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Educating Preschoolers about Color, Texture, and Taste: Child Care Providers' Perceptions for Engaging Children's Senses

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BACKGROUND

Recommendation: Child care providers help children learn about food by engaging their senses (smell, touch, taste) such as touching and smelling new food is encouraged as a step towards tasting

Academy of Nutrition and Dietetics Benchmarks for Nutrition in Child-Care (2011)

Why engage children's senses?

- Encourages children to try new foods (Academy, 2011)
- Educate and expose children to different tastes, smells, textures (Academy, 2011)

Knowledge gap: Providers' perceptions

- No studies have identified child care providers' perceptions for meeting this benchmark
- This information is necessary for the development of and successful implementation of interventions

STUDY OBJECTIVES

- To identify child care providers' motivators, facilitators, and barriers for engaging children's senses to educate them about the color, texture, and taste of foods
- To provide child care providers with feasible solutions or strategies to the barriers they face for engaging children's senses
- To translate the research to practice by developing programming for child care providers

METHODS

Design and Population

- Maximum variation purposive sampling
- Providers from Head Start programs and licensed child-care centers in Central Illinois.

Data Collection

- Semi-structured interview
- Interviews lasted approx. one hour (Mean 43.15, SD 12.54).
- Saturation reached after 18 interviews

Data Analysis

- Interviews digitally recorded and transcribed verbatim
- NVivo
- Theoretical thematic analysis to analyze data
- Constant comparison method to systematically generate initial codes, and then to develop themes from the codes
- Two authors independently coded data and third author reviewed coding scheme in codebook and themes

Table 1. Baseline Characteristics across Head Start, CACFP and non-CACFP Child-Care Providers (N=18)

Characteristic	Head Start (n=6)	CACFP (n=6)	Non-CACFP (n=6)
Race			
NH Black	3	3	3
NH White	3	3	3
Marital Status			
Single	2	3	2
Married	3	3	3
Divorced	1	0	0
Widowed	0	0	1
Have children			
No	1	3	2
Yes	5	3	4
Education			
Some college or technical school (1 to 3 years)	2	4	4
College graduate (≥4 year)	4	2	2
Feeding Style^a			
Authoritative	2	1	1
Authoritarian	1	2	1
Indulgent	3	3	1
Uninvolved	0	0	3
Provider Age Mean(SD)	41.76 (12.3)	41.23 (12.1)	41.56 (17.06)
Provider Age (Range)	24.4-54.5	25.14-58.59	23.32-68.12
Yrs of experience Mean (SD)	10.2 (6.6)	17.6 (11.56)	8.42 (8.01)
Years of experience (Range)	2-20.5	5-28	0.5- 20
Use family-style service	6	4	0

Abbreviations: CACFP, Child and Adult Care Food Program. NH, Non-Hispanic. Provider feeding style was measured by the Child Feeding Style Questionnaire

RESULTS

Table 1. Child care Providers' Motivators to Engaging Children's Senses

MOTIVATORS	REPRESENTATIVE QUOTES
Encourages children to try NEW foods	Because I think that's where the children learn to try new things. You know, if they're able to kind of touch it and pick it up and look at it and smell it, they're more apt to taste it. –CACFP provider
Increases exposure to different tastes, textures and smells	I think it's important because...it just raises their awareness about how things may smell, touch and taste when they're at school, when they're at Thanksgiving with their family. They can say, "Oh, I remember how that smelled there. It tasted so good." And they can carry that over in different settings – non-CACFP provider
Engaging and fun strategy for encouraging children to taste foods	It makes it fun... instead of, "Hey, try that." (say) "Oh, well, what does it smell like? What does it look like? Let's talk about it," and then it gets them excited and engages them in it, and then they want to taste it. – CACFP provider
Engaging parents	The kids like it. I think it's fun if they wouldn't normally try something, and then we do an activity with it, they usually will try it. – Head Start provider
	We would make things, like cupcakes or muffins, and then we would invite the parents for breakfast the next morning. And we would say, "We cooked these things for you." – CACFP provider

Table 2. Child care Providers' Facilitators to Engaging Children's Senses

FACILITATORS	REPRESENTATIVE QUOTES
Low-cost and feasible hands-on learning activities like:	
- Fruit or vegetable trying, tasting different foods	During the day, we can smell the food cooking in the kitchen, so we play games like, "What's for lunch today?" and we try to guess what they're cooking. And then... "Well, was it the right smell? Or is not the right smell?"...the kids don't know between broccoli and cauliflower, which one it is, so they're always excited to see what color it is – if it's green or white. And then...by looking at it, they can decide what it is, and...they smell that, and then, they touch it, and they can taste it. – White Head Start provider
- Dramatic play, sensory table	
- Guessing aromas from the kitchen	She's making bread right now with them (the children), and they're smelling the ingredients. They're touching, just to see how it feels. I think that kids learn really hands-on - CACFP provider
- Cooking activities	
Children's desire to explore	It's easy to do because that's what kids do anyway. They want to touch it and they want to smell it, and they want to taste it. So it's very easy for kids to do that – non-CACFP provider
Adult role modeling (tasting, food activities)	...it's just doing it (food tasting) and engaging them in it. Because if you are enthusiastic about something, they're going to want to do it. – Head Start provider

