Jessa Engelken

A Capstone Report

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Capstone Advisor: Cristen Harris, PhD, RDN, CSSD, CD, CEP, FAND

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Table of Contents

Chapter 1: Introduction

The purpose of this capstone project is twofold: to conduct a literature review and to identify current feeding practices in early learning programs through survey analyses. The purpose of the literature review is to identify supportive research for implementation of responsive feeding practices for infants through preschool-aged children, to define a specialized form of responsive feeding, the Satter Division of Responsibility (sDOR), and to compare these responsive practices with feeding practices currently used by early learning providers in Washington State.

The purpose of the survey analyses is to identify current mealtime practices in early learning programs and to determine areas of alignment and room for improvement with responsive feeding methods, such as the sDOR. The survey analyses include results from a survey taken by early learning providers in Washington State as part of a mealtime training module (Nurturing Young Eaters), as well as the inclusion of relevant results from the 2018 Washington State Survey of Nutrition and Physical Activity in Early Learning.[1–3]

The findings of this literature review and survey analyses inform recommendations for technical assistance and resource development for early learning providers by the Washington State Department of Health to improve eating opportunities (meal and snack times). Commonly used terms and definitions for this report are listed in the Appendix A1.

Nutrition Topic of Interest

This project focuses on responsive feeding practices and more specifically, the sDOR, and how this can be better implemented in early learning programs. Generally speaking, responsive feeding involves a reciprocal interaction between the caregiver and infant or child.[4,5] Infants and children communicate their hunger and fullness cues to caregivers who respond appropriately without the use of pressure tactics or controlling feeding practices.[4,5]

The sDOR was selected for this project because it is a well-known and specialized form of responsive feeding practice for infancy through adolescence.[11,88] It has been recognized by well-respected organizations, such as the American Academy of Pediatrics and the Academy of Nutrition and Dietetics, and has consistent principles for implementation.[56,57]

Responsive feeding practices, such as the sDOR, are associated with less stressful eating environments, higher diet quality, less rapid weight gain, normal weight status, and are important for

developing eating competence later in adulthood.[6–11] In contrast, non-responsive feeding practices are associated with picky eating, decreased consumptions of fruits and vegetables, emotional overeating, and higher weight status, which supports the need for reducing non-responsive feeding practices in early learning programs.[9,12–14]

Population

This project focuses on the early learning programs and providers that implement feeding practices for infants through preschool-aged children in Washington State. According to the 2018 Washington State Survey of Nutrition and Physical Activity in Early Learning, only 44% of providers at family child care home programs and 26% of providers at child care centers received training on responsive feeding techniques for infants.[1] Additionally, just 48% of child care centers require staff training for healthy mealtime practices, suggesting that more training opportunities and technical assistance for responsive feeding is needed.[2] This project aims to determine how responsive feeding practices, such as the sDOR, could be better implemented into early learning programs in Washington State.

Chapter II: Washington State Department of Health & Center for Public Health Nutrition Overview

The Washington State Department of Health (WA DOH) and Center for Public Health Nutrition (CPHN) partnered to provide training and resources to early learning providers through the Healthy Eating and Active Living (HEAL) program. The Nurturing Young Eaters training module included the survey analyzed for this capstone project. Additionally, the WA DOH oversaw the 2018 Statewide Survey, whose relevant results are included later in this report.

Washington State Department of Health

The WA DOH offers services and programs to improve the health and wellness of Washington State residents. The vision of WA DOH is "equity and optimal health for all" and the mission is to "work with others to protect and improve the health of all people in Washington State." The WA DOH follows five values: human-centered, equity, collaboration, seven generations, and excellence (Table 1).[15]

Table 1: WA DOH values and their definitions

Value	**Definition**
Human-centered	"We see others as people who matter like we do and take into account their needs, challenge, contributions, and objectives."
Equity	"We are committed to fairness and justice to ensure access to services, programs, opportunities, and information for all."
Collaboration	"We seek partnership and collaboration to maximize our collective impact. We cannot achieve our vision alone."
Seven Generations	"Inspired by Native American culture, we seek wisdom from those who came before us to ensure our current work protects those who will come after us."
Excellence	"We strive to demonstrate best practices, high performance, and compelling value in our work every day."

Adapted from: DOH Mission and Values[15]

The WA DOH oversees $1.3 billion biennially from federal funding (46%), fee revenue (27%), general state funding (12%), and other dedicated funding (15%).[16] There are several divisions in which the funding is allocated across. The Prevention and Community Health Division has an operating budget of $624 million. Housed in the Prevention and Community Health Division is the Office of Safe and

Healthy Communities. Within this office is the section called Community-based Prevention, which oversees the HEAL program. The HEAL team consists of five team members and is funded by grants, which include the CDC State Physical Activity and Nutrition grant (SPAN), the CDC Arthritis grant, and the Gus Schumacher Nutrition Incentive Program (GusNIP).[16]

HEAL Program

The mission of the HEAL program is to "work with partners to engage early learning, communities, schools, employers, faith-based settings, and healthcare providers in making it easier for children and adults to make healthy choices in our daily lives."[17] The policy, system, and environmental approach is used by the HEAL program, and increasing health equity the goal across priority areas.[17] This capstone project focuses on trainings housed in the Early Learning priority area.

HEAL oversees the Nourished and Active in Early Learning initiative that includes State Training and Registry System (STARS) trainings to provide information about nutrition, health, and safety to early learning providers. The trainings are online, free, and providers receive a specified amount of STARS credits.[3] The survey analysis included in this report is from the Nurturing Young Eaters Module.

The HEAL program partners with Department of Children, Youth, and Families, the Department of Agriculture, the Office of the Superintendent of Public Instruction, University of Washington's CPHN, Child Care Aware of Washington, The Childhood Obesity Prevention Coalition, Seattle Children's Hospital, and local health jurisdiction. The trainings for early learning programs are developed between WA DOH and University of Washington's CPHN. The trainings and resources include best practices for physical activity, screen time, breastfeeding, and nutrition.[3]

Center for Public Health Nutrition

The CPHN, housed in the School of Public Health at the University of Washington, partners with the WA DOH to offer resources developed through the HEAL program.[18] The mission of the CPHN is to: "Advance new knowledge to improve nutrition, food systems, and population health; Provide technical assistance in the translation of research into public health policy and practice; Inform efforts to prevent and manage obesity and non-communicable diseases at local and state level; Build partnerships and collaborations with local health jurisdictions, government agencies, practitioners and communities; Address the socio-economic determinants of health."[18]

The CPHN offers a variety of services, such as policy and food systems assessment, food access, social disparities, and nutritional epidemiology research, and diet and health modeling.[18] This is funded

by a variety of sources, such as the CDC, Robert Wood Johnson Foundation, National Institutes of Health, US Department of Agriculture, Laura and John Arnold Foundation, the City of Seattle, Seattle and King County Public Health, Taylor's University Kuala Lumpur, and the National Science Foundation. The CPHN has other partners, which include the City of Seattle, Seattle and King County Public Health, Kaiser Permanente California, and Kaiser Permanente Washington.[18]

Chapter III: Importance of Healthy Mealtime Practices and Environments at Early Learning Programs in Washington State

Due to racial and economic disparities and the presence of food insecurity in Washington state, early learning programs serve as necessary sources of consistent mealtimes for children. This is especially true for children of color who have higher rates of food insecurity.[19] Food insecurity is of particular concern because children experiencing food insecurity often have less opportunities for family meals, which have a variety of health and behavioral benefits.[20,21] Responsive feeding methods such as the sDOR focus largely on the importance of developing feeding relationships between caregivers and children and providing regular mealtimes. Greater implementation of these practices in early learning programs may be beneficial for children experiencing food insecurity, especially for families of color.

Washington State Demographics and Disparities

Washington state is home to over seven million residents with a median household income of $78,687.[22] With a poverty rate of nearly 10%, household income and food insecurity are majors areas of concern. Racial disparities exist within a predominantly Caucasian population (74%). About 13% of the population identifies as Hispanic or Latino, 9.0% of people identify as Asian, and 4% identify as Black or African American.[22] English is spoken in about 80% of homes and the second most common language is Spanish (9%), followed by Asian and Pacific Islander languages (6%). Although people who identify as a race other than white make up a small percentage of the overall population in Washington state, they account for 45% of people living in poverty.[22]

Early Learning Programs and Providers in Washington State

Washington state had 5,434 early learning providers in Washington State in 2019 with a total capacity for 186,149 children (infants through school-aged) in 2019.[23] Early learning programs are often classified into two different categories: center based child care and family child care homes. There were a total of 1,729 child care centers, 3,154 family child care homes, and 551 programs for school-aged children in Washington State in 2019.[23]

- **Center based child care:** "a facility providing regularly scheduled care for a group of children birth through 12 years old for periods of less than 24 hours a day."[24]

- **Family child care home:** "an early learning program licensed by the department where a family home licensee provides child care of education services for 12 or fewer children in the family living quarter where the licensee resides."[24]

Children (0-6 Years) Attending Early Learning Programs

This capstone project focuses on infants (under the age of one) through preschoolers (under age 6 years old). An estimated 6% of the Washington state population is under the age of six years old.[25] Approximately 61% of providers accepted infants, 75% accepted toddlers, and 84% accepted preschool-aged children into their programs in Washington State in 2019.[23]

Food Insecurity

Food insecurity among children is a major issue in the United States and in Washington State (Figure 1). Nearly 285,000 children (17%) in Washington state experienced food insecurity in 2017.[26] About 351,600 households (11%) in Washington State received assistance from Basic Food (Supplemental Nutrition Assistant Program) and 170,100 (48%) of these households had children under the age of 18 years old.[26]

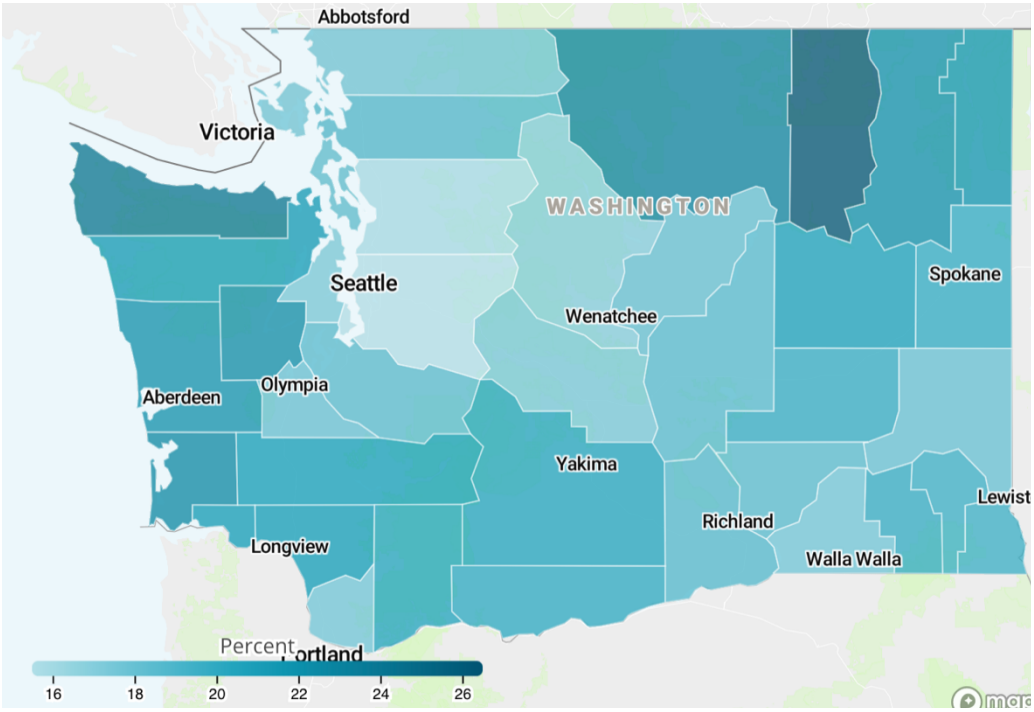
It is important to consider the issue of food insecurity because of its impact on nutrition, feeding behaviors, and family meals. Families experiencing food insecurity tend to have lower opportunities for family meals due to a variety of reasons, such as lack of food preparation supplies, food shortages, working hours, and time spent seeking food assistance.[20,21] Family meals have many benefits, such as reduced odds of overweight status or eating less energy dense foods (more nutrient dense foods), as well as lower odds of disordered eating in children and adolescents.[27]

In Washington State, there are racial inequities among children of color who experience greater rates of food insecurity than white families.[19] In 2014 to 2017, 65% of black families with young children and 39% of Hispanic families experienced food insecurity. In contrast, only 15% of white families with young children experienced food insecurity. Additionally, 62% of families that spoke Spanish as the primary language at home experienced food insecurity compared to only 19% of families that spoke English as a primary language in 2014 to 2017.[19]

Early learning programs serve as an important place to reduce the detrimental impact of food insecurity in children by providing consistent family meals and regular access to foods. Responsive feeding methods, such as the sDOR, highlight the importance of regular family meals and the feeding relationship between caregivers and children. Improving these methods in early learning programs

serves as a unique way to foster consistent, healthy mealtime environments for children, especially for children of color who experience food insecurity at higher rates.

Figure 1: Child Food Insecurity Rates in 2017 by County in Washington State[26]



Chapter IV: Nutrition Issue of Focus: Alignment of Current Best Practices with Responsive Feeding Practices

Responsive feeding involves reciprocal interactions in feeding practices between caregivers and infants.[4] The sDOR is considered a specialized form of responsive feeding because of its consistent and clear guidelines.[11,28–30] The sDOR differs from responsive feeding methods in three ways: portion control is not used in any form and children choose how much to eat of what has been offered, children are exposed to a variety of foods, and foods are presented in a neutral manner with no use of pressure. This section provides detailed information about what responsive feeding and the sDOR are, how they differ, where the current state of research for the sDOR stands, and supportive professional organizations.

Responsive Feeding

Responsive feeding is a way of feeding that involves reciprocal interactions between caregivers and infants or children during eating opportunities.[4] Much of the information about responsive feeding practices for infants and toddlers in this report is based on the responsive feeding guidelines developed by the Healthy Eating Research (HER) expert panel of the Robert Wood Johnson Foundation.[4] This report was developed in response to the previous lack of nutritional guidelines for 0 to 24 months in the Dietary Guidelines for Americans.[4] Information on responsive feeding practices for infants and toddlers appears to be much more robust than information for children.

Responsive feeding methods have been defined and evaluated in different ways.[30] A commonly agreed upon definition is the following four-step process:

1. "The caregiver creates a routine, structure, expectations, and emotional context that promotes interaction.
2. The child signals feeding requests through motor actions, facial expressions, or vocalizations.
3. The caregiver recognizes the signals and responds promptly in a manner that is emotionally supportive, contingent on the signal, and developmentally appropriate.
4. The child experiences a predictable response to signals (i.e., reassuring her/him that the caregiver understands when she/he needs to be fed)."[5]

To accompany this four-step process, various guidelines have been formulated for caregivers to follow responsive feeding:[4,5]

- Caregivers create a pleasant environment for feeding with minimal distractions and establish mealtime routines.

- Comfortable seating is provided for the older infant (ie, transitioning/-ed to solid foods) and they are positioned to face others.
- Caregivers communicate expectations clearly and consistently with infants and children, and model appropriate behaviors, such as table manners.
- The caregiver offers food that is nutritionally adequate, tasty, and appropriate for the infant or child's development and age.
- Infants are fed on-demand, whereas children are offered food on a consistent schedule
- Caregivers are encouraging and attentive to hunger and satiety signals offered by the infant or child:
    - Infant
        - Hunger signals: placing hands to the mouth, rooting reflex (turning of the head when the cheek is touched), sucking noises, increased breathing, flexed arms and legs, clenched fingers, crying (does not always signal hunger)
        - Fullness signals: pushing away, sucking stops, arms, legs, and fingers relaxed, turns head away, falls asleep
    - Toddler
        - Hunger signals: leaning towards food, following food with eyes, moving arms and legs in excitement, opening mouth when food is offered, pointing to food
        - Fullness signals: closing mouth or turning their head away when offered food
    - Child
        - Hunger signals: behavior changes, reaching or pointing to food, vocalizing hunger, agitation, crying, struggling
        - Fullness signals: vocalizing fullness, stops eating
- Caregivers respond in a timely, supportive, contingent, and appropriate way based upon the infant or child's developmental progress.

