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Principals' and School Food Service Workers' Perceptions of the Implementation of the Community Eligibility Provision

Shirlena M. Moore

University of Kentucky, mooreshirlena@yahoo.com

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Shirlena M. Moore, Student

Dr. Ingrid Adams, Major Professor

Dr. Kelly Webber, Director of Graduate Studies

PRINCIPALS' AND SCHOOL FOOD SERVICE WORKERS' PERCEPTIONS OF
THE IMPLEMENTATION OF THE COMMUNITY ELIGIBILITY PROVISION

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
Department of Dietetics and Human Nutrition
at the University of Kentucky

By

Shirlena Marie Moore

Lexington, Kentucky

Director: Dr. Ingrid Adams RD, LD, LDE

Lexington, Kentucky

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ABSTRACT OF THESIS

PRINCIPALS' AND SCHOOL FOOD SERVICE WORKERS' PERCEPTIONS OF THE IMPLEMENTATION OF THE COMMUNITY ELIGIBILITY PROVISION

Over the years, participation in the School Breakfast Program (SBP) has increased, on both state and national levels. The Community Eligibility Provision (CEP) offers free breakfast to all students regardless of income. The purpose of this study was to examine the perception of principals and school food service workers regarding the benefits, barriers, attitudes and beliefs about the implementation of the CEP. A survey was sent to principals and school food service workers. The majority of the participants were satisfied overall with the CEP and the nutritional quality of foods served for breakfast. The majority of the participants did not see any major barriers to CEP implementation; however, they acknowledged several benefits. Future research should combine qualitative and quantitative methods to explore these perceptions and gather information on why participants feel the way they do in regards to CEP implementation.

KEYWORDS: School Breakfast Program, Community Eligibility Provision

Shirlena Marie Moore
March 29th, 2016

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By

Shirlena Marie Moore

Dr. Ingrid Adams PhD, RD, LD, LDE
Director of Thesis

Dr. Kelly H. Webber, MPH, MS, RD, LD
Director of Graduate Studies

March 29th, 2016

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Chapter 1: Introduction

Background

In 2015, 16% of Kentucky households participated in the Supplemental Nutrition Assistance Program (SNAP), formerly known as the federal Food Stamp program (Kentucky Department for Community Based Services, 2016). Several of these households however, still must depend on other federal programs for help with their food insecurities. Two of these programs are the School Breakfast Program (SBP) and the National School Lunch Program (NSLP), both administered by the Food and Nutrition Services at the federal level and through state education agencies at the state level (USDA, 2014). Statistics show that breakfast participation is low. During the 2013-2014 school year, there were 30.3 million children who participated nationally in the NSLP, and 13.2 million participated in the SBP. In Fayette County, Kentucky, 60% of students participated in the NSLP while only 24% participated in the SBP, showing a discrepancy in NSLP and SBP participation at both the national and local levels (USDA, 2014; M. Coker, personal communication, November 23, 2015).

Research has shown strong relationships between breakfast consumption and improved academic performance, memory function and school behavior; breakfast consumption also has been linked to improvement in attendance, physical health and nutrition in students who consume breakfast daily (Adolphus, Lawton & Dye, 2013). Despite these benefits, statistics show that participation in the SBP is low.

During the 2014-2015 school year in Fayette County, 28 out of 66 schools implemented the CEP; however, participation rates were still lower than the NSLP. Research shows that several factors including school personnel support, timing, conflicting events, parental influence, student preference and financial instability might be responsible for the low participation rates (Lambert, Raidl, Carr, Safaii & Tidwell, 2007). Although all the aforementioned factors were identified in the literature, few studies have examined the perception of principals and school food service workers regarding the implementation of the CEP in relation to increasing SBP participation.

As additional schools and states adopt the CEP program it would be helpful to know the perceptions of administrators and school service workers in terms of the benefits and barriers to implementing the CEP. This information would provide insight on how to facilitate the adoption of the CEP in other states and schools. No study has examined the perception of principals and school food service workers regarding implementing the CEP. This study should fill the gap in the extant literature.

Problem Statement

Over the years, participation in the SBP program has increased, on both state and national levels; however, the number of students participating in the SBP is still lower than that of the NSLP. The CEP program offers free breakfast to all students regardless of income, and the introduction of this program has led to an increase in students' participation in the SBP; therefore, it holds promise for improvement in the SBP.

The purpose of this study is to examine the perception of principals and school food service workers regarding the benefits, barriers, attitudes and beliefs about the implementation of the CEP. Information gathered from this study can be used as a decision making point for the implementation of future CEP programs.

Objectives

- Identify the type and nutritional quality of breakfast served at the school.
- Determine principals' and school food service workers' satisfaction, involvement and attitudes regarding the CEP.
- Determine principals' and school food service workers' perceptions of the barriers associated with implementing the CEP
- Determine principals' and school service workers' perceptions of the benefits (attendance, tardiness, discipline referrals, school learning environment, student behavior, student attentiveness) associated with implementing the CEP.
- Identify principals' and school food service workers' level of agreement with statements related to student breakfast habits, who is responsible for student health, and the level of interest in nutrition.

Justification

The SBP can provide students with nutritious meals prior to the start of their school day, but participation rates are low. The CEP provision has shown to increase SBP participation. By determining the perceived benefits and barriers of the SBP with the implementation of the CEP, the results obtained could facilitate the implementation of the CEP programs at other schools in Fayette County and throughout the nation.

