instructor found value in the collaboration as students gained knife skills, application of heat to food, impact of cooking method on taste and texture, and math skills in portion size and cost per serving analysis.

Barriers frequently identified when offering a farm to ECE program include lack of funding to purchase local items outside established procurement channels, seasonality of fruits and vegetables, and lack of cooking and service equipment to prepare local produce in the classroom for children to taste (Bloom, et al., 2022). In Skagit County, WA, the FF2HK collaboration worked together to overcome the barriers to offer a fresh food education program. Viva Farms seamlessly added the FF2HK to their delivery schedule. Seasonal availability of produce due to weather (e.g., a wet spring delayed the spinach harvest) provided an opportunity to explore weather patterns and local harvest, and partnership with the culinary school addressed the concern of cooking and equipment needed to prepare local produce in the classroom while providing a skill development for high school students.

A limitation of this program was the lower number of parent responses than anticipated, likely due to COVID-19 related restrictions in which parents could not enter the classroom and had minimal interaction with teaching staff. Due to COVID-19 restrictions, in person instruction by outside educators was not allowed which impacted the original plan to offer a 5-part nutrition education series in the classroom. WSU Skagit Extension developed a 5-lesson video series based on Discover My Plate (USDA, 2023) curriculum which was viewed by children, teachers, and parents.

Evaluation questions were created by WSU Skagit Extension, specific for each target group participating to assess familiarity, acceptance, and consumption of local, seasonal produce. Survey questions were tested for readability at the third-grade level; however, questions were not validated. Future research on parent confidence to offer/serve fruits and vegetables in the home following a farm to ECE program will be an important addition to knowledge on children feeding practices.

The survey responses indicate that the FF2HK collaboration met the program objective to increase familiarity of local produce. An increase in familiarity and consumption of locally grown, seasonal produce was reported by culinary students, teachers, and parents. The partners expressed interest in continuing the program beyond the funding cycle which may be possible since logistics and procedures have been established, roles and responsibilities well defined, and perceived value and shared benefit realized.

The increased familiarity with taste and texture of local produce addresses the need described in the 2021 National Survey of Children's Health to increase children's daily consumption of fruits and vegetables. Through robust partnerships, clear expectations among stakeholders, and recognized value of fresh food education for children and their families, FF2HK resulted in new markets for local farmers, hands-on, real-life learning experiences for ProStart students, and met the objective of increased familiarity with local, seasonal foods for preschool-aged youth, their teachers, and parents.

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