Responsive feeding interactions between caregivers and infants or children will vary and progress based upon age and developmental stages (Table 2).[5]

Table 2: Example of the progression of feeding behavior and responsivity for young children and caregivers				
	Caregiver proactive preparation	**Child skills & signals**	**Caregiver responsivity**	**What child learns**
Birth to 6 mo	Prepare to feed when infant signals hunger	Signal hunger/satiety through voice, facial expression, and actions	Respond to infant's signals: feeds with hunger, stop with satiety	Caregiver will respond and meet her needs
6 – 12 mo	Ensure child is comfortably positioned; establish family mealtimes/routines	Sit; chew and swallow semisolid foods; self-feed with fingers	Respond to child's signals; increase variety, texture, and tastes Respond positively to child's attempts to self-feed	To begin to self-feed; to experience new tastes and textures; that eating and mealtimes are fun
12 – 24 mo	Offer 3-4 healthy choices/meal; Offer 2-3 healthy snacks each day; Offer foods that can be picked up, chewed, and swallowed	Self-feed many different foods; use baby-safe utensils; use words to signal requests	Respond to child's signals of hunger and satiety; respond positively to child's attempts to self-feed	Try new foods; do things for herself; ask for help; trust that caregiver will respond to requests

Table from Black and Aboud 2011[5]

Non-responsive feeding, in contrast, involves interactions between caregivers and infants or children that are not reciprocal. This may occur when the caregiver has too much control of the eating opportunity, the child has too much control, or the caregiver has little involvement.[5] Non-responsive feeding behaviors may occur when caregivers are concerned about the infant's or child's appetite, food intake, body size (whether these are perceived as low or high) or picky eating behaviors.[5] Caregivers may have concerns about body size for infants or children who have difficulty feeding or growing, are underweight or overweight, or at risk for overweight as perceived by the caregiver.[5] Additionally, caregivers may use non-responsive feeding practices when they have limited time and resources.[5]

Non-responsive feeding practices can result in misinterpretation of an infant or child's hunger and satiety signals, which may contribute to the infant or child's inattentiveness to their own cues and

reduced signals to the caregiver.[5] Ultimately, this can result in difficulty with infants or children forming autonomy and self-regulation based on hunger and satiety signals.[5]

Parental feeding practices can be broken down into three major constructs (coercive control, structure, and autonomy), and are categorized as responsive or non-responsive (defined in Table 3). Coercive control is a common construct of non-responsive feeding practices in which the caregiver dominates the feeding interaction and behaves in a caregiver-centered way that does not serve the infant or child's needs.[31] Coercive control practices include restriction, pressure to eat, threats and bribes, and utilizing food as a reward or as a way to control negative emotions (not related to hunger as negative emotions and behaviors can be a late sign of hunger) (Table 3).[4,31] A second construct is the level of structure that parents provide to mealtimes. Nonresponsive feeding practices often involve unstructured practices in which infants or children can control all or most aspects of the eating opportunity, such as timing and types of foods.[31]

Autonomy support is the third construct of feeding that involves parents promoting independence in children during eating opportunities.[31] Included with autonomy support is nutrition education in which parents teach children about the nutritional qualities of food.[31] Child involvement, encouragement, praise and non-food rewards are included within the autonomy support construct and are often classified as responsive feeding practices in the literature, whereas reasoning and negotiation are unclear.[31] Use of these three constructs (coercive control, structure, and autonomy support) vary from family-to-family and can impact a child's dietary intake and eating behaviors.[31]

Table 3: Definitions of common food parenting practices		
Food Parenting Practices	**Definition**	**Responsive, non-responsive, or unclear**
Coercive Control		
Restriction	Limited access to foods or eating opportunities; usually for "unhealthy" foods	Non-responsive
Pressure to Eat	Caregiver demands infant or child to eat or to eat more	Non-responsive
Threats and bribes	Caregiver offers to give or take away something if the infant or child does or does not eat the food or enough of the food	Non-responsive
Utilizing foods to control negative emotions	Caregiver offers food to infant or child to stop them from being emotional (i.e. fussy or angry) (not related to late stages of hunger)	Non-responsive
Reward	Caregiver offers child a reward for consuming food, such as candy	Non-responsive (food reward) Responsive (non-food reward, such as praise)
Structure		
Unstructured practices	Child has complete control of eating (timing, types of foods, frequency, and portion sizes)	Non-responsive
Rules and limits	Caregiver has clear expectations about what foods, when, where, and how much an infant or child eats	Responsive (when, where) Non-responsive (what, how much)
Guided choices	Caregiver determines food options and child can choose which foods to eat	Responsive
Meal and snack routines	Caregiver provides consistency surrounding meals and snacks, such as location, timing, presence of family members, conversation, and minimizing distractions	Responsive

Modeling	Caregiver consumes healthy foods and participates in appropriate eating behaviors in front of the child	Responsive
Food availability	Caregiver decides amount and types of food at home	Responsive
Food accessibility	Caregiver decides how accessible healthy and unhealthy foods are at home	Responsive
Food preparation	Caregiver decides how foods are prepared	Responsive
Autonomy Support		
Nutrition Education	Caregiver teaches child about nutritional quality, benefits of consuming healthy foods, and consequences of eating unhealthy foods	Responsive
Child involvement	Children are involved in meal planning and preparation	Responsive
Encouragement	Caregiver suggests that the child tries the specified food	Responsive
Praise	Positive reinforcement from caregiver for eating a food	Responsive
Reasoning	Caregiver uses logic to persuade child to eat or not eat a food	Non-responsive (i.e. bribing)
Negotiation	Caregiver and child form an agreement about what foods and how much of the foods the child will eat	Unclear; not measured in the studies reviewed

Adapted from Pérez-Escamilla et al. 2017; Vaughn et al. 2016 [4,31]

Benefits of Responsive Feeding

There is considerable research on responsive feeding practices for preventing infant and childhood overweight and obesity. In a 2016 randomized clinical control trial by Savage et al., the effects of a responsive parenting intervention with infants (birth to 28 weeks) were examined.[8] The results indicated that infants exposed to responsive parenting had less rapid weight gain as compared to infants in the control group, regardless of feeding methods (breast-fed and/or bottle-fed).[8] Additionally, the infants exposed to responsive parenting were less likely to have overweight status at one year of age.[8] Similarly, in a 2019 systematic review conducted by Spill et al., the authors concluded that there is moderate evidence that responsive feeding practices can result in normal weight status in infants compared to infants who were not exposed to responsive feeding practices.[9] It was also found that restrictive feeding practices (non-responsive) may be associated with higher weight status.[9] These results suggest that caregivers utilizing responsive feeding practices can lead to appropriate weight gain in infants and prevent accelerated weight gain.[8]

Responsive feeding has been shown to promote easier mealtime experiences for caregivers, which may be related to how structure is used. Structure involves rules and limits, guided choices, monitoring, meal and snack routines, modeling, food availability, accessibility, and preparation (Table 2).[31] In a 2017 cross-sectional study of 413 parents by Finnane et al., the results revealed that when children ate the same food as the family and structured mealtimes were provided (i.e. children sat at the table with family, and parents decided timing for eating opportunities) this was associated with decreased fussiness and increased enjoyment.[6] Although experimental studies are lacking in this area, the results suggest that responsive feeding practices, such as structure, may contribute to less stressful feeding and eating environments.

Supportive evidence for responsive feeding also lies in the negative impacts of non-responsive feeding practices. In a cross-sectional study of 478 mothers by Miller et al., non-responsive feeding practices (e.g., use of food as a reward) were positively associated with emotional overeating and food responsiveness (i.e., the urge to eat when exposed to palatable foods) in children.[14] Non-responsive feeding practices from caregivers may contribute to a child's disconnect with their own internal hunger and fullness cues, which may ultimately lead to lower or higher weight status.[9,32,33]

Caregivers participating in controlling, non-responsive feeding practices may contribute to picky eating. In a 2017 observational study by Fries et al., a total of 60 families with toddlers ages 12 to 36 months were asked to record videos of their toddler at dinner and at a meal where a new fruit or vegetable was offered to the toddler.[12] The results indicated that coercive-controlling prompts, such as

using food as a reward or telling the toddler to finish the food before ending mealtime, was associated with greater food refusal from the toddler.[12] Caregivers should reduce use of controlling practices to decrease picky eating and increase food acceptance in toddlers and children.

Types of Feeding Styles

Four types of caregiver styles have been defined and applied to feeding: authoritative, authoritarian, indulgent, and uninvolved (Table 4).[34] These styles are classified based upon the level of demandingness (control) that the caregiver has over the infant or child's eating behaviors, and the level of responsiveness in which the parent communicates their demands to the child.[34,35] Responsiveness refers to how sensitive, warm, and accepting caregivers are to their infant or child's needs.[35] The authoritative feeding style is the recommended style for responsive feeding. Authoritarian, indulgent, and uninvolved feeding styles are non-responsive and are associated with lower diet quality.[7,13]

Table 4: Types of Caregiver Feeding Styles

Feeding Style	**Responsiveness**	**Description**	**Example**
Authoritative	Responsive	Balance of demandingness & responsiveness; sensitivity of the infant or child's needs & reasonable requirements for nutrition	Provide healthy foods and do not force children to eat
Authoritarian	Non-responsive	High levels of demandingness and low levels of senstivity	Provide healthy foods and require children to eat all of the food on their plate
Indulgent	Non-responsive	Highly responsive with little demandingness; structure is lacking	Tailor meals to favorite foods and neglect nutritional needs or introduction of new foods
Uninvolved	Non-responsive	Low demandingness and responsiveness; little attention as to what the child eats; lack of structure	Tailors food options to child's preferences and provides inconsistent meal schedule or a lack of family meals

Adapted from Haines et al. 2018; Hughes et al. 2018[34,35]

Authoritative caregivers balance demandingness and responsiveness with both sensitivity of the child's needs and reasonable requirements for nourishment.[34,35] In contrast, authoritarian caregivers

have high levels of demandingness and low levels of responsiveness.[34,35] For example, authoritative caregivers may offer healthy foods and do not force children to eat them, whereas authoritarian would require children to eat all of the food on their plate.[34,35] Caregivers with authoritative feeding styles have been associated with better overall diet quality in children compared to authoritarian feeding styles.[7]

Indulgent caregivers are highly responsive with little demandingness and rules and a lack of structure.[34,35] In contrast, uninvolved caregivers lack in both demandingness and responsiveness and often have less interest in what the infant or child eats and/or unable or unwilling to provide consistent sit-down meals and snacks.[34,35] For example, both indulgent and uninvolved caregivers will tailor meals to the child's favorite foods at the expense of nutritional needs, but uninvolved caregivers may not offer a consistent meal schedule. Indulgent feeding styles by caregivers have been shown to be associated with consumption of low-nutrient dense foods by children.[36] Both indulgent and uninvolved feeding styles are associated with lower intakes of fruits, vegetables, and dairy foods.[13]

Authoritative feeding styles support responsive feeding practices because the caregiver provides a balance of both structure with regular eating opportunities, and responsiveness by being sensitive to the infant or child's signals and needs. Caregivers using any of the other three feeding styles do not exhibit this balance. Supporting authoritative feeding styles is essential to implementing responsive feeding practices with infants and children.

Satter Division of Responsibility

The sDOR is a specialized form of responsive feeding that was developed by Ellyn Satter during her 40-year clinical career as a registered dietitian and psychotherapist to foster positive feeding relationships between caregivers and infants and children.[11,28,29] The sDOR is considered "specialized" because it has consistent and clear principles. General responsive feeding practices have varying definitions and lack consensus, so the consistency of the sDOR may be easier to follow.[30] The WA DOH is interested in exploring the sDOR to expand their current inclusion of responsive feeding practices in trainings for early learning providers and to identify areas for improvement.[1,2]

The sDOR is referred to as a "trust model" because it fosters reciprocal trust in feeding and eating between caregivers and infants and children.[11,29] Infants and children learn how to self-regulate their food intake and trust that their food needs will be met. Caregivers learn to trust that their infants and children will eat enough food to grow predictably.[11,29] The sDOR provides a unique framework that focuses on "how" to feed infants and children, rather than "what" to feed them.[11,29] Table 5 provides definitions to the key terms utilized in the sDOR.

Table 5: Satter Division of Responsibility: Common Terms	
Term	**Definition**
What	Types of food items, beverages or breastmilk and formula, such as fruits, vegetables, cereal, etc.
Where	Location and environment for consuming food, beverages or breastmilk and formula
When	Schedule and timing for eating opportunities
Whether	Child chooses which foods, beverages or breastmilk and formula to consume, if at all, from what is offered
How much	Child or infant decides the portion size and how much to consume

Note: Adapted from Satter E 1995 & 1986.[11,29]

The sDOR is about finding a balance between the leadership provided by caregivers and autonomy expressed by infants and children (Table 6).[11] The ultimate goals for following the sDOR are for children to become competent eaters as adults and to grow predictably and consistently.[11]

Table 6: Satter Division of Responsibility Overarching Principles

- Caregivers offer regular meals and snacks with a variety and balance of foods to children – family mealtimes are prioritized
- Caregivers feed infants (0-6 months) on-demand based on hunger and fullness cues
- Caregivers provide a safe and comfortable environment for feeding, with few distractions
- Caregivers model appropriate behaviors for eating opportunities
- Caregivers learn to trust that infants and children will eat & try new foods
- Infants and children learn to trust that they will be offered foods regularly and adequately
- Infants and children communicate their food needs via hunger and satiety signals
- Infants and children can self-regulate their food intake
- Infants and children may vary in how much they eat at each meal and snack, but they are able to compensate so their needs are met
- Caregivers offer a variety of foods, including those commonly considered "unhealthy"
- Only water is offered between eating opportunities
- One serving of dessert offered w/ meals & unlimited dessert offered periodically with snacks
- Caregivers never restrict or force-feed food, such as to control the infant or child's weight
- Caregivers do not use food as a reward or punishment, and do not use non-food rewards (contrary to praise used in responsive feeding)
- Caregivers do not interfere with the infant or child's feeding process by using encouraging language, praise, coercion, or pressure
- Infants and children grow predictably following a consistent growth pattern
- Ultimately, children grow into competent eaters as adults:
    - Positive attitudes about eating
    - Acceptance of both favorite foods and new foods
    - Self-regulation of eating behaviors by being in touch with hunger and satiety signals
    - Skilled enough to prepare foods & feed themselves regularly, while paying attention to nutritional needs

Adapted from Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,37]

Differences Between Responsive Feeding and the sDOR

Even though the sDOR is a specialized form of responsive feeding, not all definitions of responsive feeding align with the sDOR. In particular, responsive feeding guidelines frequently recommend caregivers provide encouragement to infants and children to try new foods or to eat more. The sDOR does not include verbal praise or encouragement (unlike responsive feeding) because doing so is considered pressure that may disrupt the infant or child's ability to recognize and respond to their internal hunger and satiety signals.[38] Several examples of pressure when used in the context of attempting to "get" children to eat include: praising, rewarding, playing games and excess talk about nutrition, restricting amounts or types of foods, withholding dessert, shaming, "no thank you" bites, encouragement, and excessive discussion of how good the food tastes.[38]

At the other end of the spectrum is portion control. Recent responsive feeding guidelines developed by HER recommend portion control by caregivers.[4] The HER guidelines state, "Offer your child the recommended portion of healthy food from the different food groups (fruits, vegetables, grains, proteins, and dairy) at each meal, and let him/her decide how much to eat."[4] In the sDOR, the caregiver's role is to offer food without suggesting a portion size of food (except for dessert in which one serving is offered at mealtime). Rather, the child can choose how much they would like to eat (i.e. self-serving food to their own plate for a child), can stop eating when they are full (i.e. infant stops feeding from bottle or breast), or can request more food during mealtime if they are still hungry (verbally or through hunger cues depending on age). HER does recommend allowing children to decide how much to eat (consistent with the sDOR), but portion control is also mentioned.