Assumptions and Limitations

The following assumptions were made during this study: the survey was valid and reliable, the participants maintained professional integrity and answered all questions to the best of their knowledge. Limitations of the study included a small sample size, a quantitative research method and the availability timeframe of the CEP. Due to the small sample size, perceptions of all FCPS principal and school food service workers were not reflected in the survey. A quantitative research method does not allow for expansion of answers from participants. The CEP is one of the USDA's newer programs in comparison to the NSLP and SBP, therefore, research and literature pertaining to the provision is limited.

Chapter 2: Literature Review

The purpose of this study is to examine the perception of principals and school food service workers regarding the benefits, barriers, attitudes and beliefs about the implementation of the CEP. Information gathered from this study can be used as a decision making point for the implementation of future CEP programs.

This review of literature contains four main sections. The first section examines breakfast consumption and learning as it relates to academic performance and cognitive function. The second section looks at breakfast consumption and health with emphasis on body mass index and physical activity. Section three reviews the SBP's background, federal regulations and requirements, perceived benefits, and participation. The final section explores the CEP. The background of the program is provided as well as participation qualifications, benefits of implementation, perceived barriers and alternative breakfast services offered at schools related to increased participation, namely Breakfast in the Classroom, Grab 'n Go, and Second Chance breakfast..

Breakfast Consumption and Learning Related to Academic Performance and Cognitive Function

Students that consume breakfast in the morning work faster and make fewer mathematical errors and number checking tests than those who do not consume breakfast or only consume a partial breakfast. Behavioral, emotional and academic problems have also been associated with students who do not consume breakfast. In addition, increased school suspensions have also been

associated with teenagers who do not consume breakfast. Students who consume breakfast daily have been shown to perform better on standardized tests than those who do not consume breakfast. Schools that provide students with the opportunity to consume breakfast contribute to students' heightened concentration, alertness, comprehension, memory and learning. (FRAC, 2014)

Academic Performance

Academic performance poses a great concern for both students and parents because of the direct association between good academic performance and college and career opportunities, and several studies have shown that students who do not consume breakfast tend to have lower grades than students who consume breakfast (Boschloo et al, 2012).

In 2013, a study was published that examined the association between breakfast consumption and academic performance in healthy Korean adolescents. Data were analyzed from 75,643 participants in grades 9 through 12 from the 2011 Korea Youth Risk Behavior Web-based Survey. The association between breakfast consumption and academic performance was assessed using a multivariate logistic regression analysis. The results of the study showed that the odds ratio for average or high academic performance in males who consumed breakfast once per week was 1.004, twice per week was .915, three times a week was .928, four times a week was 1.087, five days a week was 1.258, six days a week was 1.473 and seven days a week was 1.700, in comparison to those who consumed no breakfast during the week. Odds ratios were similar for females. For example, those who consumed breakfast once per week had an odds ratio of 1.086, twice per week was 1.140, three times a week

was 1.179, four times a week was 1.339, five days a week was 1.449, six days a week was 1.768 and seven days a week was 1.922, in comparison to those who consumed no breakfast during the week. The study concludes that a positive correlation exists between frequency of breakfast consumption and academic performance in healthy Korean male and female adolescents. (Young So, 2013)

A cross sectional survey study conducted by Gajre et al (2008) aimed to assess the influence breakfast consumption had on attention-concentration, immediate recall memory, nutritional status and academic performance in 379 school aged children in sixth, seventh and eighth grades. Breakfast was defined as the first meal of the day, consumed in the morning, before going to school. A questionnaire was given to assess the frequency and type of breakfast consumption, and breakfast intake was classified as regular, irregular and never. The study assessed school performance with end of the year grades in the areas of mathematics, sciences and English. Results indicated that children in the regular breakfast group had higher scores in science and English and overall higher mean scores compared to children who consumed breakfast irregularly or did not consume breakfast. In conclusion, breakfast consumed regularly as opposed to irregularly or not at all had beneficial influence for students in attention-concentration, memory and school achievement. (Gajre et al, 2008)

A cross sectional study conducted in the Netherlands among school aged adolescents between 11 and 18 years of age showed that skipping breakfast impacted academic performance, specifically end of term grades. A survey was given to determine the frequency of breakfast consumption during school days,

and the adolescents were divided into breakfast eaters and breakfast skippers. The average end of the year grades were assessed in the following categories: Dutch, mathematics and English as a foreign language. The authors found that when adolescents skipped breakfast, their academic performance was lower. (Boschloo et al, 2012).

Another article that assessed and demonstrated the effects that breakfast consumption and midday meals had on academic performance in 34 Ugandan primary schools was also published in 2012. For this study, there were 645 participants between the ages of 9 and 15 years old. Frequent breakfast consumption was assessed in the form of a questionnaire. Intake was classified as breakfast, breakfast and midday meal, breakfast or midday meal and no breakfast or midday meal. Non-standardized tests were developed, and the following subjects were assessed: English, mathematics, life skills and oral comprehension. The authors concluded that “underachievement was relatively high; inadequate patterns of meal consumption, particularly for the [poorest], significantly higher scores among children from less poor households and a significant association between academic achievement and breakfast and midday meal consumption.” (Achim et al, 2012)

Edwards, Mauch and Winkelman (2011) reported that children who consumed breakfast five or more days a week achieved higher scores on mathematics tests than those who consumed breakfast less than five times a week. In addition to that report, the regression analysis also concluded that there was a significant relationship between breakfast consumption and mean

mathematic scores. This cross sectional survey study took place in the United States, and the participants were school aged children between the ages of 11 and 13 years old. The authors adapted questions from the Youth Risk Behavior Surveillance surveys, and the assessments were standardized mathematics and reading computer tests (Edwards et al, 2011).