Table 3. Child care Providers' Barriers to Engaging Children's Senses and Strategies from Other Child care Providers to Overcome Barriers

BARRIERS	REPRESENTATIVE QUOTES	STRATEGIES	REPRESENTATIVE QUOTES
Messy and unhygienic	Well, personally in the 2-year-old room, I can't have my kids touching any food...it would be a food fight everywhere... (food) all over the kids.... Then clean up, we're changing clothes. It just would be an uphill battle...that would be hard to do. Sometimes we let them smell the food, but not too often. Because then it (food) would be on their nose or somebody will take it too far...and...food (will be) all over their face. – non-CACFP provider	Teachers accepting messes as part of learning and engaging senses	...yes, it is a mess. That's a given when you work with kids...you can't have clean everything all the time. But if it's a safety reason or sanitary reason, you don't have to actually eat it. – CACFP provider
Messes with food and spills everywhere		Children touch food to explore but do not eat them for hygiene reasons	I would tell those teachers that they need to let the children explore...They're doing these things, and that's also the way that they learn...They learn by touching. They learn by smelling and feeling. So I would just encourage them to (do so)...That's how they learn – CACFP provider
Hard to clean-up		Cleaning up messes and teaching children how to do so	We've got little dustpans and little brooms that are very small, child-size...You have not seen a mess until you've seen my classroom when we put a bag of flour in our sensory table and it is everywhere. But the kids love it. It has such an interesting texture. You're capable of playing with this, but you're also capable of cleaning it up. A mess is just part of...the fun. – CACFP provider
Unhygienic touching of food	When it's on their plate, then they can touch it. But if it's not on their plate, then have to use the serving utensils for that. – Head Start provider	Doing messy activities outdoors	Sometimes we take our messy stuff outside. We have ample opportunity with a lot of yard to be able to sit down and (do) things, and I know that other centers don't always have that. – non-CACFP provider
Limited resources (money) to conduct activities	I think that's one of the only things that hinders us in doing that (activities) because... sometimes there's not money for that. – Head Start provider	Hand washing as a way to allow children to touch food	...we wash their (children's) hands...sometimes that's what they (children) do. They touch it (food) before they eat. – non-CACFP provider
Children dislike the smell of food	Sometimes the children (say), "Ooh, that stinks." The spinach has a smell, too, and a lot of kids didn't like the smell of that. – Head Start provider	Try to get more monetary resources or implement low-cost, feasible hands-on activities	I would see if there was a way that we could write for a grant or a way that we could put more money aside to be able to do more healthy cooking activities. – Head Start provider
Policy discrepancies	...sometimes we have a problem getting things, like materials, like food and things because we can't have anything that's brought in from somebody else's home. It has to be from the store. – Head Start provider	Advice for dealing with smell	Like the spinach has a smell, too, and a lot of kids didn't like the smell of that. But then, when it came, they were like, "Ooh, I eat this at home." And so, then, they're willing to try it. – Head Start provider
Implementing activity ideas to accommodate accreditation policies		Implementing activity ideas to accommodate accreditation policies	Tell them (teachers) to have a smelly game...smell different foods and touch different foods that they're not going to eat. Let them see...this is how lettuce feels. Or this is how wet noodles feel...and sometimes, put it in a sensory table so they can play with it. – Head Start provider
Center policy about outside food			We just try to find ways around that we can still (cook) – kids love to make pizza. You can't make dough from scratch... (so) we will use canned biscuits. They are sealed up in a package. We can use those because we haven't touched any eggs. We haven't touched any milk. We haven't touched any flour. – CACFP provider
Policy discrepancies between different accreditations	I think that we try to do as many cooking things as possible. One of the hardest things for us is accreditation will say, "Do cooking projects for children. Let them crack eggs. Let them measure. Let them spill. Let them mix these ingredients." Then you go to DCFS and Public Health, and they say, "You may not use raw eggs." So it's the two do not go together. Children love to cook. They love the smells. They love the textures. They love the taste. They love all of those things with cooking. But there is such a huge discrepancy between (accreditation and DCFS) – CACFP provider		

DISCUSSION

Consistent with previous research, child care providers perceived that engaging children's senses in child care is important because:

- Encourages children to try new foods
- Increases their exposure to different food tastes, smells, and textures.

Implications for Practice and Programming

- Develop low-cost, easy, and no cooking; hands-on food preparation activities
- Address barriers and consider suggestions to overcome barriers for effective implementation of recommendations

Implications for policy

- The discrepancy between the childcare accreditation and the DCFS/Public Health should be addressed by the different accreditations and policy makers

- Policy recommendations should be operationalized by including relevant programming and useful resources.

Implications for research

- Identify effective strategies to engage children's senses with:

- Experts (Nutrition, Early Childhood, Developmental Psychology)
- Practitioners (Extension Educators, Child Care administrators and providers)
- Evaluate programs to determine the impact of strategies

CONCLUSION

- Activities (during and outside of mealtimes) provide valuable opportunities for engaging children's senses.
- Increased exposure may help children try new foods and foster long-term healthy eating behaviors and childhood obesity prevention
- A collaborative and bottom-up approach with child care providers is important for effective translation of research to practice.



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- Full references are available upon request from author ddev2@unl.edu

