Investigating Barriers and Keys to Success when Implementing and Maintaining Farm to School Programs: Perspectives of Hourly School Foodservice Employees

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Literature Review – Farm to School Chronology

- 1996-1997: FTS began with less than 5 programs in the U.S. (NFTSN, n.d.a)
- 2010: Estimated more than 2,000 programs in all 50 states (NFTSN, n.d.b)
- 2013: FTS Census estimated more than 38,500 schools participating (USDA FNS, 2013)

Literature Review – Benefits and Barriers to FTS Programs

- Benefits
  - Increased consumption of fruits and vegetables by students (Parmer, Salisbury-Glennon, Shannnon, & Struempler, 2009)
  - Improved nutrition education opportunities (Graham, Beal, Lussier, McLaughlin, & Zidenberg-Cherr, 2005)
- Barriers- identified by school foodservice professionals, distributors, and farmers
  - Federal and State Regulations (Colosanti, Matts, & Hamm, 2012; USDA FTS team, 2011)
  - Insufficient infrastructure (space, equipment, staff knowledge & skills) (USDA FTS team, 2011)

Problem

- Researchers have indicated that
  - Success depends on hourly employees maintenance of the FTS program (Debliek, Strohbehn, Clapp, & Levandowski, 2010)
  - More research needs to be directed towards hourly kitchen employees (Debliek, Strohbehn, Clapp, & Levandowski, 2010; Joshi, Azuma, & Feenstra, 2008)
- Hourly employees prepare, promote, and serve meals as well as have daily contact with students
  - Little research has been focused on their perceptions of FTS program barriers

Purpose

- Investigate barriers and keys to success when implementing and maintaining FTS programs from the perspective of hourly school foodservice employees

Objectives

- 1. Identify and understand barriers to implementing and maintaining both new and established FTS programs
- 2. Identify and understand keys to success when implementing and maintaining new and established FTS programs
- 3. Develop a questionnaire to be used in further identifying barriers and keys to success when implementing new FTS programs and maintaining established FTS programs on a national level
- 4. Identify differences in barriers based on geographic location, school lunch participation, and experience with FTS programs
- 5. Identify if differences exist in keys to success based on geographic location, school lunch participation, and experience with FTS programs

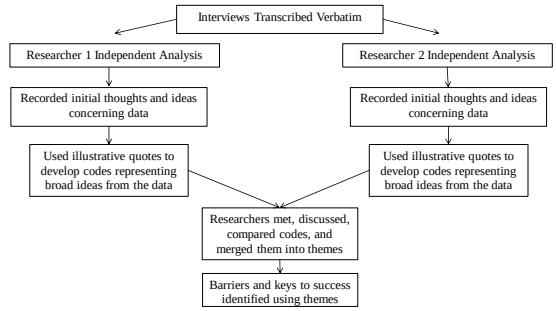
Methods

- Mixed Methods Approach
  - Interviews
  - Questionnaire
- Approval was received by the Iowa State University Institutional Review Board before conducting research

Methods - Interviews

- Sample Selection
  - Hourly school foodservice employees were recruited through personal contact or flyers posted in school kitchens
    - Six employees from five schools in Iowa agreed to participate
    - "Thank you" gift of $20 offered to encourage participation
- Interview Procedure
  - Semi-structured telephone interviews conducted
  - Each interview lasted approximately 30 minutes

Data Analysis- Interviews



Results – Interview Demographics

Participant Demographics		
Characteristics		
Age	n	%
26-34	1	17
35-49	1	17
50-64	4	67
Education		
High school diploma	4	67
Some college	1	17
Bachelor's or Associate's degree	1	17
Hours Worked Per Week		
20 to 29 hours	1	17
30 to 39 hours	5	83
Working in School Foodservice		
2 years	1	17
More than 3 years	5	83
Involved with FTS Programs		
2 years	1	17
3 years	1	17
More than 3 years	4	67

Note: Some totals > 100% due to rounding

Interview Results - Barriers to FTS

Barriers	
Themes	Illustrative Quotations
Appearance	"Yah some of it was a challenge because…of the way things looked…they (students) won't try it…" (Megan)
Shelf Life	"…if we get too many we have to use em right away… we don't keep them from one week to the next…" (Sally)
Service to Students	"…with such a variety of children between the Mayans, and the Mexicans a lot of the foreign kids like the different things where…Caucasians …they are pretty hesitant on trying a lot of it." (Megan)
Amount/Availability	"You know sometimes we don't get enough of the fruits and vegetables to actually really do stuff to serve that many kids…" (Molly)
Time to Process	"…this takes a little more time because we do have to peel it and clean it and scrub it up." (Holly)
Lack of Knowledge	"Because a lot of the vegetables…I didn't know what they were… because I was used to the normal…tomatoes, lettuce, things like that." (Megan)