All of the previously mentioned studies show a relationship between breakfast consumption and academic performance. Frequent consumption of breakfast was proven to have a very strong influence on academic performance. This indicates that breakfast is still an important meal, and school aged children should consume breakfast daily to achieve great academic success.

Cognitive Function

Consuming breakfast has an influence on cognitive function academic performance as well as academic performance. Several studies have been published to show this correlation as well. In 2013, a cross sectional study examined the association between breakfast consumption and increased IQ in 1,269 six-year-old children from Jintan, China. The Chinese version of the Wechsler Preschool and Primary Scale of Intelligence was used to assess cognition, and the breakfast habits of the children were assessed through a parental questionnaire. The results of the study showed that children who consumed breakfast frequently had higher cognition levels and IQ test scores compared to those who consumed breakfast “sometimes” (Liu et al, 2013).

An internet-based study that examined the association between enhanced cognitive function in schoolchildren and breakfast consumption was published in 2012. The study followed 1386 children throughout the United Kingdom between

the ages of 6 and 16 years old and required participants to log onto a website during Farmhouse Breakfast Week 2004 (Wesnes, Pincock & Scholey, 2012). The children answered questions about their daily consumption of food and drink and were then given cognitive tests. These assessments focused on attention and episodic memory. According to Wesnes, Pincock and Scholey (2012), children who consumed breakfast had higher levels of performance on both attention and memory tests and concluded, “the study adds weight to the growing body of literature indicating that breakfast plays a positive role in maintaining cognitive function during the morning” (Wesnes, Pincock & Scholey, 2012, p. 646).

Another study published in 2012 examined the effects of breakfast with a low or high glycemic index and the effects of skipping breakfast on cognitive function in adolescents. There were 52 adolescents between the ages of 12 and 14 years old who participated in the study. During the study, the adolescents either consumed a low glycemic index breakfast, a high glycemic index breakfast or no breakfast at all. Cognitive tests were performed 30 minutes after and then 120 minutes after breakfast, and one of the results explained that adolescents who consumed a low glycemic breakfast had faster response times than those who consumed a high glycemic index breakfast or no breakfast at all. Three assessments were used to measure the adolescent’s accuracy: The Stroop test, Sternberg paradigm and Flanker task. Cooper et al (2012), also explained that adolescents who consumed a low glycemic index breakfast had more accurate scores on the three assessments than those who consumed a high glycemic

index breakfast or no breakfast. Their overall conclusion was that a low glycemic index breakfast was more beneficial to cognitive function in adolescents than a high glycemic index or no breakfast at all (Cooper et al, 2012).

Cooper, Bandelow and Nevill (2011) also examined the effects of breakfast consumption on cognitive function, mood and blood glucose in adolescent school children. In this study, 96 adolescents between the ages of 12 and 15 years old were assigned to two trials that were scheduled a week apart. Both trials were conducted after the subjects had consumed breakfast. The cognitive function tests for this study were the visual search test, Stroop test and Sternberg paradigm. After consuming breakfast, the adolescents had higher levels of accuracy on the visual search test than those who consumed no breakfast, and there was a similar comparison with accuracy on the Stroop test. With the Sternberg paradigm, advanced level responses were higher once breakfast had been consumed, and the overall findings on the study suggested that “breakfast consumption enhances cognitive function in an adolescent population when compared to breakfast omission” (Cooper et al, 2011).

To summarize, children and adolescents who consume breakfast have an increase in cognitive function, attention memory and overall academic performance. For those who do not consume breakfast, they are more likely to be undernourished, which can result in poor cognitive function. Increased math grades, attendance and punctuality have all been associated with school breakfast participation.

Breakfast Consumption and Health Related to Body Mass Index and Physical Activity

Research has shown that adolescent girls who self-reported that they did not consume breakfast had the belief that breakfast contributes to weight gain, and that adolescents in general who did not consume breakfast were more likely to fast to lose weight. However, several children believe that eating breakfast will help them have more energy and pay attention during class. Children and adolescents who consume breakfast in the mornings are more likely to meet or exceed daily vitamin and mineral requirements. They are more likely overall to have better nutrient intakes than those who do not consume breakfast. Research has also shown that there is a relationship between breakfast consumption and increased intakes of fiber, calcium, iron, vitamin C and other vitamins and minerals. There is also a relationship between breakfast consumption and lower intakes of fat, cholesterol and sodium among children and adolescents. (FRAC, 2014)

Body Mass Index

Obesity has been the center of both national and international concerns, with the biggest concern being childhood obesity. This health concern has turned into an epidemic, and there are several policies and programs that have been put into effect to help reduce this ongoing problem. Several studies have shown that there is a link between breakfast consumption and childhood weight and obesity. For example, a 14 study systemic review of evidence on breakfast cereal consumption and obesity in children and adolescents was published in 2013. The study also assessed if excessive weight gain could be prevented with regular

consumption of breakfast cereals. The authors concluded that children and adolescents who consumed breakfast cereals regularly had a reduced prevalence and risk of becoming overweight and higher energy intakes compared to students who consumed breakfast cereals irregularly (De la Hunty, Gibson & Ashwell, 2013).

