

RESEARCH-TO-PRACTICE SUMMARY

Harvest for Healthy Kids: Head Start Teachers' Perceptions of Curriculum Usability

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Diets rich in fruits and vegetables are critical for overall health and well-being. The *Harvest for Healthy Kids* curriculum is a nutrition education curriculum designed to promote fruit and vegetable intake among young children. The curriculum is aligned with the Head Start Child Development and Early Learning Framework and is available online for free. Our study assessed the extent to which Head Start teachers found the curriculum to be usable in their classroom settings. Our results suggest that *Harvest for Healthy Kids* is an acceptable and feasible way to promote fruit and vegetable intake among children and teachers understand how to implement the curriculum in their classrooms. Head Start teachers may need systems-level supports, such as assistance from their supervisors, to implement the curriculum.

Keywords: Head Start, nutrition education, farm-to-preschool, community-based participatory research, curriculum, *Harvest for Healthy Kids*

Diets rich in fruits and vegetables are critical for overall health and well-being and are associated with reduced risk of obesity (He et al., 2004) and other diet-related chronic diseases, including cardiovascular diseases (Bazzano, Serdula, & Liu, 2003), and type 2 diabetes (Bazzano, Li, Joshipura, & Hu, 2008). Current national guidelines for children aged 2 to 8 years recommend consuming 1 to 1 ½ cups each of fruits and vegetables daily (U.S. Department of Agriculture & U.S. Department of Health and Human Services, n.d.). However, most children in the United States do not meet these recommendations (Krebs-Smith, Guenther, Subar, Kirkpatrick, & Dodd, 2010). Specifically, only 9.8% of girls and 13.8% of boys aged 4 to 8 years consume the recommended daily amount for fruits and vegetables (Guenther, Dodd, Reedy, & Krebs-Smith, 2006). Low-income children are at greatest risk for low fruit and vegetable intake (Rasmussen et al., 2006). Given that food preferences are formed early in life (Birch, 1999) and are difficult to change once established, preschool-aged children are important targets for nutrition education (Mikkilä, Räsänen, Raitakari, Pietinen, & Viikari, 2005).

Early care and education settings have enormous potential to help children meet their recommendation for daily fruit and vegetable intake (Story, Kaphingst, & French, 2006; Benjamin Neelon, & Briley, 2011). In addition to their ability to reach a large percentage of young children, childcare providers and preschool teachers can promote healthy eating habits by offering children a variety of fruits and vegetables in meals and snacks, and embedding healthy eating practices into daily activities (Nicklas et al., 2001). To date, there are only a few evidence-based nutrition education curricula that are available for use in early care and education settings (Kalich, Arnold, Austin, Bauer, McPartlin, & Ferri, 2010; Witt & Dunn, 2012).

Head Start is an ideal program for nutrition education targeted to preschool-aged children. During the 2013-2014 program year, nearly 950,000 children aged 3 to 5 years were enrolled in Head Start programs (U.S. Department of Health and Human Services, n.d.). In addition to their ability to reach large numbers of low-income children, Head Start programs are required to provide children with nutritious meals and snacks, include children in developmentally appropriate food-related activities, and provide children, parents, and staff with nutrition education. However, because Head Start programs have flexibility in how they fulfill their nutrition requirements, there is also large variation between and within programs (Hughes, Gooze, Finkelstein, & Whitaker, 2010; Carraway-Stage et al., 2014). For example, one study of Head Start programs in North Carolina reported that delivery of nutrition education varied greatly from as frequently as weekly in some programs to yearly in others (Carraway-Stage et al., 2014). Studies have shown that in Head Start programs and other early care and education settings, nutrition education implementation may be influenced by multiple factors, including teacher knowledge about nutrition, policies and regulations that hinder or promote food-based activities, access to nutrition education resources (e.g. supplies), time constraints, and level of priority placed on nutrition education by program administrators (Derscheid, Umoren, Kim, Henry, & Zittel, 2010; Cotugna & Vickery, 2007; Carraway-Stage et al., 2014).