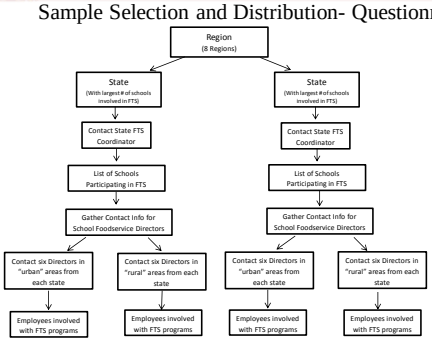
Interview Results - Keys to Success

Keys to Success	
Theme	**Illustrative Quotes**
Education/ Exposure	"So that's been a real plus to get it introduced to them before lunch so that way…when they do get to lunch …they know what they're taking." (Kate)
Positive Peer Pressure	"…just that the way we served it…and that we do have students there that… liked it…when one would like it the other one would like it they would talk the other one in to liking it …you know to try it…" (Megan)
Classroom Visits	"They have volunteers come in to the school and they take little samples…to each classroom …and then the kids get to sample the products…" (Deb)
Teachers/Staff Support	"…a lot of times I just kind of laugh and joke around with em and say, "I tried it its good guys" oh ok I'll try it…so sometimes it can convince them that way…to try it." (Holly)
Offering Condiments	"…they would dip it in the ranch dressing and then they would try it and…they would pretty well eat it then…" (Megan)
Method of Preparation/ Presentation	"we don't cut the apples ahead of time so they don't turn brown and the vegetables we … try to make them look nice … on the on the line so its appealing and you know you cut like the peppers you cut in strips…" (Deb)
Employee Motivation	"I mean everybody has to eat you know so knowing that is coming from pretty much your back yard I guess is an incentive for me and I raise my kids that way …" (Molly)

Methods-Questionnaire

- Development
  - Developed using themes from interviews
- Content
  - Demographic questions concerning participants and schools
  - 18 items concerning barriers to FTS
  - 23 items concerning keys to success for FTS
  - 5-point Likert-type scale (1= strongly disagree to 5= strongly agree) used for measurement

Sample Selection and Distribution- Questionnaire



Data Analysis - Questionnaire

- Questionnaire coded and data entered into SPSS
- Frequencies computed and data cleaned
- Cronbach's alpha computed to determine reliability of measurement scales
- Descriptive statistics (frequencies, means, standard deviations) computed to identify most common barriers and keys to success
- ANOVA used to identify differences based on school lunch participation and geographic location

Results - Questionnaire

- Sample
  - 369 questionnaires distributed
  - 213 usable questionnaires returned
  - Response rate of 58%
- Cronbach's Alpha
  - Keys to success (α= .942)
  - Barriers (α= .800)

Results - Questionnaire Demographics

Demographic Characteristics of Participants (n=186-213)		
Characteristics	n	%
Gender [a]		
Male	8	3.8
Female	202	94.8
Age [a]		
18-25 years	4	1.9
26-34 years	25	11.7
35-49 years	77	36.2
50-64 years	89	41.8
65 years and over	12	5.6
Number of years involved with farm to school programs [a]		
1 year or less	36	16.9
1 to 2 years	33	15.5
2 to 3 years	43	20.2
More than 3 years	74	34.7

[a] Totals may not equal 213 and percentages may not equal 100 due to missing data

Results - School Demographics

Demographic Characteristics of Schools (n=190-213)		
Characteristics	n	%
Number of years with farm to school program [a]		
1 year or less	9	4.2
1 to 2 years	20	9.4
2 to three years	44	20.7
More than three years	57	26.8
I don't know	74	34.7
Average number of meals served during lunch each day [a]		
0 to 200	28	13.1
201 to 400	117	54.9
401 to 600	53	24.9
601 to 800	5	2.3
801 to 1000	4	1.9
more than 1000	5	2.3

[a] Totals may not equal 213 and percentages may not equal 100 due to missing data

Results - Geographic Representation

Geographic Representation		
Geographic region [a]	n	%
West (Alaska, California, Hawaii, Idaho, Nevada, Oregon, Washington, Montana)	21	9.9
Southwest (Colorado, Utah, Wyoming, Arizona, New Mexico)	19	8.9
Midwest (North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Missouri, Iowa)	38	17.8
Great Lakes (Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio)	26	12.2
South (Arkansas, Louisiana, Mississippi, Alabama, Texas)	27	12.7
Southeast (Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee)	25	11.7
Mid-Atlantic (Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia)	23	10.8
Northeast (Connecticut, Maine Massachusetts, New Hampshire, New York, Rhode Island, Vermont)	23	10.8