In 2012, a study was published that explored the associations between breakfast location, breakfast skipping and body mass index (Tin, Ho, Mak, Wan & Lam, 2012). This study was performed in Hong Kong, and the participants were fourth grade children. Data was collected on breakfast consumption, breakfast location and body mass index, measured using height and weight (Tin et al, 2012). The results of the study concluded that 85.3% of the children consumed breakfast at home, 9.4% consumed breakfast away from home and 5.2% of the children skipped breakfast (Tin et al, 2012). The final conclusion was “both breakfast skipping and eating breakfast away from home predict greater increases in BMI during childhood, the effect being slightly stronger in the latter” (Tin et al, 2012, p. 925).

Infrequent breakfast consumption and its association with higher body adiposity and abdominal obesity was examined in Malaysian school aged adolescents. The adolescents were between 12 and 19 years of age. They were given a questionnaire that assessed dietary and lifestyle behaviors, along with a food frequency questionnaire. The results indicated that only 50% of the adolescents were consuming breakfast, and those who consumed breakfast at least five times a week had a lower body weight, body mass index, waist

circumference, body fat mass and percent body fat. The overall conclusion was that adolescents who did not consume breakfast frequently were associated with having a higher body adiposity and abdominal obesity (Nurul-Fadhilah et al, 2013).

Utter, Scragg, Mhurchu and Schaaf (2007) suggested that increasing breakfast consumption among older children from underprivileged backgrounds should be a priority, and an increase in breakfast consumption at home could possibly limit the amount of unhealthy snacks children consumed throughout the rest of the day. The purpose of the study was to describe the association between consuming breakfast, body mass index and nutrition related behaviors. This study used a cross sectional design that gathered information from the National Children's Nutrition Survey from New Zealand in 2002. The 3,275 participants, who were between the ages of 5 and 14 years old, were asked about their eating habits and physical activity levels. For the study, the students completed a food frequency questionnaire and were measured for weight and height. In the analysis, Utter et al. stated, "breakfast consumption was most frequent among boys, children aged 5 to 6 years, children aged 7 to 10 years, New Zealand European children, and children from more affluent neighborhoods" and "skipping breakfast was associated with a higher BMI" (Utter et al., 2007).

Physical Activity

Breakfast consumption has also been noted to have a positive influence on physical activity. In 2011, a study was published that examined whether breakfast consumption was correlated to physical activity. Eight hundred and seventy-seven British adolescents completed a questionnaire on habitual

breakfast frequency, and physical activity was measured over five days. The relationship between frequent breakfast consumption and physical activity was measured using linear regression that was adjusted for body fat percentage and socioeconomic status. There was no significant association between breakfast consumption and physical activity in males; however, there was a significant association between lower physical activity and less frequent breakfast consumption in females (Corder et al, 2011).

A second study published in 2011 addressed the association between breakfast consumption and daily physical activity. This was a cross sectional study in Norfolk County, England that utilized food diaries to assess breakfast consumption. Physical activity was assessed using accelerometry. The participants were children between the ages of 9 and 10 years old. The results of the study showed that boys who consumed a poor quality breakfast were more likely to participate in moderate to vigorous physical activity for a longer period of time than those who did not consume breakfast. During the weekend, those children who consumed breakfast also had a higher rate of physical activity than those who did not consume breakfast. The study also showed that children who consumed a high quality breakfast performed moderate to vigorous physical activity about three minutes more than those who did not consume breakfast. Overall, children who consumed a poor or good quality breakfast were 22% and 16% more active, respectively, than those students who did not consume breakfast. The overall conclusion of the study was that there is some association

between breakfast consumption and physical activity in children. (Vissers et al, 2011)

A third study concluded that children who habitually consume breakfast have higher physical activity levels than those children who do not. The purpose of the study was to assess the relationship between constant breakfast consumption, body mass index, physical activity and cardiorespiratory fitness. This study measured the physical activity level of 4,326 children between the ages of 10 and 16 years old. The children were also classified as having low or high levels of physical activity, and their breakfast consumption was assessed via a questionnaire and classified as never, sometimes or always. The results of the study showed that boys who never consumed breakfast were more prone to have a low physical activity odds ratio of 2.17, and girls who sometimes or never consumed breakfast were more prone to have low physical activity ratios of 1.39 and 1.48, respectively (Sandercock et al, 2010).

In conclusion, research demonstrates that students who participate in school breakfast programs generally have a lower body mass index and a lower probability of excessive weight and obesity than those who do not participate (FRAC, 2014). Breakfast consumption at school has been associated with an increased consumption of fruit and milk during breakfast (FRAC, 2014). Students who consume breakfast also have a tendency to be more physically active than those who do not. Being physically active every day will decrease a student's likelihood of becoming overweight or obese; therefore, it is vital that all children and adolescents consume breakfast in the morning.

The School Breakfast Program

Background

The School Breakfast Program is a federally funded program that started out as a pilot project in 1966. During its first year, the SBP served about 80,000 children and cost \$573,000. In 1971, Congress proclaimed that priority consideration for the program would include schools in which there was a special need to improve the nutrition and dietary practices of children of working mothers and children from low-income families (USDA, 2013). In 1975, the program was implemented permanently throughout several public and non-private schools and organizations in the United States. The SBP is administered by the Food and Nutrition Services at the federal level and through state education agencies at the state level (USDA, 2014). Currently, the SBP has an estimated cost of \$3.3 billion dollars. Schools that participate in the program receive cash subsidies from the United States Department of Agriculture (USDA) for every meal they serve. However, in order for participating schools to receive these subsidies, they must follow regulations set forth by USDA. One of these regulations include offering free or reduced cost breakfast to students who are eligible.