Lastly, the HER guidelines recommend to "avoid offering unhealthy food, such as sugar-sweetened beverages, sweets, salty food/snacks, and fried food/snacks that are high in added sugars, calories, and/or salt."[4] The sDOR differs in that it recommends providing a variety of foods, that includes those that may be considered "unhealthy." Based on the sDOR, one serving of dessert should be offered at mealtime, and dessert should be offered occasionally in unlimited servings at snack time, which allows for children to be exposed to a variety of food and to learn how to self-regulate. It is not recommended to offer sugar-sweetened beverages to children under the age of two. After the age of two, it is recommended for sugar-sweetened beverages to be treated as a dessert. On the following page are the sDOR recommendations for offering dessert in a strategic manner.[39]

- "Include high-calorie/low nutrient foods in scheduled meal- and snack-times.
- Within that context, children and other people may eat as much as they want.
- This is with the exception of the mealtime dessert strategy, which recommends giving only one serving.
- Once the food is included in the meal or snack, parents do not restrict in any way: not by managing portions, not by running out of food, not by giving the child *the look*.
- Have soda occasionally, with a meal or snack where it tastes especially good."

The current state of the research for the recommendations in these three areas are provided in a later section titled "Current Position of Research for the sDOR."

Satter Division of Responsibility by Age

According to the sDOR, the responsibilities of caregivers and infants or children depend on the age and developmental progress of the infant or child (Table 7). The American Academy of Pediatrics recommends that newborns through infants (up to six months old) consume only breastmilk and/or formula via breastfeeding, bottle-feeding, or a combination of both.[40] When following the sDOR, the caregiver takes on the role of deciding what to feed (breastmilk and/or formula) while helping the infant become calm and organized during the feeding.[11,29] The infant determines everything else- how much to eat, how often, and how fast to eat.[11,29] During this stage, feeding on demand is recommended to develop trust between the caregiver and infant.[11,29]

Table 7: Satter Division of Responsibility By Age

	Infancy (0-6 months)	**Older Infants (6–12 months)**	**Toddlers (12 – 36 months)**	**Preschool (3-5 years) through Adolescence**
Caregiver Responsibilities	What	What Transitioning to When & Where	What When Where	What When Where
Infant or Child's Responsibilities	When (on demand) How much How often Tempo	How much Whether	How much Whether	How much Whether

Note: Adapted from Satter E 1995 & 1986.[11,29]

Recommendations for responsive feeding by both HER and sDOR include that caregivers provide a pleasant mealtime for infants during feedings.[4,11,29] The sDOR also recommends that caregivers provide a calm environment for feeding while limiting disruptions, such as unnecessary wiping or burping. Additionally HER and sDOR recommend that caregivers watch for cues from the infant as to the timing, tempo, frequency, and the amount of feeding.[4,11,29] Active engagement and little distraction by caregivers are important when feeding infants for responsiveness and attachment.[11] Guidelines, according to the sDOR, for promoting attachment between both breast and bottle-fed infants and caregivers include:[41]

- Feed "on demand" - feeding the infant when they signal hunger (ideally prior to crying)
- Hold the bottle securely and at an appropriate angle
- Touch the infant's cheek to stimulate the rooting reflex
- Place the nipple on the infant's lips and let them open their mouth
- Allow the baby to eat as much as they would like and to establish the tempo
- Have nipple flowing at the desired speed (for bottle-fed infants)
- Allow the infant to take pauses and then continue feeding
- Talk softly and smile at the infant, but don't provide overwhelming attention
- Reduce unnecessary feeding disruptions, such as wiping or burping
- Stop when the infant indicates fullness

According to the American Academy of Pediatrics, complementary foods can be introduced at six months of age.[40] Based on the sDOR, older infants (six to twelve months) determine how much formula or breast milk and/or solid food they would like to eat and whether they want to eat it (Table 7). Caregivers continue to determine what is served and begin to transition into deciding when and where eating opportunities occur by bringing infants to the table (e.g., highchair) and offering solid foods with family meals. Rather than using chronological age to determine the timing of solid food introduction, caregivers rely on developmental signs. Universally accepted signs (not specific to the sDOR) that show an infant is ready for solid foods are included below:[4,42]

- Sitting up with support
- Control of the head and neck
- Pushing up with straight elbows when lying on the stomach
- Putting hands or toys into the mouth
- Leaning forward or opening the mouth when seeing food
- Turning away or leaning back when not interested in food

Based on HER recommendations, when feeding older infants solid food, the infant should be sitting up straight and the caregiver holds the spoon of food and waits for the infant to open their mouth.[4] When following the sDOR, the caregiver sits in front of the infant while speaking and interacting in an engaging manner, that is not overwhelming. The caregiver does not use pressure statements and allows the older infant to touch the food.[41] The older infant determines how quickly they want to eat and shows signs of fullness when they are finished eating.[11] As the older infant develops their eating skills, caregivers can add in foods with more challenging textures.[11] Older infants (eight to twelve months) will begin to show interest in feeding themselves rather than eating from a spoon.[11] Universally accepted signs (not specific to the sDOR) that older infants are ready for finger foods include:[42]

- Sitting independently
- Holding onto and releasing food from the hand
- Chewing and swallowing food
- Improvements in fine motor skills, such as holding onto food between two fingers

When following the sDOR for toddlers (twelve to 36 months), the caregiver decides what foods to serve, when to serve foods, and where to feed, and the child decides how much and whether to eat of what has been offered (Table 7).[11,29] At this point, the structure of offering three meals per day with planned, sit-down snacks between meals is fully incorporated, rather than feeding on demand. Toddlers should be present during all family eating opportunities, which are consistently planned rather than waiting for the toddler to determine timing.[11]

Recommendations from HER include that caregivers should offer foods to toddlers that are appropriate to their development, such as ability to chew and swallow.[4] The HER guidelines also recommend that children should not be pressured to try new foods, but encouragement to eat new foods is recommended. Additionally, the HER guidelines recommend offering a variety of food to children to decrease picky eating.[4] The sDOR principles layer on a recommendation that caregivers should not allow the toddler to choose the menu based only on foods that they prefer, as this can contribute to picky eating.[11] It is important for caregivers to offer a variety of food that includes both familiar and unfamiliar foods. When offering new foods, sDOR states caregivers should offer them in a neutral, matter-of-fact manner, without pressure or coercion.[11] This differs from responsive feeding methods that recommend encouraging statements that could be considered pressure.

At the preschool age (three to five years), caregivers who follow the sDOR provide leadership by maintaining the structure of consistent eating opportunities and insisting that children attend (Table 7).[11,29] Children at this age decide whether and how much to eat, can talk and learn about new foods,

and can behave appropriately.[11] With the sDOR, it is not advised for caregivers to use coercive control or encouragement to "get" children to eat certain foods, or to control how much they eat, but to instead provide a neutral, safe environment for exploration.[29] Caregivers foster pleasant mealtimes and model mealtime behaviors. Children are not permitted to graze throughout the day, and instead are offered planned, sit-down snacks between meals, and water is offered between eating opportunities, since juice or other sugar-sweetened beverages may interfere with food intake.[43,44] Caregivers also allow their child's body to grow naturally without attempting to control it.[11] For example, caregivers do not withhold food in an attempt to decrease a child's weight and they do not force feed a child who is underweight.

Current Position of Research for sDOR

The sDOR is a form of responsive feeding that has a clear framework and consistent definitions that could be implemented into early learning programs. There is currently a lack of research for the sDOR because a survey tool to measure caregiver utilization of the sDOR for children ages two to six years old (sDOR.2-6y) was only recently validated in 2020 and has yet to be used for research.[45,46] Although specific research is lacking, many of the practices in the sDOR have been supported through responsive feeding research, in studies such as those conducted by Leanne Birch in the 1970's through 1990's (see section below), and through professional support (see Chapter V). Highlighted in this section is support for the sDOR principles that differ from responsive feeding, which include: self-regulation of how much food to eat, offering all types of foods, and the potential negative effects of encouraging children to eat.

Self-Regulation of How Much Food to Eat

In responsive feeding practices, both offering age-appropriate portions or portion control and allowing children to choose how much food to eat are recommended. In the sDOR, the caregiver does not choose how much the child eats through portion control. Instead, this is the toddler or child's responsibility. Multiple studies support this sDOR principle. In an experimental study, children (two to five years old) and adults were given varying amounts of pudding prior to meals.[47] Children exhibited better compensation of calories as compared to adults.[47] The children who consumed greater amounts of pudding prior to the meal consumed less calories at the meal compared to children who consumed lower amounts of pudding, but the total amount of calories consumed (pudding and meal) were similar in both groups.[47] This suggests that children are able to compensate based on previous food

consumption. These results were supported by an additional crossover design study by Leanna Birch.[48] A total of 29 children (two to five years old) were given foods with dietary fat or a nonenergy fat substitute.[48] Similarly, children compensated for missing energy when they had consumed the nonenergy fat substitute.[48] Often caregivers are concerned that children will not eat enough, or they will overeat if they do not control the amounts children consume. These studies suggest otherwise and support that caregivers *can* trust children to eat adequate amounts of food and nutrients to meet their needs without over- or under-eating.

Strategies for Offering All Types of Foods

Responsive feeding differs from the sDOR principles in that it is recommended to avoid offering unhealthy foods. An experimental study by Leanne Birch supported the sDOR principle that toddlers and children should be exposed to all types of foods, even those considered "unhealthy."[49] In this study, children (three to five years old) were restricted from consuming palatable foods, which resulted in children having an increased behavioral response to the foods that they were restricted from compared to readily available foods.[49] Restricting children from "unhealthy" foods may actually cause them to want them more. Offering unhealthy foods periodically, such as an unlimited dessert occasionally at snack time, is recommended to support their competence around "unhealthy" foods. The strategies for managing desserts is described on pg. 22.

Potential Negative Effects of Encouraging Children to Eat or Try New Foods

Another major aspect that separates responsive feeding methods and the sDOR is the use of encouraging statements. HER guidelines recommend the use of encouraging statements when offering new foods, whereas the sDOR recommends offering new foods in a neutral manner without use of encouragement or pressure. Results from a 2016 study on twin infants by Harris et al. support this recommendation.[50] Pressure to eat was measured using the Child Feeding Questionnaire in which parents responded with their level of agreement to the following statements: "My child should always eat all of the food on her plate; I have to be especially careful to make sure my child eats enough; If my child says 'I'm not hungry', I try to get her to eat anyway; If I did not guide or regulate my child's eating, she would eat much less than she should."[51] The results indicated that pressure to eat was associated with higher food fussiness.[50]

Additionally, in a 2017 cross-sectional study of 413 parents by Finnane et al. introduced earlier in this chapter, the results showed that persuasive feeding practices were associated with higher food

fussiness, lower enjoyment of food, higher slowness in eating, and emotional under-eating.[6] Persuasive feeding practices were measured by parents' level of agreement with the following statements from the Feeding Practice and Structure Questionnaire: "If my child says they are not hungry, I try to get them to eat anyway; When your child refuses food they usually eat, do you insist your child eats it?; I praise my child if s(he) eats what I give him/her; Do you reason with the child to get him/her to eat? (e.g., Milk is good for your health because it will make you strong); Do you tell the child to eat something on the plate? (e.g., Eat your beans); Do you say something to show your disapproval of the child for not eating?"[52]

There is evidence to suggest encouraging statements may lead to decreased dietary quality and responsiveness to hunger and fullness cues. In a 2016 observational study of 249 preschoolers in child care centers by Kharofa et al., repeated encouragement to eat (two or more times) was associated with lower fruit intake, suggesting that avoiding encouraging statements may be beneficial for dietary intake.[53] Examples of the encouraging statements made were not included in the report. In a 1994 study by Birch et al., mothers that encouraged children (3 to 5 years old) to finish their food resulted in lessened ability for children to be responsive to their hunger and fullness cues.[54] Encouragement was also measured using the Child Feeding Questionnaire described previously.[54]

Pressure to eat may negatively influence how much children eat and weight status. In a 2006 experimental trial of twelve preschool-aged children by Galloway et al., children ate more food and made less negative comments when there was no pressure to eat.[55] Pressure to eat came from a research assistant who told children to "finish your soup, please" four times during a five-minute session, as well as measurements of pressure by parents at home. Examples of negative comments include "I hate it", "I'm not going to eat it", etc. Children with lower BMI percentile scores had parents that used higher levels of pressure to eat at home. This suggests that pressure to eat or encouragement could impact how much children eat, how well they accept foods, and their weight status.[55]

Professional Support for Responsive Feeding and the Satter Division of Responsibility

Responsive feeding and more specifically, the sDOR, has gained support as a recommended way of feeding infants and children from several well-respected organizations, including The Academy of Nutrition and Dietetics (Academy), The American Academy of Pediatrics (AAP), The Dietary Guidelines Advisory Committee, and The National Academy of Medicine (NAM). This section highlights these supportive organizations and their level of alignment with the sDOR.

Academy of Nutrition and Dietetics

The Academy is the credentialing body for registered dietitians and provides nutrition benchmarks for child care.[56] They released twelve benchmarks in 2018 for nutrition in child care for early care and education programs serving children two through five years old (Table 8).[56] These benchmarks serve as guidance for providers, parents, and health professionals for feeding children.[56] Many of the benchmarks recommended by the Academy align with the sDOR (see Table 8). These include: respect hunger and satiety signals, create healthy physical and social eating environments, and encourage child-care provider role modeling. The fifth benchmark states, "respect children's hunger and satiety cues" and the Academy recommends the sDOR specifically to achieve this.[56] The Academy explains that the sDOR aligns with best practices for feeding children in early learning programs recommended by the Caring For Our Children: National Health and Safety Performance Standards. These best practices include adult modeling, family style dining, and repeated food exposure.[56]

Two of the benchmarks do not fully align with the sDOR: provide children with a variety of healthy foods and beverages in appropriate portions; and limit less-healthy foods that contribute little to meeting children's nutrition needs. Although the sDOR supports nutritional adequacy in children, the sDOR provides guidance for caregivers and parents on how to approach such foods strategically (Table 6).[37,49] The sDOR aligns with benchmark one in that a variety of foods should be offered (both healthy and unhealthy), but appropriate portion sizes are decided by toddlers and children, not the provider.