Harvest for Healthy Kids is the one of the few evidence-based farm-to-preschool interventions (Izumi, Eckhardt, Hallman, Herro, & Barberis, 2015). The curriculum, which is available on-line for free, was designed using a community-based participatory research approach (Israel et al., 2013) with an eight member workgroup comprised of Head Start administrators and teachers and researchers from Portland State University (Izumi et al. 2013). The curriculum is comprised of activity kits that feature different fruits or vegetables. Each activity kit includes four key elements: activity plans, picture cards, educator newsletters, and family newsletters. The goal of the curriculum is to improve children's knowledge of and

attitudes towards the target foods through, for example, cooking and tasting activities, read-aloud book discussions, transition activities, and mealtime discussions. To promote its successful implementation, the *Harvest for Healthy Kids* curriculum was aligned with the Head Start Child Development and Early Learning Framework (Head Start Resource Center, 2010) and designed to address multiple areas of child development and learning (Table 1).

OUR STUDY

This current study explored the usability of the *Harvest for Healthy Kids* curriculum. The study was conducted over eight months during the 2012-2013 academic year. Nine teachers across three Head Start programs pilot-tested the *Harvest for Healthy Kids* curriculum. Eight teachers were female; four teachers had 8 or more years of experience as a teacher in early care and education settings, four had 5-8 years of experience, one teacher had fewer than 5 years of experience, and all had earned a 4-year university degree.

Prior to pilot-testing the curriculum, the teachers participated in a 4-hour hands-on training during which they learned how to implement the kits. The teachers also participated in a 2-hour booster training. In addition to the trainings, the teachers were provided with the curriculum, \$100 for supplies, monthly delivery of fruits and vegetables from the program's central kitchen to use for sensory exploration and cooking activities, read-aloud books, and kitchen tools (e.g. grater, mixing bowls).

We collected feedback from the teachers about the usability of the curriculum with a survey (n=9) and a focus group (n=6). The survey, which was administered before and after implementing the curriculum, asked teachers to use a 5-point scale (from 5 = strongly agree to 1 = strongly disagree) to rate the extent to which they agreed or disagreed that the *Harvest for Healthy Kids* curriculum was acceptable, feasible, easy to understand, and required few systems supports to implement. The focus group was conducted after implementing the curriculum. Two main questions were asked during the focus group: (1) What types of things made it easier for you to implement *Harvest for Healthy Kids*? and (2) What types of things made it harder for you to implement *Harvest for Healthy Kids*?

SUMMARY OF FINDINGS

As expected given our partnership approach to developing the *Harvest for Healthy Kids* curriculum, the teachers found the curriculum to be an acceptable way to promote fruit and vegetable intake among children. In addition, providing teachers with materials such as cookbooks, picture cards, and cooking equipment made it feasible to implement it in their classrooms. Aligning the curriculum with the Head Start Child Development and Early Learning Framework (Head Start Resource Center, 2010) also allowed the teachers to easily integrate *Harvest for Healthy Kids* into their lessons and helped to ensure that the curriculum complemented, rather than competed with, their teaching responsibilities. Given competing priorities, however, the teachers still found it difficult to implement the curriculum during certain times of the year, such as the beginning and end of the academic year and the period immediately before and after holidays or short vacation breaks. The teachers found the curriculum easy to

understand; their understanding was enhanced by the pre-service and booster trainings, which focused on how to implement the curriculum.

The teachers reported that implementing *Harvest for Healthy Kids* required more systems-level supports than they initially anticipated. Specifically, they relied on their education site managers, who are their immediate and on-site supervisors, to purchase other supplies, such as recipe ingredients (e.g. vegetable oil, soy sauce), that were needed to implement the activities. In addition, although the teachers expressed appreciation for the monthly delivery of target foods from the central kitchen, they also said that the fruits and vegetables often arrived later than expected, which made it difficult for them to carry out their lessons as planned. In hindsight, given their critical roles, education site managers and central kitchen staff should have been invited to participate on the curriculum development workgroup; doing so may have allowed us to anticipate and address potential implementation barriers related to systems-levels supports.