[a] The actual number of responses varied due to missing data

Results - Barriers to FTS

Barriers to Farm to School Programs (n= 165-187) [a]		
Barriers	Mean[b]	SD
1. Local produce has a different appearance than non-local produce	3.67	.90
2. The quality of local produce is better than non-local produce	3.61	.96
3. Local produce is less available than non-local produce	3.34	.96
4. Students have never been exposed to some of the local produce items	3.32	1.05
15. It is difficult for staff to identify local produce items compared to non-local produce	2.78	1.00
16. There are no differences between local and non-local produce	2.65	1.00
17. It is difficult to serve local produce items to a diverse student body	2.45	.78
18. Staff are less knowledgeable about how to serve local produce compared to non-local produce	2.42	.92
Total Mean Score	3.09	.46

[a] The actual number of responses varied due to missing data
[b] Likert-type scale was used as follows: 1= Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5= Strongly Agree

Results - Keys to Success

Keys to Success for Farm to School Programs (n= 199-211) [a]		
Keys to Success	Mean[b]	SD
1. Staff encouraging students to try local produce	4.15	.78
2. Exposing students to local produce consistently	4.08	.72
3. Presenting local produce attractively to students	4.08	.74
4. Using appropriate preparation methods to prepare local produce	4.04	.77
20. Getting to know local farmers	3.72	.90
21. Explaining to students how to prepare local produce	3.67	.90
22. Serving local produce with condiments	3.66	.82
23. There is positive peer pressure amongst students to try local produce	3.21	1.01
Total Mean Score	3.89	.54

[a] The actual number of responses varied due to missing data
[b] Likert-type scale was used as follows: 1= Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5= Strongly Agree

Results - Differences Geographic Location

Differences in Barriers Based on Geographic Location								
Barrier Items	West	Mid West	South West	Great Lakes	South	South East	Mid-Atlantic	North East
"students have never been exposed to some of the local produce items" (p=.028) [a]			GL	SW				
"local produce is less available than non-local produce" (p= .008) [a]		NE						MW
"a substitute is needed because an insufficient amount of local produce is received (p=.002) [a]						NE	NE	SE, MA
"local produce is not as clean as non-local produce" (p= .001) [a]		GL		MW, SE, MA, NE		GL	GL	GL
"there are no differences between local and non-local produce" (p<.0001) [a]	NE	NE		MW, SE		NE, GL	NE	W, MW, SE, MA
"it is more difficult to receive sufficient amounts of local produce compared to non-local produce" (p< .0001) [a]	NE	NE				NE	NE	W, MW, SE, MA

[a] Results of the analysis of variance (ANOVA) were statistically significant; *(p< .05)

Results - Differences Geographic Location

Differences in Success Based on Geographic Location								
Success Items	West	Mid West	South West	Great Lakes	South	South East	Mid-Atlantic	North East
"students sampling local produce" (p= .004) [a]						MA	SE	
"slowly incorporating local produce into the menu" (p= .015) [a]				MA			GL	
"employees desire to increase use of local produce" (p= .020) [a]						MA	SE	
"offering local produce during "snack time" (p= .006) [a]		SE		MA		MW	GL	
"explaining to students how local produce can be served" (p= .032) [a]							NE	MA

[a] Results of the analysis of variance (ANOVA) were statistically significant; *(p< .05)

Results - Differences School Lunch Participation

Differences in Barriers Based on School Lunch Participation			
Barrier Items	Small (0-200)	Medium (201-400)	Large (More than 400)
"the amount of time required to wash local produce is longer than non-local produce" (p= .009) ª		Large	Medium
"it is easier to get students to try local produce than non-local produce" (p= .001) ª	Large	Large	Small, Medium
"processing (e.g. peeling, cutting, packaging) local produce takes more time" (p= .037) ª		Large	Medium

ª Results of the analysis of variance (ANOVA) were statistically significant; *(p< .05)

Conclusions

- Barriers exist amongst hourly school foodservice employees
- Keys to success are identifiable amongst hourly school foodservice employees
- There are significant differences between employees agreement to FTS barrier and success items based on geographic location and school lunch participation
- There were no significant differences between employees agreement to FTS success items based on school lunch participation

Implications

- Utilize results to overcome barriers faced by employees by:
  - Removing barriers
  - Training employees on how to handle barriers
- Improve FTS programs through application of keys to success
  - Train staff to encourage students to try local produce
  - Expose students to local produce consistently

Future Research/Limitations

- Future research
  - Further identifying barriers and keys to success
  - Use of questionnaire on a regional basis
  - Training intervention aimed at overcoming barriers
- Limitations
  - Little demographic variance amongst interview sample
  - Lack of participant knowledge concerning purchasing and length of FTS programs
  - Insufficient amount of new and experienced schools for comparison

THANK YOU FSMEC

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QUESTIONS??