Table 8: Academy: Benchmarks for Nutrition in Child Care	
Benchmark	**Alignment with sDOR**
1. Provide children with a variety of healthy foods and beverages in appropriate portions	Aligns – variety Misaligns – appropriate portions; children choose how much to eat of what is offered
2. Limit less-healthy foods that contribute little to meeting children's nutrition needs	Misaligns – variety of foods are offered and those considered "unhealthy" are offered strategically (as described in Table 6 and pg. 20)
3. Be mindful of food safety, foodborne illness, and food allergies	N/A - No specific sDOR principle that applies
4. Create healthy physical and social eating environments	Aligns
5. Respect children's hunger and satiety cues	Aligns
6. Encourage child-care provider role modeling	Aligns
7. Work with parents to encourage healthy foods brought from home to child care	N/A - No specific sDOR principle that applies
8. Respect culture and encourage cultural foods	N/A - No specific sDOR principle that applies
9. Be mindful of food security and family resources	N/A - No specific sDOR principle that applies
10. Facilitate nutrition education for children and families	N/A - No specific sDOR principle that applies
11. Consider barriers to serving healthy foods and beverages from the provider perspective	N/A - No specific sDOR principle that applies
12. Provide training and technical assistance to child-care providers	N/A - No specific sDOR principle that applies

Adapted from: Position of the Academy: Benchmarks for Nutrition in Child Care[56]

American Academy of Pediatrics

The AAP provides up-to-date, evidence-based best practices for pediatric nutrition.[57] Within the best practices, the AAP has explicitly recommended the sDOR for feeding young children with disabilities.[57] The AAP gives particular attention to the importance of caregivers providing children with

regular eating opportunities, hosting family meals, and reducing coercion tactics.[57] Although the sDOR is not explicitly mentioned for children without disabilities, the AAP offers information about responsive feeding practices for infants on their healthychildren.org website.[58] This includes information about what infant hunger and fullness cues look like, how to respond, and the benefits of responsive feeding.

Dietary Guidelines Advisory Committee

The 2020 Dietary Guidelines Advisory Committee reviewed relevant research and crafted recommendations that were submitted to the U.S. Department of Agriculture (USDA) to inform the Dietary Guidelines for Americans.[59] The recommendations were provided in a scientific report released in July 2020, which included some research related to responsive feeding, although it was not a specific research topic selected by the Committee.[59] The report suggested further investigation of research related to satiety signals, self-regulation, and responsiveness is needed to make specific recommendations. The sDOR was not mentioned.[59] Ultimately, the Committee recommended that the USDA and Health and Human Services review guidance on how to feed infants and toddlers, such as responsive feeding practices.[59] The 2020 to 2025 Dietary Guidelines include one page of information about following responsive feeding practice for children (birth to 23 months). This focused primarily on how to recognize hunger and fullness cues at different ages.[60]

National Academy of Medicine

The NAM, previously named the Institute of Medicine, was founded in the 1970's and is an independent advisor for evidenced-based health practices, including nutrition.[61] NAM released a report in 2011 for recommended prevention policies for childhood obesity.[62] Recommendation 4-4 is "State child care regulatory agencies should require that child care providers and early childhood educators practice responsive feeding."[62] Much of the guidance included in this report surrounding responsive feeding aligns with the sDOR, such as the emphasis on modeling, and recognition of infant and child hunger and satiety signals.[62] The sDOR is not explicitly mentioned.

The NAM report includes recommendations for caregivers to provide age-appropriate portions of food and breastmilk or formula, which contradict other recommendations by NAM for toddlers and children to serve themselves and choose how much they would like to eat. Additionally, caregivers are recommended to remind children of their hunger and fullness cues and to prevent children from eating "for non-hunger reasons", and caregivers are recommended to encourage children to try foods.[62] These specific recommendations do not align with the sDOR because they interfere with the infant or child's

ability to choose how much to eat. According to the sDOR, encouragement to try foods and reminders to pay attention to hunger and fullness signals will disrupt the infant or child's own ability to recognize their internal signals related to eating.

Summary of Professional Support

Responsive feeding is becoming a popular area of study as professional organizations and researchers are refining best practices on *how* infants and children should be fed. The sDOR is a well-respected model trusted by leaders in the infant and child nutrition field. As suggested in this section, more work is needed to properly implement the sDOR and to shed old best practices that recommend control by caregivers. Instead, best practices should include caregivers developing greater trust with infants and children's capabilities with their internal signals and ability to communicate their eating needs.

Chapter V: Literature Review of Responsive Feeding in Early Learning Programs

Included in this chapter is a literature review of responsive feeding practices. Since specific research on the sDOR is limited, a thorough review of responsive feeding literature is included. The research questions were: what are the benefits and facilitators of responsive feeding practices in early learning programs; and what are the barriers and challenges?

Benefits and Facilitators of Responsive Feeding Approaches in Early Learning Programs

The benefits and facilitators of using responsive feeding practices, such as the sDOR, during eating opportunities are necessary to identify for rationalization and ease of implementation for early learning providers.

One popular question surrounding responsive feeding is: if children are allowed to decide which foods and how much to eat, will they consume enough nutrient-dense foods, such as fruits and vegetables? Research indicates that children exposed to responsive feeding practices by providers may actually consume *higher* amounts of fruits and vegetables, and *lower* amounts of high fat and high sugar foods.[53,63] In the 2016 observational study of 249 preschoolers by Kharofa et al., results revealed that adults eating with children and consuming the same foods (modeling - responsive feeding practice) was associated with higher vegetable intake compared to children eating alone.[53] These results were supported by a 2018 cross-sectional study of 201 children by Adnundson et al.[63] Children who were asked about their fullness level prior to staff removing their plate tried a higher number of fruits and tasted a lower number of fried and high-fat meats and foods high in fats and sugar compared to children who were not asked if they were full. The results of these two studies support responsive feeding methods, such as staff eating with children, modeling, avoiding encouraging statements, and acknowledging children's hunger and fullness cues. Contrary to popular belief, these practices may result in higher intake of fruits and vegetables.[53,63]

Avoidance of controlling feeding practices (CFPs), such as restricting or pressuring children to eat, is a responsive feeding practice. A 2016 qualitative study of 18 child care providers was conducted by Dev et al. to asses providers' perspectives of using CFPs with children (two to five years old).[64] CFPs were avoided through healthful practices, such as modeling, sensory exploration of foods, and use of non-food rewards.[64] Although non-food rewards are used in responsive feeding, this does not align with the sDOR because it is considered a form of pressure. Other facilitators for avoiding CFPs included

training and program policies that prohibit providers from using CFPs.[64] Motivators for avoiding CFPs were described as the belief that they are ineffective, children can self-regulate their intake, and that they result in obesity and poor eating behaviors.[64] Both training and policies highlighting these beliefs and facilitators can be used to teach providers how to avoid CFPs.

CFPs were also examined across different types of programs in a 2014 study of child care providers by Dev et al. In this study, six Head start programs, 11 Child and Adult Care Food Program (CACFP) funded programs, and seven non-CACFP funded programs were included. Although the Head Start providers were more likely to utilize healthful feeding practices, such as modeling healthy eating, teaching children about nutrition, and eating meals with children than the CACFP and non-CACFP funded providers, there were no differences in use of CFPs.[65] Additionally, Head Start standards may be helpful for implementing responsive feeding practices, regardless of whether or not they are funded by CACFP.

Family style dining is a best practice for early learning programs that aligns well with responsive feeding practices and the sDOR. Family style dining allows children to choose which of the foods they want to eat and how much they will eat. Providers have reported that family style dining results in more pleasant mealtimes, promotes healthy child development (self-regulation, social and self-help skills), and allows for opportunities to model healthy eating.[66] These findings support the importance of children's autonomy and choice for improved mealtimes, child development, and skills.

Research supports a variety of potential benefits and facilitators for utilizing responsive feeding practices in early learning programs. Benefits include improved dietary intake, easier mealtime experiences, promotion of child development, and opportunities to model eating behaviors.[6,53,63,66] Facilitators of using a responsive feeding practices include use of healthful practices, policies and trainings, provider beliefs, and Head Start standards.[64,65] The benefits and facilitators are important to consider for resource development to improve implementation of the responsive feeding practices and to provide optimal benefits to both providers, infants, and children.

Barriers and Challenges of Responsive Feeding Approaches in Early Learning Programs

In addition to compiling benefits and facilitators for responsive feeding practices in early learning programs, understanding potential barriers and challenges is important for training providers and gaining their support.

Providers' perspectives and opinions related to responsive feeding practices are necessary to consider because their buy-in is needed for implementation. In a 2017 qualitative study of 18 providers by Dev et al., results indicated common themes that influenced the extent to which providers

implemented responsive feeding techniques.[67] These included: beliefs about children's ability to self-regulate intake and limited food availability.[67] Some providers reported that children cannot self-regulate their food intake and that children need help to recognize their hunger and fullness cues.[67] Many of these providers reported using CFPs, such as pressuring children to take more bites.[67] Alternatively, other providers believed they could trust children to self-regulate food intake, but that children could not communicate their hunger levels well.[67] Lastly, providers reported lack of food and difficulty preparing food in a way that allows children to choose how much to eat as a barrier.[67] Education is needed to teach providers that children can self-regulate food intake, and training and information about utilizing responsive feeding with limited resources is needed.

Another barrier to responsive feeding practices is the use of CFPs. Providers reported that it is difficult to avoid CFPs because they believe the practices are effective for picky eaters and they have fears of negative responses from parents.[64] Some providers even had confusion about what CFPs were, or stated that they did not use CFPs, but later described using pressuring statements.[64] There is a need for provider and parental education about what constitutes CFPs and the long-term deleterious effects of using them. Provider and parental education could also include information about feeding styles. Dev et al. found that authoritarian feeding styles predicted CFPs, and were more commonly used by providers trying to lose weight or worried about the children's weight.[65] Supporting the health of providers is important, since providers' beliefs about themselves can be transferred onto children.

Food insecurity may play a role in utilization of responsive feeding practices. In a 2012 cross-sectional study of 1583 Head Start directors by Gooze et al., the results indicated that in 14% of the programs, the directors *very often* or *often* had children who did not have enough food at home. A total of 55% of Head Start program directors *sometimes* had children who did not have enough food at home.[68] Of Head Start program directors who reported having children with limited access to food, 54% provided direct responses, such as sending food home, and were twice as likely to feed children more food on Mondays and Fridays, in comparison to program directors who rarely saw children experiencing food insecurity.[68] These results suggest that providers may face moral dilemmas regarding which children should be allocated extra food, and this may limit the ability of providers to feed all children responsively. These results, however, do suggest that providers are responsive to children's need for extra food on certain days before or after an extended time at home.

Differing ethnic and cultural practices by providers may be a barrier. In a 2019 cluster-randomized trial of 45 providers by Gans et al., the results indicated that non-Hispanic providers were less likely to use food as a reward and to encourage the children to continue eating their food after

stating they are not hungry compared to Hispanic providers.[69] Hispanic providers were also less likely to report allowing children to choose how much to eat.[69] Recognition of how cultures play a role in feeding practices and respecting cultural norms is important for training providers on responsive feeding practices. Becoming informed on cultural practices will allow for tailored training that is both culturally sensitive and appropriate.

Family style dining is a common best practice that can foster responsive feeding practices in early learning programs. In a 2014 qualitative study by Dev et al. (mentioned in the previous section), providers identified barriers, such as difficulty adapting to a new style of meal service, concerns about the mess and lack of hygiene when children serve themselves, and the staff labor required.[66] Providers also mentioned their beliefs that children cannot self-regulate intake, and children lack necessary motor skills.[66] It was misinterpreted by some providers that family style dining conflicts with the CACFP guidelines. Providers thought that children must be served the required CACFP servings, rather than offered, conflicting with family style dining practice that allows children to choose their serving sizes.[66] This misunderstanding of CACFP requirements was also reported by providers in the 2017 Dev et al. study.[67] Results from this study further confirm the need to educate providers on how children self-regulate intake, clarification on CACFP meal requirements, and implementation of family style dining.

Overall, there are multiple barriers and challenges to consider for implementing responsive feeding practices. Identified barriers include: limited food availability and preparation, use of CFPs, food insecurity, and differing ethnic and personal practices.[64,65,67–69] Challenges include providers' perspectives about children's ability to self-regulate and communicate, providers' interpretation of CACFP requirements, feeding styles, and difficulties with family style dining.[65–67] Many of the barriers and challenges can be overcome with training and education for providers about responsive feeding practices and clarification surrounding CACFP requirements. Providing culturally sensitive and appropriate training and education for providers may be needed to gain support of providers with differing cultural values. These can be considered for resource development.

Chapter VI: Alignment of Current Best Practices with Responsive Feeding and sDOR

In this section current best practices for how to feed infants and children at early learning programs are provided. These best practices are compared with the sDOR principles.

Washington Administrative Code

Washington State has licensing standards for nutrition at early learning programs in the form of Washington Administrative Codes (WACs).[70] This includes information about how often meals and snacks should be served, how to prepare menus, written food plans, food sources, food equipment, food safety and preparation, and infant and toddler nutrition.[70] Regularly timed eating opportunities for children, feeding infants when they are hungry and ending when they are full, and providers deciding what foods to offer through menu creation align with the sDOR (Table 9).[70] There are no standards that directly misalign with the sDOR, but responsive feeding is not explicitly mentioned in these standards.[70] There is an overall lack of standards for *how* to feed infants and children.

Table 9: WACs that do align with the sDOR Principles

WAC	**sDOR Princple**
Feed infants when they show signs of hunger and stop when they show signs of fullness (WAC 110-300-0285)	Caregivers feed infants on-demand based on hunger and fullness cues
Feed children every 2 -3 hours (WAC 110-300-0180)	Caregivers offer regular meals and snacks with a variety and balance of foods to children
Providers make regular menus for children (WAC 110-300-0185)	Caregivers decide what foods are offered

Adapted from: Washington State Legislature, 2020, Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,70]

Caring for Our Children – National Health and Safety Performance Standards, Guidelines for Early Care and Education Programs 4th Edition

Caring for our Children – National Health and Safety Performance Standards, Guidelines for Early Care and Education Programs 4th edition (CFOC4) are national best practices that serve as a major source of standards for early learning programs in Washington state, including centers and family child care

homes.[71] CFOC4 includes standards pertaining to caring for children with special needs and for infants and toddlers, environmental health, oral health, childhood obesity prevention, sleep practices, and prevention of adverse outcomes.[71] The standards include best practices for nutrition, physical activity, and screen time. This report will focus on nutrition standards related to feeding practices.[71]

Many of the standards found in CFOC4 align with the sDOR (Table 10), and there are several that do not (Table 11).[11,29,71] Much of the misalignment is with providers influencing what foods children choose and how much they serve themselves. There is some conflicting information, such as the CFOC4 recommendations stating that providers should not force or bribe children to consume foods, but it is recommended to offer small, age-appropriate servings, encourage children to serve themselves *all* food items when utilizing family style dining, and to teach children about appropriate portion sizes. When following the sDOR, children choose which foods and how much to eat from what is offered, and caregivers do not interfere with this process. Children eat based off their hunger and fullness cues and can self-regulate their intake rather than relying on recommended portion sizes.[71]

The CFOC4 standards that do align with the sDOR focus on feeding children consistently and encouraging responsive and on-demand feeding for infants by providers and mothers. Additionally, family style dining (defined in Table 10) allows children to choose which foods and how much they would like to eat from what has been offered, aligning well with the sDOR, assuming that pressure is not used. Based on CFOC4, facilities choose the monthly menu, which aligns with the sDOR guideline of having adults choose the food.[71]

The CFOC4 best practices for children also include a section about providers engaging in conversations about food, such as color, shape, size, number, and temperature (Standard 4.5.04). It is unclear if these conversations are presented in a neutral manner or as a way to encourage children to eat. The alignment level of this practice with the sDOR is unclear.[71]

