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Recommended Citation

Myers, Diana Beach, "Harvest of the Month Kits for Four to Five-Year-Olds in Early Care and Education Settings." , Georgia State University, 2018.
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Harvest of the Month Kit Capstone Project Literature Review

By: *Diana Beach*

Second Draft

The demand for early care and education facilities for young children aged zero to five years old is growing at a fast rate.¹ A societal shift is occurring as more women are working and parents are recognizing the importance of this time period.² According to the U.S. Census, there are 15.1 million children within the age range for early care facilities.¹ The first five years of a child's life are a remarkable time for growth, both mentally and physically and the development of food preferences. A young child's food preferences develop within the first few years of life as an infant transitions from eating one food to a multitude of foods with varying flavor profiles.³ With the understanding of this development, early care and education facilities have the ability to target these young years and help influence dietary preferences in a healthy way.

Under the Obama administration, the government made a decision to expand access to high-quality early care learning for all children in America.⁴ According to the 2013 Georgia Farm to Preschool Survey, 8 million children are spending an average of 33 hours per a week in early care and education settings.⁵ Highlighting a focus on these early years is especially critical in influencing the development of food preferences and building lifelong healthy dietary habits. An example of a healthy dietary habit is the consumption of fruits and vegetables. Despite numerous campaigns to promote the intake of fruits and vegetables, there were no improvements of vegetable intake for children between 2003-2010.⁶ According to a study conducted by the Centers for Disease Control (CDC) and Prevention, children aged 2-18 years old ate 67% more fruits from 2003-2010.⁶ Although this is a more positive statistic, the data still shows that fruit and vegetable consumption is lower than the Dietary Guidelines for Americans (DGA).⁶ Fruit and vegetable consumption can lead to reduced cardiovascular and chronic disease risk and healthy weight management.⁷ This is especially true when fruits and vegetables are eaten as a whole ingredient rather than drinking it as juice. Eating the whole fruit or vegetable provides children with more vitamins, minerals, and fiber. Several influences in children's lives have been shown to impact their fruit and vegetable consumption including repeated exposure, modeled behavior, social experiences, taste testing, and availability.⁸ With the understanding of various types of interventions and the knowledge of how food preferences develop, nutritional interventions can be created to aid in lifelong healthy dietary habits and food preferences.

With the growth of early care and education centers, there has been enormous growth in Farm to Early Care and Education (ECE) programs. Farm to School is an evidence-based program embraced by schools and early care facilities to increase student engagement in school gardens, taste testing, cooking lessons, nutrition activities, standards-based curriculum, and local foods.⁹ Farm to School programs help to create a connection between children and food origination. In 1938, John Dewey first wrote about the impact of experiential learning. With this, he stated that "there is an intimate and necessary relation between the processes of actual experience and education."¹⁰ These programs are an effective experiential learning nutrition intervention tool in early care environments as it brings together hands-on learning surrounding nutrition, food, health, and agriculture.⁹ In Georgia, many early care centers are involved in this program to some capacity. The 2014 Georgia Farm to Preschool survey stated that "94% of 859 centers reported that they had conducted some type of Farm to ECE activity within the year." This

promising statistic speaks to the openness of facilities in trying this intervention in early care settings. The Georgia Farm to ECE Coalition, comprised of stakeholders in early care, food, farming, and nutrition, has a mission to connect early care facilities, local farmers, and stakeholders to increase the connection of early care centers with Farm to School programs.

For this capstone project, four Harvest of the Month kits will be created to be used in ECE settings with four to five-year-olds. This age group has been chosen because each age within ECE settings has a different age-appropriateness of learning so each age will need different instructions. These kits have the potential to be adapted for each age group in early care. All materials will be created using evidence-based practices specifically to fit the abilities of four to five-year-olds and each kit will be tested within a pilot ECE setting to analyze the age-appropriateness. These Harvest of the Month kits will be correlated with Georgia's Department of Education's kindergarten through twelfth grade Harvest of the Month resources. Each kit will combine a locally grown Georgia fruit or vegetable, recipe to prepare the seasonal produce, nutritional activity to tie in learning, literature connection, and handout to send home. Along with each kit, a handout will be created to help early care facilities in the local food procurement process. The handout will include information on where to find local farmers and farmer's markets for local food procurement. The goal of these kits are to provide a hands-on learning experience to enhance children's knowledge of fruits and vegetables through activities and literature connections, allow them an opportunity to try new fruits and vegetables through taste testing, and empower them in the kitchen through recipe creations.

During the process of the kit development, Georgia Early Learning and Development Standards (GELDS) will be reviewed and tied into each kit to align with current curriculum standards. Aspects of childhood food preference development, hands-on learning, nutrition education, and healthy food modeling will be woven into each kit. Other similar kits have been created such as the kits used with low-income Hmong and white middle school students in California.¹¹ The multi-factorial components of nutrition interventions have been shown to be effective; intertwining the hands-on activity with the nutritional component and taste testing had an impact on fruit and vegetable intake and likeability. Another South Dakota Harvest of the Month kit was modified from the California models.¹² This intervention was an interactive and informative way to expose children to fruits and vegetables and encourage them to eat more. One major component that was found to be effective was the handout sent home to caregivers. This is a way to reinforce the efforts that are done at school and bring them home to the next environment that children may be. Results showed that the combination of nutrition education and taste testing increased knowledge and consumption of fruits and vegetables.