CONCLUSION

Our study suggests that the *Harvest for Healthy Kids* curriculum may be appropriate for promoting healthy eating habits among children in Head Start programs. Previous studies have delineated the multiple obstacles Head Start teachers encounter when promoting nutrition in preschool settings (Hughes et al., 2010; Carraway-Stage et al., 2014). By using a participatory approach to developing the curriculum and aligning it with the Head Start Child Development and Early Learning Framework (Head Start Resource Center, 2010), we attempted to address concerns related to these obstacles. It is important to note that we provided the teachers who participated in the current study with resources beyond what may be immediately available to other early care and education professionals. Given that healthy eating habits are critical for lifelong health, we believe that resources to implement nutrition education in early care and education settings are an important investment.

TABLE 1
Examples of the alignment between the Harvest for Healthy Kids curriculum and the Head Start Child Development and Early Learning Framework

<i>Activity</i>	<i>Domain</i>	<i>Domain Element</i>	<i>Strategy</i>
<i>Picture Cards</i>	Physical Development & Health	Health Knowledge & Practice	Look at beets picture cards with children. Discuss how beets are a good for you anytime food and give explanations of why eating vegetables is important.
	Language Development	Receptive Language	Look at <i>Same-but-Different</i> beets picture card with children. Introduce beet varieties (Chioggia, Golden, Red).
	Science Knowledge & Skills	Scientific Skills & Method	Look at <i>How do beets grow?</i> picture card with children. Encourage children to make guesses about which part of the beet is for eating.
		Conceptual Knowledge of the Natural & Physical World	Look at <i>How do beets grow?</i> picture card with children. Engage children in a discussion about how plants grow.
<i>Cooking Activity</i>	Physical Development & Health	Health Knowledge & Practice	Model how to safely use a box grater. Provide children with just enough help to use the grater on his/her own. For example, let the child hold the grater in one hand and a carrot in the other hand; use your hands to guide his hands to grate the carrot.
		Fine Motor Skills	Allow children to use kitchen tools or their hands to help with food preparation. For example, when making asparagus tacos, children can use their hands to snap asparagus spears into small pieces.
	Social & Emotional Development	Social Relationships	Provide opportunities for children to take turns when cooking together. For example, when making winter root vegetable pancakes, children can take turns stirring or adding in spices, flour, and vegetables.
		Self-Concept & Self-Efficacy	Let children do for themselves what they are capable of doing when engaged in cooking activities, whether it is gathering ingredients, peeling vegetables, or cleaning up.

<i>Activity</i>	<i>Domain</i>	<i>Domain Element</i>	<i>Strategy</i>
<i>Cooking Activity</i>	Approaches to Learning	Cooperation	When making a recipe, ask children to work together to prepare the ingredients. For example, when making vegetable soup, ask children to take turns cutting or tearing the cabbage into small pieces to put into the soup.
	Literacy Knowledge & Skills	Print Concepts & Conventions	Read recipes aloud to small groups of children, pointing to specific words and demonstrating left to right, right/left sweep, and top to bottom motion of print.
	Mathematics Knowledge & Skills	Number Concepts & Quantities	After making winter root vegetable pancakes, count out loud the number of pancakes made, pointing to each pancake as the number name is called out. Ask children if there are enough pancakes for each person to get one pancake.
		Measurement & Comparison	Let children compare ingredient quantities for recipes. For example, when making carrot salad, pose questions such as “Is there more salt or pepper in this salad?”
<i>Taste & Tell</i>	Physical Development & Health	Health Knowledge & Practice	Taste asparagus with children. Discuss how asparagus is a delicious anytime food because it is a vegetable. Ask children to name their favorite vegetables.
	Social & Emotional Development	Self-Concept & Self-Efficacy	Taste berries with children. Ask them to share their or their families’ experiences eating, picking, or cooking with berries.
	Language Development	Expressive Language	Taste beets with children. Ask them to describe the taste, texture, and smell of the vegetables. Write down their words and read them back.

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