Table 10: CFOC4 standards that do align with the sDOR Principles	
CFOC4 Standards	**sDOR Principle**
Children are offered foods 2-3 hours apart (Standard 4.2.0.5)	Caregivers offer regular meals and snacks; Infants and children learn to trust that they will be offered foods regularly and adequately
Water is available and offered throughout the day & juice may be served once per day during a scheduled meal or snack to children (twelve months or older) (Standard 4.2.0.6 & 4.2.0.7)	Only water is offered between eating opportunities
Facilities develop monthly menu for children (Standard 4.2.0.9)	Caregivers decide "what" foods to offer
Providers discuss with breastfeeding mothers about benefits of feeding based on hunger and fullness cues, instead of a set schedule (Standard 4.3.1.1)	Caregivers feed infants on-demand based on hunger and fullness cues
Providers feed infants when they are hungry & stop when they are full & feed in a gentle and sensitive manner (Standard 4.3.1.2)	Caregivers provide a safe and comfortable environment for feeding, with few distractions; Caregivers feed infants on-demand based on hunger and fullness cues
Children should not be forced to eat any food items (Standard 4.3.2.2)	Caregivers never restrict or force-feed food
Family style meal service where foods are served in large bowls and serving platters and children can serve themselves and choose which foods (Standard 4.5.0.4)	Children choose which foods and how much of each food
Children do not eat while doing other activities, such as screen time or playing (Standard 4.5.0.3)	Caregivers provide a safe and comfortable environment for feeding, with few distractions
Providers should not force or bribe children to eat or use food as a reward or punishment (4.5.0.11)	Caregivers do not interfere with the infant or child's feeding process by using encouraging language, praise, or coercion

Adapted from: CFOC4, 2019; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,71]

Table 11: CFOC4 standards that do not fully align with the sDOR Principles	
CFOC4 Standards	**sDOR Principles**
Food is served to older toddlers and preschoolers in small, age-appropriate amounts and children are taught appropriate portion sizes by using developmentally and age-appropriate plates, bowls, and cups (Standard 4.3.2.2)	Infants and children can self-regulate their food intake; Children choose which foods and how much of each food
Providers encourage children to serve themselves each food item (Standard 4.5.0.4)	Caregivers do not interfere with the infant or child's feeding process by using encouraging language, praise, or coercion; Children choose which foods and how much of each food

Adapted from: CFOC4, 2019, Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,71]

Child and Adult Care Food Program

The Child and Adult Care Food Program (CACFP) is a program by the USDA that provides meal reimbursement to early learning programs for over three million infants, children, and adults that are enrolled in eligible programs based on income.[72] The goal of CACFP is "to improve the health and nutrition of children and adults in the program while promoting the development of good eating habits through nutrition education."[72] CACFP provides both best practices for feeding and requirements for meal patterns based on the Dietary Guidelines for Americans.[72] CFOC4 also includes CACFP requirements as a best practice.[73]

The CACFP requirements include meal patterns that are specific to age.[72] The serving requirements differ by age group, and the required food components differ based on meal (breakfast, lunch, supper, or snack). Programs must serve food and beverages according to the meal patterns in order for programs to receive reimbursement.[72] Overall, for children and infants transitioning to solid foods, items such as whole grains, fruits, vegetables, and dairy are highly encouraged, whereas foods with added sugars and/or high levels of saturated fat or salt are discouraged.[72] Only breastmilk and/or formula are served to infants under six months of age.[74]

CACFP meal requirements focus largely on *what* should be served to children and infants. Although the sDOR focuses on the *how* of feeding, knowledge of CACFP meal requirements is important to note when considering what eating opportunities look like.[72] In addition to meal requirements, CACFP

provides best practices for feeding infants and children, which are informed by the Dietary Guidelines for Americans and the NAM.[75,76] Nearly all of the optional best practices for children refer to what foods are served and how often they are served, rather than *how* to serve, which is the focus of the sDOR.[75,76]

CACFP Best Practices - Children

One CACFP best practice for children that does not fully align with the sDOR is the avoidance of non-credible foods that have added sugars, such as jam, yogurt mix-ins, and sugar-sweetened beverages.[76] In the sDOR, offering a balance and variety of foods is the caregiver's job, which includes "unhealthy" foods. One serving of dessert can be offered with meals, and occasionally unlimited servings of dessert are offered at snack times. Children who attend CACFP programs may or may not be exposed to these foods at home, so it's difficult to determine how well this best practice aligns with the sDOR.

A CACFP best practice that somewhat aligns with the sDOR is serving food via family style dining. Family style dining is a way of serving food in which food is placed into large bowls or serving platters, and children dish out the food onto their own plate. When practicing family style dining, required portions of each meal requirement (Appendix 2 Table A – D) must be placed on the table.[77] Children are allowed to serve themselves, except for liquids (milk and juice).[77] Providers encourage children to serve the required amount of each food component, but children do not have to take the required amount of each food component for the program to receive reimbursement.[77] When children consume seconds, the programs cannot claim this for reimbursement.[77] These family style dining best practices do not fully align with the sDOR. They align in that children can choose which foods they would like to eat and how much of the foods they do consume, but encouraging statements from providers is not recommended in the sDOR (Table 12 and 13). This can be a form of pressuring that interferes with a child's interpretation of their own internal cues.

Table 12: CACFP Best Practices that do align with the sDOR Principles (for children)

CACFP Best Practice	**sDOR Principle**
Family Style Dining (food is served in large serving platters of bowls & children serve their own food choices and portions)	Children choose which foods to eat and how much of each food to eat

Adapted from: US Department of Agriculture: Food and Nutrition Service, 2016; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,77]

Table 13: CACFP Best Practices that do not fully align with the sDOR Principles (for children)	
CACFP Best Practice	**sDOR Principles**
Providers encourage children to serve themselves each food component and the required portion	Children choose which foods to eat and how much of each food to eat; Caregivers do not interfere with the infant or child's feeding process by using encouraging language, praise, coercion, or pressure
Avoidance of serving non-credible foods with added sugar (i.e jam, honey, syrup, candy or cookie pieces for yogurt, fruit drinks, soda)	Caregivers offer a variety of foods, including those commonly considered "unhealthy"

Adapted from: US Department of Agriculture: Food and Nutrition Service, 2016; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,77]

CACFP Best Practices – Infants

The CACFP best practices for feeding infants provide more guidance on *how* to feed than the CACFP best practices for children.[78] Responsive feeding practices are explicitly mentioned, such as feeding infants on demand, responding to hunger and fullness signals, and not forcing infants to finish their bottles, which align well with the specified sDOR principles (Table 14). Additionally, the CACFP best practices recommend a comfortable and sanitary area for feeding infants, which aligns with the sDOR principle of providing a safe and distraction-free area for feeding.[78] There are no best practices that directly disagree with the sDOR.

Table 14: CACFP Best Practices that do align with the sDOR Principles (for infants)	
CACFP Best Practice	**sDOR Principle**
Facilities are reimbursed for infant meals as long as breastmilk and/or formula is offered at the regular mealtimes, but infants can be fed outside of regular mealtimes based on their hunger	Caregivers feed infants on-demand based on hunger and fullness cues; Infants choose when (on demand), how much, how often, and how fast
Do not force infants to finish their bottle	Caregivers never restrict or force-feed
Responsive feeding is recommended: providers pay attention to hunger and fullness cues & infant is in charge of how much they eat	Caregivers feed infants on-demand based on hunger and fullness cues; Infants choose when (on demand), how much, how often, tempo
Comfortable and sanitary area for providers to feed infants and for mothers to breastfeed	Caregivers provide a safe and comfortable environment for feeding, with few distractions

Adapted from: Feeding Infants in the Child and Adult Care Food Program., 2019; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,78]

Head Start

Head Start programs serve low-income families ages zero to five years old.[79] Head Start programs serve over one million children per year in the United States.[79] Head Start programs have performance standards for child nutrition that focus largely on serving foods according to USDA standards and developmental stage, and promotion of breastfeeding.[80]

There are few Head Start performance standards that relate to *how* children are fed (Table 15).[81] Family style dining is recommended, which aligns with the sDOR because children can choose which foods to eat and how much, but it is unclear if encouragement is used. Using food as a reward or punishment and forcing children to finish their food are not recommended in Head Start programs, which align with the sDOR principles.[81] The Head Start performance standards do not provide a lot of details about *how* infants and children are fed but Head Start programs do follow CACFP guidelines and CFOC4 best practices that were examined previously.

Table 15: Head Start Performance Standards that do align with the sDOR Principles	
Head Start Performance Standards	**sDOR Principle**
Family style meals for children (Standard 1302.31)	Children can choose which foods and how much to eat
Do not use food as a reward or punishment (Standard 1302.31)	Caregivers do not use food as a reward or punishment and do not use non-food rewards
Don't force children to finish their food (Standard 1302.31)	Caregivers never restrict or force-feed food, such as to control the infant or child's weight

Adapted from: Head Start Programs 2020; Child Nutrition, Head Start; Teaching and the Learning Environment, Head Start; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,79–81]

Healthy Kids, Healthy Future

Healthy Kids, Healthy Future (HKHF) (formerly known as Michelle Obama's Let's Move Child Care campaign) is "a nationwide call-to-action that encourages and supports child care and early education providers to make positive changes in order to work towards a healthier future for children."[82] HKHF has developed best practices and resources for family care homes, centers, Early Head Start and Head Start, preschool, tribal, military, and faith-based child care programs to address childhood obesity.[82] The five goals of this program are: Nurture Healthy Eaters, Provide Healthy Beverages, Get Kids Moving, Reduce Screen Time, and Support Breastfeeding.[82]

The best practices for HKHF focus on *what* types of foods and beverages should be offered to infants, toddlers, and children, and information on *how* foods are served.[82,83] There is a best practice recommending family style dining in which children serve their own food, which aligns with the sDOR principle of allowing children to choose which foods and how much of each (Table 16).[82] Additionally, HKHF best practices that align with the sDOR include providing a positive eating environment and atmosphere, the importance of children learning to recognize and respond to their hunger and fullness cues, not using food as a reward, and caregivers serving as role models.[83]

HKHF recommends that children should never be offered sugar-sweetened beverage and that fried foods should be limited to less than once per month (Table 17).[82] Similarly, HKHF recommends talking about sometimes and anytime foods, as well as "no, go, or whoa" foods to explain to children which foods to eat more of and which to limit. The sDOR recommends that children are exposed to a variety of foods, including those considered "unhealthy" using specific strategies (as highlighted in Table 6 and on pg. 22). This includes sugar-sweetened beverages. As a result, these best practices do not fully

align with the sDOR. Lastly, the HKHF recommends encouraging that children eat two bites of the new food when they are resistant to trying it.[83] This does not align with the sDOR because caregivers should not interfere with children' eating responsibility by using encouragement.

Table 16: Healthy Kids, Healthy Future best practices that do align with the sDOR Principles	
Healthy Kids, Healthy Future Best Practices	**sDOR Principle**
Family style meals for preschoolers	Children can choose which foods and how much to eat of what is offered Note: unclear if encouraging statements are used with family style dining
Positive eating environment and atmosphere	Caregivers provide a safe and comfortable environment for feeding, with few distractions
Children learn to recognize and respond to hunger and fullness cues	Infants and children communicate their food needs via hunger and satiety signals
Not using food as a reward, such as sweets	Caregivers do not use food as a reward or punishment, and do not use non-food rewards
Role modeling	Caregivers model appropriate behaviors for eating opportunities

Adapted from: Healthy Kids, Healthy Future; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,82,83]

Table 17: Healthy Kids, Healthy Future best practices that do not fully align with the sDOR Principles (for children)	
Healthy Kids, Healthy Future Best Practice	**sDOR Principles**
Sugar-sweetened drinks should never be offered and certain "unhealthy" foods should be offered once a month or less (i.e. chips, French fries, fried potatoes, chicken nuggets, fish sticks, fried meats)	Caregivers offer a variety of foods, including those commonly considered "unhealthy" in a strategic manner (see Table 6 and pg. 20)
Talk about "sometime" and "anytime" foods or "go, slow, or whoa" foods	Caregivers offer a variety of foods, including those commonly considered "unhealthy"
Encourage two bites when children do not want to try new foods	Caregivers do not interfere with the infant or child's feeding process by using encouraging language, praise, coercion, or pressure

Adapted from: Healthy Kids, Healthy Future; Satter E 1995, 1986, 2007, & 2008.[10,11,28,29,82,83]

Summary

In the existing best practices and recommendations mentioned above, many principles frequently align with the sDOR, such as:

- Avoid using food as a reward or punishment
- Do not force infants or children to eat
- Family style meals (allow children to choose which foods to eat and how much from what is offered by the caregiver)
- On-demand feeding for infants
- Recognition and response to infant and child hunger and fullness cues
- Feed children regularly
- Menu development by providers (adults decide what foods are offered)
- Comfortable, safe environments for feeding and eating with minimal distractions
- Specific mention of responsive feeding practices, especially for infants

Additionally, there were several best practices frequently included in recommendations and best practices that did not align fully with the sDOR, which included:

- Encouraging or pressuring children to eat their food or try new foods

- Encouraging children to serve themselves age-appropriate portions
- Encouraging children to serve themselves each food component
- Lack of strategies for foods considered “unhealthy”

To improve the alignment of mealtime best practices with the sDOR, there should be trust between providers and children that involves a clearer division of responsibility in which providers lead with feeding and give children autonomy with eating, and providers do not interfere with children’s eating. Pressuring children to eat, how much to eat, or which foods to eat does not align with the sDOR. Conversations about the food during eating opportunities should be avoided if it is an attempt to get children to eat or try a new food. Although these actions may be stated as “encouragement,” they may be controlling practices that interfere with children’s abilities to self-regulate and notice hunger and fullness cues without confusion. Many best practices recommended avoidance or limitations on foods considered “unhealthy.” This does not fully align with the sDOR which recommends specific strategies for handling such foods (see Table 6 and pg. 20). Interestingly, much of the infant feeding practices aligned well with the sDOR and responsive feeding practices were explicitly mentioned for infants. The lack of explicit recommendations for responsive feeding practices for children highlights the need for training and resource development.

Chapter VII: Existing Resources: Current Use of the sDOR at Early Learning Programs

An internet search was conducted to identify early learning programs that have resources or training based on the sDOR for providers. The purpose of this was to determine what resources are already being used and what is still needed. Key search words used were: Satter Division of Responsibility, early learning programs, mealtimes, and early childhood education. Two organizations were identified.

Montana Team Nutrition

In 2010, Montana Team Nutrition at Montana State University developed handouts for implementing the sDOR in early learning programs as a collaboration with the Ellyn Satter Institute (ESI).[84] The packet of handouts was titled "How Mealtimes Can Set the Stage for Better Learning Behavior and Health in Children: Handouts for Early Childhood Educators and Childcare Providers."[84] The packet includes handouts about what the sDOR is; a table highlighting the use of the sDOR at each developmental stage; a feeding policy for child care facilities; mealtime philosophies; ten steps for providers to follow for implementation into mealtimes; information about the benefits of family style dining; examples of phrases that help or hinder eating behaviors; an exercise on helpful phrases; and a worksheet about "no, thank-you bites," which asks about providers' perceptions of this common rule.[84]

The first two handouts define the sDOR in simple terms, and how implementation of the sDOR evolves as infants develop into children. These two handouts could be included in future resource development. The feeding policy and mealtime philosophy handouts would be beneficial to include as well, but they focus solely on children without information for infants and toddlers. Development of a feeding policy and mealtime philosophies for infants would be beneficial to having all providers on the same page and could be given to parents to inform them of the center's mealtime practices. Additionally, there is one handout about CACFP and family style dining, but it is described without mention of the sDOR. Weaving together CACFP, family style dining, and the sDOR is important to include in resources to provide clear implementation guidelines for providers.

A handout related to examples of phrases that hinder and help and a handout for practicing these phrases are included. This handout does not follow the sDOR because the handout includes pressuring phrases about eating more food or specific types of food, and this tactic does not align with the sDOR. In future trainings or resources, these handouts could be replaced by the "moves and countermoves" handout developed by the ESI, with rationale on the importance of limiting controlling phrases.

The last handout is a discussion sheet about “no, thank-you bites,” which is a practice that requires children to take one bite of a food before saying “no, thank-you." It is unclear from this sheet if the practice is being recommended to providers or not. In new resources, it will be important to specify that “no thank-you bites” are not recommended in the sDOR because toddlers and children choose what and how much to eat of what has been offered, and they can refuse to eat a food.