Federal Regulations and Requirements

The reimbursement for meals served for schools that participate in the SBP is received in cash form. The current reimbursement rate for non-severe need is \$1.66 for free breakfast participants, \$1.36 for reduced price participants and \$0.29 for paid participants. Some schools might qualify for severe need reimbursements. In order to qualify for severe need reimbursements, 40% or more of school lunches have to be served at a free or reduced price in the

second preceding year. For severe needs, payments are up to 33 cents higher than normal reimbursements for free and reduced breakfast participants. Approximately 77% of breakfasts served in the SBP receive severe need reimbursement, with Alaska and Hawaii having higher reimbursement rates (USDA, 2013).

The meal requirements that schools must follow to be reimbursed by the federal government are based on the current Dietary Guidelines for Americans. There have recently been changes made to the breakfast requirements. Schools must serve students more whole grains that offer zero grams of trans fat per serving and provide them with the appropriate amount of calories according to their grade. To be considered a reimbursable meal, the student must take at least one fruit or approved vegetable serving and at least two additional items which include milk, meat/meat alternative and a grain. The current calorie requirements for the SBP include 350-500 calories for grades K-5, 400-550 for grades 6-8 and 450-600 for grades 9-12. These minimum and maximum calorie levels are a weighted average based on what is offered weekly (USDA, 2013).

For the 2013-2014 school year, the following items had to be offered daily to children in all grades: one cup of fat free, low fat, reduced lactose or lactose free milk, one half cup fruit or vegetable and a one ounce equivalent of grain with half of the grains being whole grain. Starting with the 2014-2015 school year, schools were required to offer students more fruit servings during breakfast and started targeting sodium reduction in foods offered (USDA, 2014). Although schools must meet the requirements set forth by the federal government, local

child nutrition departments and school officials can decide specific foods to serve and how they are prepared.

Perceived Benefits

There are several benefits associated with breakfast consumption.

Without the SBP, many children would not receive a nutritious breakfast due to families living on a fixed budget and not being able to provide a healthy breakfast every morning. Health and learning for children is supported by breakfast consumption at school. In comparison with children who consume breakfast at home or do not consume breakfast, children who participate in the SBP are less likely to be overweight, have improved nutrition, consume more fruits, milk and a wider variety of foods. (FRAC, 2014)

Research has shown strong relationships between breakfast consumption and improved academic performance, memory function and school behavior. It has also shown improvement in areas of absenteeism, physical health and nutrition. Basch (2011) conducted a literature review on the prevalence and disparities of breakfast consumption among school aged urban minority youth, casual pathways through which skipping breakfast adversely affects academic achievement and proven or promising approaches for schools to increase breakfast consumption. The review revealed that a substantial amount of school aged children do not consume breakfast daily, and less than half of children who received free or reduced price lunch participated in the SBP through which they were eligible. The review also revealed that Universal SBPs and Breakfast in the Classroom versus the cafeteria have shown an increase in participation. (Basch, 2011).

Adophus, Lawton and Dye (2013) conducted a systematic review on the effects of breakfast on in-class behavior and academic performance in children and adolescents. Articles were included that studied children and adolescents that were malnourished, undernourished and from different socioeconomic backgrounds. They also took into consideration the effects of school breakfast programs. The findings of the review suggested that “habitual breakfast (frequency and quality) and SBPs have a positive effect on children’s academic performance with clearest effects on mathematic and arithmetic grades in undernourished children.” There was also a positive relationship between an increase in the frequency of habitual breakfast and academic performance (Adophus, Lawton & Dye, 2013).

Participation

More than 13 million children participated daily in the SBP during the 2013-2014 school year. Of these children, 11.2 million received free or reduced breakfast meals. In order to be eligible for reduced breakfast, a child must have a family income that is between 130% and 185% of the federal poverty level, and students eligible for free breakfast must have a family income at or below 130% of the poverty level. Students with a family income over 185% of the federal poverty level pay full price for their school meals. In the United States, there are currently 88,657 schools that participate in the SBP. Approximately 90% of schools that participated in the NSLP also participated in the SBP, and for every 100 children that received free or reduced price lunch, 53.2 received free or reduced breakfast (USDA, 2014).

The Community Eligibility Provision

Background

The CEP is included in the Hunger-Free Kids Act of 2010 and allows schools to offer free breakfast to all students regardless of income. This provision is implemented in poverty stricken schools and was phased in over a three-year period in the following states: Illinois, Kentucky, Michigan, New York, Ohio, West Virginia, Florida, Georgia, Maryland, and Massachusetts. The CEP was made available nationwide July 1, 2014. (USDA, 2015)

Kentucky, Illinois and Michigan implemented the CEP and observed an increase in SBP participation during the 2011-2012 school year. From October 2010 to October 2012 alone, breakfast participation increased from 44% to 56% in those three states. For the 2014-2015 school year, there were 13,819 schools and 2,218 school districts nationally that participated in the CEP, and 6.4 million students enrolled in the CEP. In Kentucky, a total of 610 schools in 104 school districts participated in the CEP for the 2014-2015 school year. During that time, Kentucky saw a tremendous increase in participation; 279,263 students participated in the SBP that year (USDA, 2015).