Implementing hands-on strategies in the school setting has the potential to be successful based off of the findings regarding fruit and vegetable consumption and food preference development. According to the 2013 Georgia Farm to Preschool Survey, 8 million children are spending an average of 33 hours per a week in early care and education settings.⁵ This is where a Harvest of the Month kit can really have an impact on the lives of children. By intertwining several components, Harvest of the Month kits have the potential to impact children and their food preferences through taste testing,¹³ hands-on learning,¹⁴ and peer modeling.¹⁵

Each kit will have two age appropriate recipes to be used depending on facility availability of cooking equipment. One recipe will use basic equipment such as bowls, spoons, and/or hands while the second will use blenders, induction burners, and/or ovens; both will contain instructions specific to the intended age group. As stated previously, involving children in the process of preparing meals has been shown to increase their likelihood of trying new foods. One study of six to ten-year-old children looked into this by separating the children into study groups where one group helped to prepare a meal with parental assistance and the other group had a meal prepared for them by a parent.¹⁶ Children in the “child cooks group” ate significantly more salad, chicken, and calories than in the “parent cooks group”. This is a great sign for getting children involved in the cooking and trying new foods. Not only did they eat significantly more of their meal and the healthy components, the children in the “child cooks group” also reported a significant increase in feelings of valence and dominance. This has the potential to lead to feelings of self-efficacy in the kitchen setting. A *Cooking with Kids* intervention was created and implemented in school systems to evaluate the effect that this had on fruit and vegetable preferences. Overall, after the total of 15-hour involvement of cooking throughout the year, the fruit and vegetable preference score increased within the intervention group which included fourth-graders. After a follow-up test, this intervention was also shown to increase self-efficacy in the kitchen. All of this day suggests the impact recipe creation in early care settings can have on a child’s comfort levels in the kitchen.

Four to five-year-olds will have the opportunity to participate in an activity that will tie in nutritional components. Each activity will be hands-on in order to engage children in the learning process in an experiential and more memorable way.¹⁷ By connecting the activity to nutrition, several GELDS will be intertwined into each activity. For example, physical development and motor skills will be intertwined by having the child participate in a hands-on nutrition activity using fine motor skills. Tying an activity in with the cooking lesson will help in a child’s ability to learn and remember.¹⁸

Nutrition education and the food children eat will be tied together through a children’s literature connection. Several books will be chosen to correlate with each seasonal fruit or vegetable. This literature tie will have lifelong implications. Being read to from a young age is correlated with socio-economic success later in life.¹⁹ Reading to children has been shown to have a positive effect on reading skills, language skills, and cognitive development.²⁰ As described earlier, this has a deeper connection with the early care GELDS and will be another component in making these kits standards-based. Tying in literature may also expand teacher’s willingness to add these kits to the classroom as they cover a multitude of types of learning experiences for these children.

The last component of the Harvest of the Month kits is the handout that will be sent home to families. The goal of this handout is to bring the impact of these kits home with the children to continue influencing healthy dietary habits. According to the Centers for Disease Control, children and adolescents consumed an average of 12.4% of their daily calories from fast food.²¹ In exposing four to five-year-olds to fresh fruits and vegetables at early care centers, children have the capability of expanding their food preferences. By bringing this influence back home, families have the opportunity to learn with their children and continue the impact to a greater familial degree.

The question of the most effective ways to promote healthy eating is relevant as the majority of children do not meet the DGA for fruit and vegetable consumption. One study delving into how early care providers purchase food revealed the multi-factorial influence. Having multiple influencers and opportunities in making this decision can be a challenge when it comes to nutrition. Macro-level environments, physical environment and settings, social environments, and individual factors at both a provider and child level are all barriers that need to be addressed when considering nutrition and food purchases in early care and education facilities.²² The purchasing side is a critical component of the nutrition within these facilities, however, the act of serving the food to these students also has a great impact. When teachers model eating through an enthusiastic model, studies suggest that the children are more likely to try the food.²³ These Harvest of the Month kits will provide this opportunity in these settings. Studies also suggest that having students serve their own food increases their likelihood of trying these foods.²⁴ The act of explaining how a meal is prepared and involving children in the preparation process has a greater impact on their food choices.²⁵ In taking in all of the results of these studies, early care and education facilities seem to be a promising setting to focus on developing food preferences and nutrition intake at a young age. Overall, there needs to be more research in early care and education settings. Much of the research that has been completed for Harvest of the Month kit models are for kindergarten through adult settings. Considering the age of the intervention participants is valuable in learning about the traits and abilities of this population. This is relevant for creating effective multi-component, hands-on interventions such as Harvest of the Month kits for early care and education facilities.

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