Overall, these handouts are lacking a direct connection between implementing the sDOR with CACFP requirements and family style dining and do not provide rationale. There appears to be little consideration of cultural awareness, materials in other languages, and some handouts conflict with the principles of the sDOR. There is a lack of information for communicating feeding practices to parents.

Santa Clara County Public Health Department

The Santa Clara County Public Health Department provides a Child Care Provider toolkit on their website.[85] Within this website, they provide nutrition resources for supporting healthy nutritional habits in child care settings.[85] They include links to feeding behavior resources from the ESI for the sDOR.[85] Three of the links connect to the ESI website with information about “Child Feeding Ages and Stages,” “Childhood Feeding Problems and Solutions,” and “The Division of Responsibility: Raise a Healthy Child Who is a Joy to Feed.”[85] There is also a handout developed by the Santa Clara County Public Health and the Childhood Feeding Collaborative titled “Five Keys to Raising a Healthy Happy Eater: Recommended Behaviors to Improve Mealtime” provided in English, Spanish, and Vietnamese.[85] This handout outlines the sDOR for parents and children and is a concise, simple, and visually-appealing description of the sDOR, and can reach providers in three different languages.[85]

There is also an online training titled, “Helping Parents to Feed Well so Children Can Eat Well Online Training” for para-professionals, community health workers, parent educators, public health nurses, and other people that work with children and parents.[86] While this training provides a wealth of information, it is presented in video format and in various, separate handouts. There is not a physical copy that combines information from ESI and best practices into a cohesive, hard copy document. Providers may find a cohesive, hard copy of the sDOR to be more accessible.

Summary

The examples above provide insight into what may be included in a Washington-State specific sDOR resource for early learning providers. The ESI has ready-made handouts that may be useful to

include for resource development to describe the sDOR and to translate it to early learning programs. In addition, the Santa Clara County Public Health Department online training could be a useful resource to link to, although hard copies may be more accessible for providers to refer to throughout the workday. Additionally, information that combines best practices and requirements, such as CACFP with the sDOR is lacking, verifying the need for resource development.

Chapter VIII: Survey Analysis

The survey analysis portion of this capstone project involved analysis of survey data from the Nurturing Young Eaters training module developed by the WA DOH and HEAL program. Also included are results from the 2018 Washington State Survey of Nutrition and Physical Activity in Early Learning.

Research Questions:

1. What do mealtimes currently look like at early learning programs in Washington State?
2. How do providers benefit from healthy mealtime practices?
3. How do providers offer new foods to children?
4. What mealtime practices are providers interested in implementing to improve mealtimes and family engagement. What concerns do they have?
5. Does current training for providers include responsive feeding practices?

Nurturing Young Eaters Training Modules

The Nurturing Young Eaters (NYE) training module was developed by a collaboration between the WA DOH and CPHN. This training is developed for early learning providers and is offered online for free. Providers receive 1.5 STAR credits for completion of the training. The training takes about one and a half hours to complete and participants are asked multiple choice, open-ended, longer answer, and true/false questions throughout. Included in the training is text, pictures, videos, and links to outside resources.

The content of the training focuses on how to provide healthy mealtime environments at early learning programs, how to use family style dining, and how to use mealtimes as opportunities for learning and child development. The training includes developmentally appropriate information about mealtimes and six principles for feeding children in a group setting. The six principle align well with the sDOR.

The six principles include:

- Children need a variety of foods.
- Adults sit and eat with children.
- Adults select what food is offered and how it is offered.
- Children choose how much food to eat, if at all.
- As age and ability permits, children should serve themselves during mealtimes.

Survey Analysis Methods

The survey data sample includes all NYE module responses from January 1st, 2019 to December 31st, 2019. There were a total of 1991 participants in this time frame. Nineteen of the module questions were relevant to feeding practices (13 quantitative and six qualitative). The full sample of 1991 participants were used to answer the 13 quantitative questions and a random sample of 50 participants' responses were used for analysis for the six qualitative questions.

Quantitative Methods

First, results to the quantitative questions were calculated for all 1991 participants using descriptive statistics.

Qualitative Methods

To analyze the qualitative data from the six open-ended questions, a total of 50 random participant responses were selected to use for code development. A separate set of codes were established for each question based on common themes included in participant responses. Two independent people coded the six questions, reconciled any differences, and updated the codebook as needed. Next, a new random sample of 50 responses were selected for the analysis. Dedoose software was used for coding and analysis.[87] Two of the open-ended questions suggested a list of potential answers for participants to choose from. The answers were marked for frequency based on the provided list.

Participant Characteristics

There were a total of five participant characteristic questions. Among all survey participants, the majority were from center based child care programs (78%) with a smaller number of participants from family child care homes (10%). Most of the survey participants were lead teachers (43%) and assistants (30%). Participant years of experience in child care and early childhood education varied. The common responses were 10 or more years (39%), 5 to 9 years (21%), and 3 to 4 years (19%). The largest age group served by participants was preschool (69%) and toddlers (55%). One provider responded in Spanish and all other responses were in English. As shown in Table 18, the sample randomly selected (N = 50) for the qualitative analysis was representative of the larger sample of survey participants.

Table 18: Survey Participant Characteristics		
Characteristic	**Full Survey Sample N(%); N= 1991**	**Randomly Selected Qualitative Sample N(%); N=50**
Type of Program		
Center Based Child Care	1553 (78%)	41 (82%)
Family Child Care Home	199 (10%)	4 (8%)
School-Age or After School Program	159 (8%)	3 (6%)
Other	80 (4%)	2 (4%)
R**ole**		
Lead	854 (43%)	23 (46%)
Assistant	604 (30%)	13 (26%)
Center Director	130 (7%)	12 (6)
Owner	114 (6%)	4 (8%)
Other	289 (15%)	4 (8%)
Years of Experience in Child Care		
Less than 1 year	113 (7%)	3 (6%)
1-2 years	314 (16%)	6 (12%)
3-4 years	379 (19%)	11 (22%)
5-9 years	417 (21%)	9 (18%)
10 or more years	768 (39%)	21 (42%)
Age Groups Serve		
Infants (0-1)	758 (38%)	15 (30%)
Toddlers (age 2)	1101 (55%)	28 (56%)
Preschool (age 3-5)	1368 (69%)	37 (74%)
Don’t currently work with children	24 (1%)	0 (0%) (0)
Other*	331 (17%)	9 (18%)*

*Four of these reported working with preschool, infants, and/or toddlers. Five marked only “other”.

Research Question 1: What do mealtimes currently look like at early learning programs in Washington State?

Survey Question: "Why are healthy mealtimes especially important for young children? Eating habits, taste preferences, and attitudes towards food are formed during early childhood. Early mealtime experiences influence children's attitudes and behaviors surrounding food. A healthy mealtime environment encourages healthy eating habits that continue into adolescence and adulthood. Children with poorly developed eating habits are at risk for unhealthy body weight, poor self-image, diabetes, increased blood pressure, and heart disease. Mealtimes are also opportunities to help children develop confidence, social and language skills, motor skills, self-control, and self-regulation skills. The next parts of this training will cover ways to use mealtimes for child learning and development. What are you doing? Take a few moments to think and write down what mealtimes currently look like in your program. Here are some questions to help you get started: How many meals or snacks do you serve? Where do the children eat? How is food served? Who decides what food is offered to children?"

In the random sample of 50, the participants answered the last four questions. At least 50% (n=25) of programs are using some form of family style dining, 40% (n=20) are using menus and meal planning, and most participants correctly identified mealtime responsibilities between children and adults although there is room for improvement. Additionally, less than half of programs (48%) had official mealtime policies that included all of the information presented in the training. Overall, the findings from this section suggest that at least half of early learning programs are already participating in family style dining, which aligns with responsive feeding practices and the sDOR. There is some need for training providers in the Six Principles of healthy mealtimes, such as adults select what food is offered and how it is offered and adults do not decide how much children need to eat. Mealtime policies and guidelines could also be improved to align more closely with the NYE training module, the sDOR, and responsive feeding practices.

1.1 Dining Style

A total of 25 participants (50%) used family style dining at their program. A few participants used family style dining for certain circumstances, such as serving side dishes or snacks (not the main dish), occasionally for toddlers, and one participant mentioned their program was transitioning to family style dining. This is likely due to differing recommendations for family style dining for toddlers compared

to older children, such as transitioning to family style dining with toddlers by starting with side dishes. A total of 11 participants served food to children that is pre-portioned on plates or napkins with the same amount for each child or toddler.

1.2 Meal Planning

A total of 20 participants (40%) used menus or meal planning. A few participants stated that parents determined the meal plans for their own child, but many participants explained that someone in a higher position planed the meals and snacks. People identified as doing the meal planning were: the cook or chef, the director or owner, the corporate office, or nutritionists. There were a few mentions of following best practices and the USDA guidelines when meal planning.

1.3 Mealtime Responsibilities

Most participants correctly answered true and false questions that related to the six principles of healthy mealtimes (Table 19).

Table 19: Results to True/False Questions (N=1991)

Six Principles of Healthy Mealtimes	**True**	**False**
Adults set the feeding environment.	1620 (81%) (correct)	371 (19%)
Children need a variety of food.	1968 (99%) (correct)	23 (1%)
Children should sit and eat only with other children.	178 (9%)	1813 (91%) (correct)
Adults select what food is offered and how it is offered.	1450 (73%) (correct)	541 (27%)
Adults decide how much children need to eat.	280 (14%)	1711 (86%) (correct)
Children should serve themselves.	1903 (96%) (correct)	88 (4%)

1.4 Mealtime Policies

Participants were asked about their current meal policy status or interest in developing a policy (Table 24). Most participants (48%) indicated that they already had an official mealtime policy in place, including all principles in the training. A total of 34% of participants indicated that they have an official meal policy in place, but it includes only some of the principles in the training. Notably, some participants did not have a policy, but thought it would be beneficial (12%).

Table 24: Participants interested in mealtime policies and guidelines (n=1991)	
Question Results: Do you have a written set of guidelines (a policy) on mealtime environments in your child care program? (one answer)	
We already have an official mealtime policy for our child care program that includes ALL of the principles presented in this.	918 (46%)
We already have an official mealtime policy for our child care program that includes SOME of the program principles presented in this.	681 (34%)
We do not have a policy, but I think it would be beneficial.	235 (12%)
I am not sure how having a policy would support mealtime.	42 (2%)
I am not sure what to include in an official mealtime policy.	56 (3%)
Other	59 (3%)

Research Question 2: How do providers benefit from healthy mealtime practices?

Participants were asked the question below.

> "Do healthy mealtime practices also benefit providers? We know that mealtimes are important for young children in your care, but what about other benefits? Do healthy mealtimes help you as an early learning provider? What do you think? How does having healthy mealtime environments and practices benefit early learning providers?"

This purpose of including this question in the analysis was to learn what providers value about healthy mealtimes practices. This is important information to have for developing technical assistance (with the goal of aligning mealtimes with the sDOR and responsive feeding practices) because these values are important to highlight, emphasize, and amplify to reduce provider burden from changing mealtime practices. The findings from the analysis indicated that over half of participants think of healthy mealtimes as an opportunity for children to become more independent and develop their skills, 32% of participants see mealtimes as an opportunity for relationship building and connection, and 22% view mealtimes as important for children and provider health. Less participants (6%) mentioned mealtimes as an opportunity to honor hunger and fullness cues and 9% suggested other benefits. Overall, this provides insight into why providers care about healthy mealtimes and it will be important to continue fostering the mealtime environment of connection, skill development, health, and honor of hunger and fullness cues as providers are trained about responsive feeding practices.

2.1 Opportunity for Skill Development and Independence

Many participants (n=26, 58%) reported that healthy mealtimes result in children developing necessary skills and independence. The skills include: social (manners), language, motor, self-esteem, independence, learning about nutrition, patience, cooperation, taking turns, and serving food. Several participants mentioned that increased skills and independence lead to easier mealtimes for providers because children help with serving and cleaning.

"I enjoy mealtime with my toddler class. Watching them grow socially with their peers. They learn more from mirroring each other. I personally get excited when they have achieved their independence on feeding themselves with no assistance." -Lead Teacher, Center-Based Child Care

"It benefits providers because you are able to have more time engaging with the kids at the meal table, while teaching them skills, such as patience and politely asking other to share." -Assistant Teacher, Center-Based Child Care

2.2 Relationship Building and Connection

A total of 16 participants (32%) mentioned the importance of healthy mealtime practices for relationship building and connection among providers and children. Participants reported that mealtimes are an opportunity to get to know and engage with children. Mealtimes were viewed as an opportunity to learn about the children's food likes and dislikes, have relaxed conversations, to teach mealtime skills, monitor behavior, and for children feel more comfortable. Overall, there was a sense of positivity about providers bonding with children over mealtimes.

"As teachers, it is a great opportunity to sit and talk with the children and it is a fun easy teachable moment. When we provide healthy meals and snacks, we nourish our children, and give them lifelong skills." -Assistant Teacher, Center-Based Child Care

"It is also a bonding time with the children, to engage and be part of the team." -Center Director, Center-Based Child Care

2.3 Provider and Child Health

A total of 11 participants (22%) mentioned that healthy mealtimes result in healthier children. Many reported the importance of nutritious meals for health, growth, and energy for playtime, learning, and improved behavior. A total of three participants mentioned how healthier mealtimes impact their own behavior. One participant mentioned that children trying new foods encouraged providers to try

new foods. Another participant explained that providers benefit by serving as a role model of healthy behaviors for others. Lastly, a participant mentioned that they have learned more about foods.

"Kids will mostly be willing to try new foods which encourages me to try new foods." -Assistant Teacher, Center-Based Child Care

"Having healthy food is a lot better for children so they can have a lot of energy to play around and learn, and to practice serving themselves." -Lead Teacher, Center-Based Child Care

2.4 Hunger and Fullness Cue Recognition

Three participants (6%) reported the benefit of recognizing hunger and fullness cues and children regulating how much they eat. These participants said healthy mealtime practices help providers understand how much children can eat, how children can express what they want and need, and how to read cues. One participant also mentioned that providers can learn to recognize their own cues.

"Learning to read personal hunger cues allows modeling of good body-image relations with food." -Lead Teacher, Other Program

2.5 Other Benefits

Several participants (n=9, 18%) reported other benefits, such as less food waste when children try new foods, reduction in chores, time to observe or for providers to take a break, and more time to eat. Also, participants reported mealtimes as an opportunity for providers to model behavior, for children to discover new things about foods, and providers have more patience when children try new foods.

"Reduces food waste since children are more likely to try new fruits, vegetables, and whole grain foods when they see peers and adults enjoying these foods." -Assistant Teacher, Center-Based Child Care

"Healthy mealtimes benefit me because it teaches me that even though a child might not like something one day, if they keep trying it, they may like it another time." -Assistant Teacher, Center-Based Child Care

Research Question 3: How do providers offer new foods to children?

Participants were asked both an open-ended and select all that apply question (Table 20) about offering new foods listed below.

1. What have you done that helps children try new foods?
2. The list below offers ways that you could help promote acceptance of new foods by young children. What would you do?

The purpose of including this question in the analysis was to gain insight into how new foods are offered to children at early learning programs and to see if there is any room for improvement to align more closely with the sDOR and responsive feeding practices. The sDOR recommends offering foods in a neutral manner without the use of pressure or encouragement. The analysis results showed that commonly used methods for introducing new foods are modeling (38%), activities/games/discussion (32%), requiring a bite or small portion (i.e. no thank you bite) (18%), and words of encouragement (18%). A total of 56% of the responses were considered pressure methods and only 4% were neutral. A total of 39% of the responses were neither pressure nor neutrality. This suggests a large area for improvement to align with the sDOR, such as avoiding no thank you bites and encouraging words that create an environment of pressure. Results from the quantitative questions highlight that participants are interested in trying new ways of introducing novel foods to children (96%), such as talking about foods (89%), having food tastings (89%), and reading stories (89%). This suggests that participants are open and interested in learning about new ways to try food.