Detroit Public Schools in Michigan implemented the CEP program district-wide and saw a 15% increase in breakfast participation during the 2011-2012 school year compared to the previous year. For the 2012-2013 school year, three states, New York, Ohio and West Virginia, and the District of Columbia implemented the CEP. There were 2,273 schools that participated, and more than 960,000 students benefited from the implementation of the provision. The

CEP is continuing to thrive, and more schools are learning about the provision and the benefits it provides (USDA, 2015).

Participation Qualifications

Any school with 40% or more “identified students” can participate in CEP. Identified students are defined as children who are directly certified (through data matching) for free meals because they live in households that participate in the SNAP, Temporary Assistance for Needy Families (TANF) or Food Distribution Program on Indian Reservation (FDPIR). It also includes children who qualify to have their school meal application waived because of their foster care status, enrollment in Head Start, homelessness, or status as a runaway or migrant student (USDA, 2015).

If an individual school or school district is interested in the implementation of the CEP, they must participate in both the NSLP and SBP and ensure that they meet the eligibility requirements. The school(s) must serve breakfast and lunch to all students during the four-year cycle. They must also count breakfast and lunch meals that are served daily and agree to discontinue the household application process for school meal programs. The school(s) must also determine if they will need non-federal funds to cover any costs that exceed USDA reimbursement (USDA, 2015).

Benefits of Implementation

The CEP provides benefits for students, staff, parents and administrators. General benefits of the program include: all students receive free breakfast, improved nutrition for students, simplified meal counting and claiming, a rate of increased participation and a smoother running of the meal service operation that

gives students more time to consume their meals. Parents also no longer have to complete the household application for program eligibility or have to worry about meal account balances for their children. This is also an advantage for administrators and staff, who have their workload reduced since tracking participation and the free and reduced meal application process is no longer required. Overall, the CEP is beneficial for everyone involved and improves the integrity of school nutrition programs (USDA, 2015).

Despite these benefits, statistics show that participation in the SBP is low. The Child Nutrition Department at Fayette County Public Schools piloted the CEP during the 2013-2014 school year at the Day Treatment/Family Care Center. Enrollment totaled around 40-50 students, and about 20 to 30 students participated in the NSLP, with less participation at breakfast. The students were served via a satellite meal service. If students had charges, it was difficult to collect money from them. In smaller programs such as this one, there is limited revenue and increased expenditures. The CEP program was one solution to potentially increase revenue and resolve the issue of money collection from the students. The expenditures remained about the same. With the potential to increase revenue, that would reduce the Child Nutrition Department's negative operational balance, resulting in a win-win for both the students and the program. In 2014-15, the Child Nutrition Department implemented the CEP for 28 out of 66 school sites that met the criteria of 40%+ direct certification. The department wanted to provide students with the opportunity to eat breakfast and lunch without the financial burden. Additionally, the Child Nutrition Department knew

that students who eat breakfast and lunch have a reduction in being absent, tardy and have less illness/stomachaches during the day. This allows the student to be at school to learn and perform better (M. Coker, personal communication, November 23, 2015).

A CEP evaluation report was published in 2014 by the United States FNS. The findings of the report indicated that state Child Nutrition directors and Local Education Agencies (LEAs) nationwide perceived the following as benefits to CEP participation: increased revenue, decreased costs, decreased administrative burden, decreased stigma for students in need, improved academic performance, increased school meal participation, improved nutritional quality of meals and relief for families under financial burden. The authors indicated that relief for families, increased participation, reduced stigma and improved school performance were the highest ranked benefits. However, increased reimbursements and reduced administrative burden were reported as benefits by more than half of the participants; yet this did not appear to be an important motivator (Logan et al, 2014).

Perceived Barriers of Implementation

As with all programs and provisions, there are perceived barriers. One perceived barrier of the CEP was that the provision would be expensive to operate, specifically, when less than 100% of the reimbursement rate was at the free rate. However, it was designed for schools that have high poverty rates and high proportions of students who are eligible for free or reduced meals because they participate in needs-based assistance programs. A second perceived barrier is that schools who implement the provision would lose funding. Since the CEP

allows students to eat free regardless of income, schools no longer collect applications that determine free and reduced meal status. A third perceived barrier was that once the CEP was implemented, participants could not opt out. With the CEP being on a four-year cycle, schools who choose to participate do not have to reapply annually. If schools decide they no longer want to participate in the CEP, they could withdraw from the four-year cycle (USDA, 2015).

Barriers to CEP participation were also published in the CEP Evaluation Report. The following were perceived barriers to CEP participation: CEP not financially viable, concern about how much reimbursement would be received, concern about how the CEP would affect funding for educational programs, not enough time to implement the CEP, concern about participating schools being treated differently than other schools, concern about participating LEAs being viewed as poor, difficulty establishing a school breakfast program, a non-supportive community and non-supportive key LEA or school officials. The largest barriers to participation were concerns about financial impacts of the CEP (Logan et al, 2014).

Alternative Breakfast Services Related to Increased Participation

The number of students who participate in the SBP continues to rise each year. However, the numbers are still below those of the National School Lunch Program. Many children start their school day off with no breakfast. However, there is an increasing number of students who start the day off consuming breakfast outside the cafeteria. Several schools throughout the United States are trying different alternatives to increase the SBP's participation rate. Three

alternative breakfast services include Breakfast in the Classroom, Grab 'n Go and Second Chance.