3.1 Modeling

Participants (n=19, 38%) reported that when a new food is introduced, they serve as a role model by trying new foods with the children. Some mentioned that they will sit down and try a bite before the children do, and talk about the food as they try it (i.e. what they are eating or how great the food tastes). Whereas some participants described trying the new food at the same time as the children do. One participant mentioned not making a big deal about the new food.

"Demonstrate healthy eating habits by taking foods myself and trying them in front of kids so they can see healthy choices." -Assistant Teacher, Center-Based Child Care

"I'll give it a bite and say how good it is." -Lead Teacher, Center-Based Child Care

3.2 Bite or small portion

Participants (n=9, 18%) mentioned that they ask children to try one bite or they provide a small portion. Requiring one bite was frequently referred to as "an adventure bite" or a "no thank-

you" bite. Participants referred to this bite as an opportunity for children to determine if they like the food or not.

"Sometimes we'll ask them to try a "no thank you" bite, (which 90% of the time they end up liking the food." – Assistant Teacher, Center-Based Child Care

"We talk about trying things to see if we like them and if we don't we say, "that's not my favorite." -Lead Teacher, Center-Based Child Care

3.3 Encouragement

Several participants (n=9, 18%) mentioned that they verbally encourage children to try new foods by asking them to take a bite, telling children how healthy the foods are for them, or explaining how good the food tastes.

"I tell them that eating healthy promotes growth and if they are well fed, they will learn a lot more." – Lead Teacher, School-Age or Afterschool Program

"We try to encourage, but never force children to eat." -Assistant Teacher, Center-Based Child Care

3.4 Activities, Games, or Discussions About New Foods

Nearly one-third of the sample (n=16, 32%) reported several activities, games, and ways of discussing new foods in an educational manner for children to show interest in trying new foods. The activities mentioned included: gardening, cooking classes, multicultural lunches, field trips to the farmer's market, curriculum with food pyramid, food experiments, reading stories, and taste testing. Participants reported using discussion, such as introducing foods at circle time, making observations, talking about where the food comes from and what people eat in different places, and explaining the health benefits of foods.

One related quantitative survey question asked participants about ways to promote acceptance of new foods by young children (Table 20). The question was: "The list below offers ways that you could help promote acceptance of new foods by young children. What would you do?" Participants most commonly selected "talk about new foods with children before they are served" (97%). Participants were also interested in "tastings or exploring experiences with new foods or foods prepared in new ways" (89%), "reading a story about where a food comes from or what eating a food is like" (89%), and "including children in meal or snack preparation" (88%).

Table 20: Participant interests in methods to trying new foods (n=1991)	
Question Results: The list below offers ways that you could help promote acceptance of new foods by young children. What would you do?	
Talk about new foods with children before they are served – how foods grow, their color, shape, and texture.	1921 (96%)
Have tastings or exploring experiences with new foods or foods prepared in new ways.	1780 (89%)
Read a story about where a food comes from or what eating a food is like.	1769 (89%)
Have children vote on new items on the menu.	1481 (74%)
Include children in meal or snack preparation when appropriate.	1742 (87%)
Other	193 (10%)

3.5 Other Ways to Try New Foods

As a response to the open-ended question, a few participants (3, 6%) mentioned other ways to try new foods, such as providing a variety of foods, offering foods in a non-judgmental way, and repeatedly offering new foods. Notably, a total of 12 participants left this question blank (24%).

3.6 Pressure versus Neutral Methods

Each response to the question "What have you done that helps children try new foods" were also coded for a) mention of explicit pressure, b) explicit mention of neutrality or c) neither. Pressure was defined based on guidance from the sDOR.[38] The codes used are below.

a) Pressure: Participant mentions use of pressure, bribing, food or non-food rewards, trying to "get" children to eat, requiring a child to take a bite, or excessive verbal communication about food
b) Neither: Participant uses neither explicit pressure methods nor explicitly mentions neutrality methods
c) Neutral: Participant mentions neutral methods in that they do not force infants or children to try new foods or that it's the toddler or child's choice to try new foods

Modeling eating a new food was the method participants most often reported (33%) and included a mix of participants mentioning pressuring methods and methods that were neither explicitly pressuring or neutrality (Table 21). Activities, games, or discussions about new foods were a the second most commonly mentioned methods (16%) and were also a mix of explicit mention of pressure and

neither explicit mention of pressure or neutrality. Encouragement was tied as the second most commonly mentioned method (16%) and was largely scored as a pressure method. A total of 16% of participants described methods that involved bites or small portions of food, which were scored as a pressure. Overall, 56% of the responses were categorized as pressure and only 4% included information about neutrality, such as not forcing infant or child to try new foods. A total of 39% of the responses were neither explicit mention of pressure nor neutrality.

Table 21: Use of pressure or neutral methods for promoting new foods* (n=57)

Method for Trying New Foods	**Explicit mention of pressure methods N(%)**	**No explicit mention of pressure or neutrality**	**Explicit mention of neutrality**	**Total Mentions of each method**
Modeling	8	10	1	19 (33%)
Bite or Small Portion	9	0	0	9 (16%)
Repeated Exposure	0	1	0	1 (2%)
Encouragement	8	0	0	9 (16%)
Activities, Games, or Discussions About New Foods	7	9	0	16 (28%)
Other Ways to Try New Foods	0	2	1	3 (5%)
Total number of pressure, neutrality, or neither	32 (56%)	22 (39%)	2 (4%)	57

*One response did not have enough information to code

Research Question 4: What mealtime practices are providers interested in implementing to improve mealtimes and family engagement. What concerns do they have?

Participants were asked the questions below that are included in the following section.

- List one thing you will change that happens before, during, or after mealtimes.
    - What concerns do you have about trying some of these strategies?
- List one thing you will do to engage with families about mealtimes.
    - What concerns do you have about working with families on this topic?

Both of the questions that ask participants to "list one thing" included a list of options to use in the response (as indicated in Table 22 and 23). For most responses, it was not clear if participants were referring to changes that occur before, during, or after mealtimes, so responses were not differentiated by when they would occur at mealtime. The purpose of including these questions was to determine what participants are interested in changing at mealtimes, how they want to or already engage with families, and what concerns they have. This information is important to consider when implementing the sDOR and responsive feeding practices into early learning programs because it gives valuable information into what providers would like to do and brings up potential concerns that could be troubleshooted prior to implementing changes.

4.1 Mealtime Changes and Concerns

The survey asked participants what mealtime changes they would be interested in implementing and what concerns they had. The survey question provided example options for participants to choose (listed in Table 22), but they could answer in an open-ended format. Many participants included multiple answers. This question was coded for frequency, rather than coded qualitatively because most participants answered according to the suggestions (see Table 22). Participants' concerns with mealtime changes were coded qualitatively. Overall, the findings suggested that participants are interested in establishing mealtime routines (34%), structuring mealtimes transitions (24%), and referencing/honoring hunger and fullness cues (20%). This is related to the sDOR and responsive feeding practices because allowing children to respond to hunger and fullness cues and having mealtime structure (i.e. regular meals and snacks), and routines that involve children in the mealtime process are a large part of these practices. The concerns included were messes and having enough resources for family style dining (aligns with the sDOR) and children's ability to adapt to change. These concerns will be important to address in the technical assistance developed for early learning programs.

Table 22: Participants' interests in mealtime changes (n=50)	
Question: Before, during, and after mealtimes, you can [see suggestions below]. List one thing you will change that happens BEFORE, DURING, or AFTER mealtime.	
Mealtime Change Suggestions[1]	**Mentions from participants (N=50)**
Establish routines for the children to help set-up or clear the table	34%
Structure the transition to mealtimes	24%
Reference and/or honor child's hunger and fullness cues	20%
Incorporate nutrition and mealtime topics into other classroom activities	18%
Assist children as they learn to serve themselves	12%
Engage in conversations that are interesting to children and encourage them to try healthy foods	12%
Have extra supplies on hand	12%
Hand washing by children and/or providers	12%
Sit and eat with the children	10%
Nothing to change[1]	10%
Other Mealtime Changes[1]	8%
Obtain and use age-appropriate utensils and dining supplies	6%
No response[1]	4%
Prepare a variety of healthy foods and involve children when appropriate	1%

[1]all suggestions were question-generated except for those with an asterisk which were generated by participants

The top responses to mealtime changes were "establish routines for the children to help set-up or clear the table" (34%) "structure the transition to mealtimes" (24%) and "reference or honor children's hunger and fullness cues"(20%).

4.1.1 Mealtime Set-up and Clean-up

4.1.1.1 Interest in Establishing Routines

Many participants (n=17, 34%) reported interest in establishing routines for children to help set-up and clear the table. Others mentioned general clean-up surrounding mealtime or having a helper chart for children to take turns.

4.1.1.2 Concerns About Family Style Dining (Mess and Adequate Resources)

While many participants were interested in establishing routines for children to help set-up mealtimes and clean, several participants (n=6, 12%) mentioned concerns about messes with family style dining. A total of 9 participants who were interested in establishing mealtime routines were also concerned about family style dining because of inadequate resources and messes. Two participants mentioned concerns about contamination and germs with family style dining, and one participant was concerned that allowing children to help with clean-up could result in more messes.

Additionally, several participants (n=7, 14%) reported concerns about having access to supplies, staffing, and adequate amounts of food for family style dining. A few participants had concerns about having enough staff or getting staff on board with mealtime changes. Others mentioned concern about food waste or not enough food if there are spills or if a child contaminates a serving dish. There was also concern about enough space on the tables, and enough dishes for each table to pass food items.

"Having extra food on hand in the classroom in case a child contaminates it may be a challenge." – Lead Teacher, Center-Based Child Care

4.1.2. Mealtime Transitions

4.1.2.1 Interest in Structuring Mealtime Transitions

Several participants (n=12, 24%) reported interest in structuring transitions before and after mealtimes. Many mentioned use of song, giving thanks, or providing an area for quiet time when children are finished eating. One participant explained interest in prayer when trying new foods, and another participant was interested in involving children in clean-up.

"I loved that they all waited till everyone was seated and sang a song to indicate everyone was ready to start serving. I also liked that the children are involved in every aspect of the meal from setting the table to clean-up." – Lead Teacher, Center-Based Child Care

4.1.2.2 Concerns about Children Adapting to Change

Multiple participants (n=6, 12%) reported concerns about children adjusting and adapting to new mealtime changes. A total of 3 (6%) participants who were interested in structuring mealtime changes were also concerned about children adapting to change. A few expressed children having difficulty doing things differently and concerns about children cooperating when serving themselves. Also, there were concerns about child confusion when mealtime practices change, or that children may

have hurt feelings if everyone wants to help at once. One person acknowledged difficulty in using mealtime strategies when mealtimes get hectic.

"Mealtimes are often a bit of a whirlwind, sometimes employing all the best strategies is difficult when the dynamic is shifted (crying child or big spill)" - Lead Teacher, Center-Based Child Care

4.1.3 Referencing and Honoring Hunger and Fullness Cues

Many participants (n=10, 20%) mentioned interest in referencing and/or honoring the children's hunger and fullness cues. Some mentioned that they will be more aware of the children's cues and to not pressure children to eat when they are full. Another mentioned referencing hunger cues to the children, such as reminding them to pay attention when their stomach is full.

"During I will talk about hunger cues in a more mindful way – thinking of our tummies being full, looking inside, etc." - Lead Teacher, Center-Based Child Care

"I will listen to a child when they say they are full. Not push them to eat even if they say they aren't hungry." -Assistant Teacher, Center-Based Child Care

4.1.4 Other Mealtime Concerns

Four participants mentioned other concerns about mealtime changes. These included: children will only take their favorite foods, difficulty sitting with children because tables are separated, not enough time to implement mealtime changes, and children not being patient during mealtime transitions.

4.1.5. No Concerns

A total of 17 participants (34%) mentioned that they do not have any concerns about implementing mealtime changes. A total of six participants (12%) did not answer the question.

4.2 Interest in Family Engagement and Concerns

The last open-ended survey question analyzed was about how participants would like to engage with families about mealtimes and what concerns they have. The question included a list of suggestions for participants to pick from and was scored for frequency (Table 23). Many participants included multiple answers. Participants' concerns were analyzed qualitatively.

The purpose of including these questions into the analysis was to see if engaging with families would be a potential avenue to fostering mealtime practices that align more closely with the sDOR and responsive feeding. The analysis results indicated that participants engage with families by talking about challenges and solutions to mealtime behaviors (44%), providing resources (28%), and involving them in mealtimes at the program (16%). Some participants were concerned that families would have little interest in mealtimes (8%) or would push back against mealtime practices (18%). But nearly half of participants did not have concerns with engaging with families (42%). This suggests that providers will likely feel comfortable talking to families about mealtimes changes, providing resources, and involving them in mealtimes as a way to communicate about responsive feeding practices and the sDOR.

The three most common ways to engage families were "talk with families about challenges and solutions to mealtime behaviors" (44%), "provide families with mealtime and healthy food resources" (28%), and "involve parents and families with mealtimes during the program" (16%).

Table 23: Participants' Interests in Ways to Engage Families in Mealtime (n=50)	
Question: To engage with families you can [see suggestions below]. List one thing you will do to engage with families about mealtime.	
Suggestions	**# of mentions from participants (n=50)**
Talk with families about challenges and solutions to mealtime behaviors	44%
Provide families with mealtime and healthy food resources	28%
Involve parents and families with mealtimes during your program	16%
Other ways to engage families	14%
Develop a written policy about mealtime environments	6%
No response*	4%

*all suggestions were question-generated except for those with an asterisk which were generated by participants

4.2.1 Interest in Discussion with Families

4.2.1.1 Interest in Discussing Challenges and Solutions to Mealtime Behaviors with Families

Many participants (n=22, 44%) reported interest in talking with families about challenges and solutions to mealtime behaviors. They mentioned talking with families about using program mealtime

practices at home, communicating which foods their child tried and their food likes and dislikes. Participants were interested in asking families about their mealtime practices at home. One participant also mentioned suggesting to parents that they provide similar food to children at home and having them serve themselves at home for additional exposure and practice. Others mentioned the importance of communicating about food allergies and discussing mealtime responsibilities.

"I will ask parents about the practices they have during mealtimes at home so I can have a better understanding of some behaviors the children display." -Lead Teacher, School-Age or Afterschool Program

4.2.1.2 Concerns about families expressing little interest in mealtimes

A few participants (n=4, 8%) reported concerns about families having little interest in mealtimes. All four participants who reported concerns about families having little interest in mealtimes were also interesting in discussing challenges and solutions to mealtime behaviors. This included families not wanting to change their practices, little interest for participating in mealtimes.

"Some families might not care about this or they prefer to let their children do whatever they want." -Lead Teacher, Center-Based Child Care

"They have their own routines and aren't willing to change it." -Assistant Teacher, Other Program

4.2.1.3 Concerns about pushback or disagreements with families

Several participants (n=9, 18%) expressed concern about families disagreeing or not approving of mealtime practices at the program. A total of six participants were interested in discussing challenges and solutions to mealtime behaviors with families and concerned about pushback and disagreements with families. There was concern that families may be sensitive and take the conversations personally, or parents do not like the foods that are offered. They mentioned concern about families having different eating styles than what the program has or families disagreeing with the rules and guidelines that the program follows. For example, one person had a concern that children are required to eat everything served at home, which differs from family style dining.