Breakfast in the Classroom

This alternative service offers breakfast that is delivered to the classroom, and the students spend approximately ten to fifteen minutes consuming before the start of the school day. The cafeteria staff will pack the breakfast into coolers or insulated bags, depending on whether it is a hot or cold breakfast. The food is transported to the classrooms by either the cafeteria staff, school staff or designated students. The meals are then distributed to the students at their desks or as they arrive at their desks. A record on the number of students that consumed breakfast is obtained. Afterwards, the students clear off their desks and throw away the trash in a trash bin located in the hallway for the custodial staff to discard. Although any grade level can utilize this alternative service, it is best used for children in lower grades who start each day off with the same teacher. This also makes delivery and student counts easier for teachers and cafeteria staff (FRAC, 2015).

Anzman-Frasca, Djang, Halmo, Dolan and Economos (2015) conducted a quasi-experimental study analyzing the impact of a Breakfast in the Classroom program on breakfast participation, attendance and academic performance in an urban United States school district. For this study, academic and attendance data was gathered from 257 schools that implemented a Breakfast in the Classroom program, and the results concluded that there was a link between implementing a Breakfast in the Classroom program and increased breakfast participation. In addition, there was an overall increase in school attendance rates. The

researchers did not find any significant links between academic performance and implementation of a Breakfast in the Classroom program (Anzman-Frasca et al, 2015).

In 2013, a study was published to determine the impact that Breakfast in the Classroom had on the percentage of children who consumed no food in the mornings, the number of locations that food was consumed and the caloric consumption of each child. The results of the study concluded that when students were offered breakfast in class, they were less likely to report that they had not consumed breakfast and were more likely to report breakfast consumption in at least two locations than those students who were not offered breakfast. Students typically ate in more than two locations in the morning and students who had breakfast in class consumed approximately 95 more calories than students who did not consume breakfast in class (Van Wye, Seoh, Adjoian & Dowell, 2013).

A commentary article regarding stakeholder engagement for successful Breakfast in the Classroom implementation was published in 2012. The author noted that an ample amount of evidence suggested that Breakfast in the Classroom, opposed to the cafeteria, increased SBP participation and had stronger benefits related to health and education. In addition, the author mentioned that in order to successfully increase Breakfast in the Classroom participation, four national organizations (National Education Association Health Information Network, FRAC, School Nutrition Foundation and National Association of Elementary School Principals Foundation) piloted “a new model of

stakeholder engagement for the implementation of Breakfast in the Classroom in five high-need school districts” in Texas, Arkansas, Florida, Tennessee and Maryland. Strong engagement from stakeholders was determined to be a key factor in successful implementation of Breakfast in the Classroom, which was successfully implemented in all five districts (Creighton, 2012).

For the implementation of Breakfast in the Classroom to be successful, there are some factors to take into consideration. There must be a collaborative effort from school administration, cafeteria staff, teachers and custodians. Their involvement is essential. These key stakeholders will be able to address possible obstacles when engaged in the process from beginning to end. According to the FRAC, Breakfast in the Classroom is most effective when all students receive free breakfast regardless of income.

Grab ‘n Go

For schools, the alternative service Grab ‘n Go provides a great deal of flexibility. With Grab ‘n Go, the cafeteria staff places the breakfast in bags to be picked up by the students. Breakfast is available in the cafeteria and kiosks that are typically placed in the hallways and counts are collected via a Point of Sale (POS) system. Students have the opportunity to consume breakfast during the first 10 to 15 minutes of class, and afterwards, students place their trash in a trash bin located in the hallway for the custodial staff to discard (FRAC, 2015).

Haesly, Nanney, Coulter, Fong and Pratt (2014) published a study that tested the effectiveness of a Grab ‘n Go menu on high school student participation in the SBP. The study consisted of two Grab ‘n Go menus, serving locations placed conveniently throughout the school and allowed students to

consume breakfast in the hallways. The results concluded the Grab 'n Go intervention at this school was advantageous for students, faculty and staff. It also required minimal supervision and increased rapport between students and school personnel. The overall conclusion of the study was that the Grab 'n Go alternative service provided more positive results for breakfast consumption and was beneficial to increasing SBP participation (Haesly, Nanney, Coulter, Fong & Pratt, 2014).

A similar study published in 2011 explored the feasibility of SBP expansion to increase participation in sixth grade students in a Minneapolis, Minnesota middle school. Implementation of a Grab 'n Go menu, hallway delivery service and in-classroom eating was evaluated for six weeks during the spring of 2010. The results concluded that students were satisfied with eating Breakfast in the Classroom setting, teachers were satisfied with the in-class eating and student behavior. There was a .47 day per week increase in breakfast participation; overall, the school environment supported a Grab 'n Go breakfast with feasible meal service locations and increased breakfast participation (Nanney, Olaleye, Wang, Motyka & Klund-Schubert, 2011).

In order for the Grab 'n Go alternative service to be successfully implemented, parents, teachers and school administrators must work together. This will give them the opportunity to address and correct any obstacles that may occur. Kiosks or service carts must also be strategically placed throughout the school, along with an adequate number of trash cans for trash to be discarded.

This alternative service would also be the most effective when breakfast is offered free to all students regardless of income (FRAC, 2015).

Second Chance Breakfast

With Second Chance, breakfast is typically served after first period. This approach is more beneficial for students in higher level grades. These students are usually not hungry during the early morning and have a tendency to arrive at school as class begins. The Second Chance breakfast also decreases social awareness and stigma typically associated with school breakfast in middle and high schools. This alternative service allows students to consume in the classroom or cafeteria after first period. The meals are distributed by the cafeteria staff, and student counts are collected via a POS system. If the students consume breakfast in the cafeteria, their trash is discarded in the cafeteria, and if they are eating in the classrooms, trash should be placed in trash bins for the custodial staff to discard (FRAC, 2015).