"Some families do not do family style dining and others do. What concerns me is the children who fight back to do it, or yell that they don't want a food because at home they may have to eat everything that is given to them." -Lead Teacher, Center-Based Child Care

"Some families are not on board with all our menu items and it becomes a struggle to discuss the expectations of the meal program with those who would prefer not to comply." -Lead Teacher, Center-Based Child Care

"My only concern is that parents are not always accepting of rules and guidelines that are put into place." -Lead Teacher, Center-Based Child Care

4.2.2 Interest in Providing Mealtime and Healthy Food Resources

Several participants (n=14, 28%) mentioned interest in providing mealtime and healthy food resources to families. Many were interested in providing the program menu and others were interested in providing resources to improve mealtimes at home. One participant mentioned sending home meal charts that outline what foods the child ate and what new foods they tried. Several participants were interested in posters, brochures, literature, handouts, and newsletters about healthy mealtime practices and family style dining. Two of the participants interested in providing mealtime and healthy food resources were also concerned about pushback and disagreements with families.

"Put out resources such as posters or brochures that encourage families eating healthy meals together." -Assistant Teacher, Center-Based Child Care

4.2.3 Interest in Involving Families In Mealtimes at the Program

Multiple participants (n=8, 16%) were interested in inviting families to mealtimes at the programs, or mentioned that this is a practice that they already engage in. No concerns were providing by participants interested in involving family members.

"We invite families to mealtimes to enjoy our family style dining and to spend time with their children at school." – Other Role, Center-Based Child Care

4.2.4 No concerns about family engagement

Overall, many participants (n=21, 42%) did not have concerns about engaging with families. About 20% of participants did not provide an answer to the question about concerns.

4.2.7 Other Concerns

Four participants mentioned other concerns they had about family engagement. This included: asking parents to bring healthy snacks for parties at the program, inconsistencies with

mealtimes, parents who have children with special needs, how to teach children how to eat, and how to implement family style dining.

Discussion of Survey Results

The following is a discussion of the survey results from the Nurturing Young Eaters Modules as they connect with the sDOR and responsive feeding practices. Relevant findings from the Washington Statewide Survey on Nutrition and Physical Activity in Early Learning (Statewide Survey) conducted by the WA DOH in 2018 are also included.[1,2] The Statewide Survey was offered to all licensed early learning programs in Washington State.

Although family style dining was the most popular way of serving food [among 25 survey participants], there were some mixed responses for who sets the feeding environment, who selects what food and how it is offered, and who decides how much children need to eat. Similarly, Statewide Survey results showed only 23% of the programs allow children to choose and serve foods themselves and only 53% of children always get to decide how much or how little food to eat, suggesting that family style dining practices may not be properly implemented in a way that aligns with the sDOR.[2] There is a need for training around the division of responsibilities of adults and children at mealtimes. Only 59% of child care centers reported having a written policy about staff using food as a reward for children's behavior and only 23% of providers at family home programs reported having written guidelines about staff use of food as a reward for children's behavior.[2] Improved policy development, such as avoiding use of food as a reward, may be helpful for providers to uniformly implement responsive feeding and sDOR principles into mealtimes.

Participants reported many benefits to providers and children from following healthy mealtime practices, such as skill development and independence in children, resulting in easier mealtimes for providers, and mealtimes are an opportunity for providers to bond with children. Additional benefits were improved health, and better recognition of hunger and fullness cues for children and providers. Maximizing these benefits will be important when providing technical assistance for implementation of the sDOR and responsive feeding practices to lessen mealtime burden for providers.

Participants reported common ways to offer new foods to children, many of which involved pressure and very few mentions of neutral methods or not forcing children to try new foods. Training surrounding the importance of introducing new foods in a neutral manner and how to is needed based on the sDOR.

Providers were interested in improving mealtimes by establishing routines, structuring mealtime transitions, referencing and honoring hunger and fullness cues, and incorporating mealtime topics into classroom activities. Many providers interested in establishing mealtime routines were concerned about messes and inadequate resources with family style dining, and children's abilities to adapt to changes. Many of the providers interests align with the sDOR, such as supporting children in listening to hunger and fullness cues, having mealtime structure of regular meals and snacks, and involving children in the mealtime process (i.e. serving themselves). These could be great areas to highlight in the technical assistance since providers are already interested in them. Additionally, their concerns will be important to address and troubleshoot.

Providers expressed interest in engaging with families about mealtimes through discussing challenges and solutions to mealtime behaviors, providing mealtime resources, and inviting families to mealtimes. A few providers expressed concerns about families having little interest or families disagreeing with program practices, but the majority of providers did not have any concerns about engaging with family members. In the Statewide Survey, a total of 92% of providers agreed that early learning providers should serve as a resource for families about healthy mealtime practices, and 86% agreed they feel comfortable being a resource on this topic for families.[2] This indicates that providers may feel comfortable engaging families and involving them in mealtimes changes to expose them to responsive feeding practices and the sDOR. This could help gain their support of these practices at the early learning program and potentially impact their mealtime practices at home.

Similarly, providers who responded to the Statewide Survey believed they should serve as a resource for breastfeeding and responsive feeding practices for families, but few providers working with infants had received training. In family home programs, 44% of providers received training on responsive feeding techniques for infants in the previous three years. A total of 22% had not received training on responsive feeding, but they would like to. In child care centers, 26% of providers indicated that they were required to receive training on responsive feeding techniques for infants.[1] Providers were also interested in serving as a resource for families about healthy mealtime practices for children, yet 48% of child care centers do not require training. Increasing accessibility to training about healthy mealtimes and responsive feeding practices is warranted.

Strengths & Limitations

The main strength of these findings is that there were a large number of participants who responded to the NYE training module. However, there was a smaller sample used for qualitative analysis. This may not fully represent all providers who work at early learning programs in Washington

State. Additionally, there were many open-ended questions in the training module where providers did not respond, potentially due to respondent burden.

Conclusion

Overall, results from the Nurturing Young Eaters Training module and the 2018 Washington State Survey of Nutrition and Physical Activity in Early Learning indicate the need for improved implementation of mealtime practices that align more closely with responsive feeding practices and the sDOR. It is clear that providers are interested in improving mealtime practices and engaging with family members, and that there are already clear strides for implementation of family style dining. Policy development about mealtime practices and training and technical assistance for providers is needed to further improve mealtimes. Training and technical assistance about the division of responsibilities between providers and children, and how to offer new foods in neutral ways may be helpful for fostering more responsive feeding practices. Concerns presented by the providers should also be addressed in the trainings. Lastly, training for providers could include information about ways to engage family members in responsive feeding and the sDOR practices.

Chapter IX: Recommendations for Technical Assistance for Improved Implementation of Responsive Feeding Practices and the sDOR in Early Learning Programs

Technical assistance to provide training and education for providers about implementation of responsive feeding practices and the sDOR will likely improve mealtime environments, foster trust between providers and children, and allow children to self-regulate their food intake. The following recommendations were developed based on review of literature and information from providers in the training module and Statewide Survey.

1. **Develop training and resources that combine responsive feeding methods and the sDOR with program best practices and requirements.**

   Results from the Statewide Survey and responses from providers in the NYE training module show that responsive feeding and healthy mealtime training are of interest but is often not required or available. In child care centers, only 48% of participants reported healthy mealtime training is required.[2] In family home programs, only 44% of providers received training on responsive feeding techniques for infants in the previous three years, and 22% had not received responsive feeding training, but were interested.[1] In child care centers, only 26% of providers were required to receive responsive feeding training.[1] Even among the resources that were identified (i.e. Montana Team Nutrition and Santa Clara County Public Health), there is a lack of information that combines responsive feeding and the sDOR with best practices and requirements, such as family style dining, CACFP, CFOC4, and Head Start.[84–86] Training that highlights how responsive feeding methods and the sDOR can be implemented in congruence with best practices and program requirements are needed for providers. Concerns surrounding family style dining identified in both the literature and the NYE module should also be addressed.[66,67] This included informing providers that family style dining does not conflict with CACFP requirements and how to implement family style dining in a way that is less messy, more hygienic, and can be implemented with limited resources (i.e. staff and equipment).[66,67] One suggestion to improve availability of this information is to develop both online trainings and resources, and printable handouts that providers can easily refer to throughout their workday or keep in the classroom.

2. **Inform providers on how to avoid use of encouraging and pressuring methods and why this is important.**

Based on the results from the training module, many providers indicated use of pressure methods to introduce new foods, such as an adventure bite or verbal encouragement. As indicated in the literature, there are many potential concerns with encouragement and persuasive language, such as higher food fussiness, lower enjoyment of food, higher slowness in eating, emotional under-eating, impact on weight status, and lessened ability to respond to hunger and fullness cues.[6,50,53–55] Providers expressed difficulty with avoiding controlling feeding practices because they believed the practices were effective for picky eaters, there was confusion about what controlling practices are, and fears of negative responses from parents.[64] Controlling feeding practices were avoided by use of modeling, sensory exploration, and the knowledge that controlling practices are ineffective, can contribute to obesity and poor eating, and that children can self-regulate food intake.[64] Thus providing rationale based on the literature and the sDOR, and explaining how foods can be presented neutrally is needed. One suggestion is to include the neutral methods that providers indicated interest for in the NYE training module, such as talking about foods in a matter-of-fact way (color, shape, texture), reading stories, and including children in meal preparation.

3. **Create examples of policies and guidelines to include in technical assistance for consistent implementation of responsive feeding practices and the sDOR.**

Policies and guidelines for child care centers and family home programs could be improved or developed to include important principles from the sDOR. Providers who responded to the NYE module reported that only 46% have an official mealtime policy that includes all of the mealtime principles presented in the training. Three of the sDOR principles that differ from responsive feeding are of particular importance. These include: avoid use of pressure methods, specific strategies surrounding desserts and sweets (pg. 22), and avoiding the use of portion control when programs are able to follow family style dining. The strategies surrounding desserts may be difficult to implement because of conflicts with WACs and CACFP requirements, but exploration into its application and level of need for child care programs is needed. Some possible situations in which these strategies could be used is for special occasions in child care settings (i.e. cookie decorating at the holidays, desserts prepared as part of cultural

lessons), and training for parents to use the strategies at home. Additionally, in the Statewide Survey, only 59% of child care centers had a written policy about the use of food as a reward and only 23% of family home programs had a written guideline.[2] The technical assistance could include examples of policies and guidelines that align with the sDOR for early learning programs to consider adopting or editing their current policies and guidelines to align.

In the State-Wide Survey, 92% of providers agreed they should serve as a resource for families about healthy mealtimes and 86% said they feel comfortable communicating with families.[2] Similarly, many providers who responded to the NYE training module expressed no concerns for working with families, and interest in communicating about mealtime challenges and behaviors. Developing these policies and guidelines about mealtimes could be a great avenue for providers to share with families to communicate about mealtime expectations and potentially influence mealtime practices at home. This information could be communicated via conversations, fliers or handouts, written policies in the parent handbook, posters, bulletin boards, and displays, which were the most common ways that providers give information to families as identified by the State-Wide Survey.[2]

4. **Design technical assistance that is culturally appropriate and includes evaluation with low participant burden.**

The literature indicated that feeding practices may differ by cultural norms. For example, Hispanic providers were less likely than non-Hispanic providers to report allowing children to choose how much to eat.[69] Non-Hispanic providers were less likely to use food rewards and encouragement to eat after children stated they were full.[69] Although cultural relevance was not explicitly mentioned by providers in the NYE training module, one provider responded to the questions in Spanish, and Spanish is the second most common language in Washington State (spoken in 9% of homes).[22] This identifies a potential need for understanding a variety of cultural feeding practices and developing resources in multiple languages. Thus, the development of technical assistance should involve research and recognition of how cultures differ in respect to feeding practices. Inviting providers from differing cultural backgrounds to provide feedback on trainings is necessary for cultural relevance and appropriateness of the training and resources.

In addition to culturally relevant technical assistance, evaluations of trainings should be thoroughly tested to minimize participant burden. From the NYE training module, there were

two questions that had non-response rates of 12% and 20%. While it's unclear if participants did not respond because they did not have concerns or because the training and survey were perceived as long, this is important to consider during development of the evaluation to allow for thoughtful feedback and information from providers. Additionally, participant burden could be reduced by asking only one question at a time. For example, the first research question (included in the survey analysis section), had a total of six different questions and a long description. Participants answered only the final questions and did not address the initial question. Also, for open-ended questions that provide a list of suggestions to choose, it may be beneficial to turn these into multiple-choice questions for easier analysis. One downside to this is that participants could not write-in new ideas, but one way to mitigate this is to include and "other" option where participants can write-in an additional answer.

5. **Support provider health and self-regulation of foods.**

In reviewing the literature, providers used controlling feeding practices more when they themselves were trying to lose weight.[64] Providers also indicated in the NYE training that provider health, and recognizing hunger and fullness cues were a key benefit of healthy mealtime practices. Further examination of research (beyond the scope of this project) is warranted to thoroughly explore how providers' views of their own weight status, health and eating behaviors impact their feeding practices with infants and children. This could include a literature review of ways to address this issue and to promote provider health and well-being. Potential avenues to explore are the theory behind and researched benefits of following the Eating Competence Model, which was also developed by Ellyn Satter as a way for adults to eat competently.[10] Ultimately this could lead to the creation of wellness materials and resources to support provider health and improve the feeding relationship between providers and children.

Chapter X: Summary/Conclusion

The goal of this capstone project was to research responsive feeding practices, the sDOR, and current mealtimes practices in early learning programs to inform the development of technical assistance for improved feeding practices by the WA DOH throughout early learning programs in Washington state. The implementation of responsive feeding practices are important because they are associated with less stressful eating environments, higher diet quality, less rapid weight gain, normal weight status, and are important for developing eating competence later in adulthood.[6–11] Lessening the use of non-responsive feeding practices is important because they are associated with picky eating, decreased consumptions of fruits and vegetables, emotional overeating, and higher weight status.[9,12–14] WA DOH has already made strides in including these principles in their existing technical assistance, such as the Six Principles included in the NYE module. The results from the survey analysis of the NYE module indicated that providers are interested in making changes to current mealtime practices and engaging with families about it. More training and technical assistance surrounding the division of responsibilities at mealtimes, development of policies and guidelines that align with the sDOR, and training on how to offer foods in a neutral manner are needed. Recommendations to better align feeding practices in early learning programs with responsive feeding and the sDOR include: 1) Develop training and resources that combine responsive feeding methods and the sDOR with program best practices and requirements; 2) Inform providers on how to avoid use of encouraging and pressuring methods and why this is important; 3) Create examples of policies and guidelines to include in technical assistance for consistent implementation of responsive feeding practices and the sDOR; 4) Design technical assistance that is culturally appropriate and includes evaluation with low participant burden; and 5) Support provider health and self-regulation of foods.

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Appendix

A1: Terms Used Throughout the Report

Term	Definition
Early learning program	Broad term that includes both child care centers and family home centers
Child care center/Center based child care	"a facility providing regularly scheduled care for a group of children birth through 12 years old for periods of less than 24 hours a day."[24]
Family child care home	"an early learning program licensed by the department where a family home licensee provides child care of education services for 12 or fewer children in the family living quarter where the licensee resides."[24]
Infant	0 to 6 months
Older infant	6 to 12 months
Toddler	12 to 36 months
Children/Child/Preschool-aged	Typically refers to children 3 to 6 years old, but can be used to include older infants through preschool-aged children (those eating solid food)
Early Learning Provider	Lead teachers, assistants, directors, and owners of early learning programs
Parents/Caregivers	Mothers, father, adoptive and foster parents, guardians, kinship, etc.
Participant	Early learning program staff that completed the survey
Responsive Feeding	A way of feeding that involves reciprocal interactions between caregivers and infants or children during eating opportunities
Satter Division of Responsibility (sDOR)	A specialized form of responsive feeding involving a division of meal responsibilities between caregivers or providers and infant-children