In 2009, a report was published about the effectiveness of the Second Chance alternative service. This report was prepared by the California Food Policy Advocates and focused on the Newark Unified School District. The main findings in the report discussed an increase in school breakfast participation with the implementation of the Second Chance breakfast, a positive improvement of the fiscal status and an increase in concerns involving operations and administration. The breakfast participation in this district doubled when the Second Chance breakfast was implemented. The Newark Unified School District's Nutrition Services Department saw an increase in revenue with the

heightened breakfast participation, and the district also successfully managed their limited operational and administrative concerns (Shimada, 2009).

The Second Chance alternative service must be implemented carefully in order to achieve success. All school staff, administrators and parents have to work as a team. This will also give them to opportunity to address any accommodations that are needed, such as scheduling and bell time changes. Breakfast should be offered two hours before lunch with this alternative service, and students should have the opportunity to have breakfast in the cafeteria. As with the Breakfast in the Classroom and Grab 'n Go alternative services, the Second Chance alternative service will also better serve students when breakfast is offered free to all students regardless of income (FRAC, 2015).

Overall, these alternative services seem to be beneficial in increasing school breakfast participation. The implementation of these alternative services will require an abundance of teamwork from parents, teachers, school administrators and other school personnel. The SBP participation is steadily increasing but fails to compare with the NSLP participation. With an increase of the implementation of these alternative services, there would be an increase in breakfast participation, and students would continue to gain several nutritional and academic benefits from breakfast consumption.

Conclusion

The literature review explored the role that breakfast consumption plays on the academic performance, cognitive function, body mass index and physical activity of children and adolescents. It also explored ways to increase school breakfast participation that included Breakfast in the Classroom, Grab 'n Go and

Second Chance alternative services. Consuming breakfast provides a significant amount of benefits and has been proven advantageous towards learning for school aged children and adolescents. Policy makers and school officials need to have a clear understanding of the importance of breakfast consumption and the benefits that it provides students, parents and school administrators in Fayette County Public Schools.

Chapter 3: Methodology

The purpose of this study is to examine the perception of principals and school food service workers regarding the benefits, barriers, attitudes and beliefs about the implementation of the CEP. Information gathered from this study can be used as a decision making point for the implementation of future CEP programs.

Research Design

Cross sectional studies provide a 'snapshot' of the outcome and associated study characteristics at a specific point in time; however, they can make it difficult to determine casual inference and have prevalence incidence bias (Levin, 2006). In addition, this type of study assists in the evaluation of the different programs and offers information that can be used in prospective programs. For this study, the cross sectional research design was chosen to evaluate the perception of principals and school food service workers regarding the implementation of the CEP.

Subjects

The sample consisted of Fayette County Public Schools (FCPS) principals and school food service workers with direct and indirect responsibility for the CEP implementation at their respective schools. There were 230 eligible male and female employees who participated in this study. Principals and school food service workers were recruited from 35 Fayette County schools that had met all criteria set forth by the federal government to obtain eligibility for the implementation of the CEP.

Instrument of Measurement

The questionnaire used in this study (see Appendix A) was adapted from a previous questionnaire that assessed school employees' perceptions of the SBP (Chopade, Baylis, Jomaa, McDonnell, Orlofsky & Probart, 2007).

Permission was obtained from the authors for its use in this study. The original questionnaire consisted of 22 questions. Four questions were omitted for the current study, primarily because they pertained specifically to teachers who were not part of our target population. References to the SBP in the original questionnaire were replaced with CEP.

The questionnaire contained four sections: background, perception of barriers, perception of benefits, attitudes, and involvement and satisfaction with the CEP associated with the CEP implementation. Five questions elicited background information from the participants regarding gender, level of education, position/title, years in current position and the number of days per week breakfast was consumed. Questions pertaining to the type and nutritional quality of breakfast served at school, the level of interest in nutrition, perceptions of students who consume breakfast at home, the responsibility of student health, school performance of students who consume breakfast, the link between nutrition and learning and the link between nutrition and health were also categorized as background information.

One set of questions measured participants' perceptions of barriers associated with the CEP implementation. Participants were asked to select barriers they associated with CEP implementation. Another set of questions measured participants' perceptions of benefits associated with the CEP

implementation. They were asked questions pertaining to attendance, tardiness, discipline referrals, school learning environment, student behavior, student attentiveness, time and trash. A third set covered questions regarding participants' attitudes, involvement and satisfaction with the CEP. Prior to survey distribution, IRB and FCPS approval was pursued and granted.

The survey was administered through Qualtrics, a software website used to design and distribute surveys. One characteristic of this software is that it allows multiple answers, which allowed for participants to select all answers that applied to them.

Validity and Reliability

A single educator as well as various school food service workers and administrators reviewed the items included in the questionnaire to ensure that the items elicited information on the perception of barriers and benefits related to the implementation of the CEP and the attitudes, involvement and satisfaction with the CEP implementation. In addition, a group of administrators not included in the study took the survey and provided feedback on the length of the questions, time taken to complete, readability and the ease of understanding the questionnaire. Appropriate changes were made as a result of the feedback provided.

Procedure

The study was approved by the University of Kentucky Institutional Review Board. In addition, permission was obtained from the FCPS Office of Evaluation and Planning, Child Nutrition Department Director and School Administration to survey the participants. The survey was sent out to principals and school food service workers at 35 schools in Fayette County Kentucky. An email was sent to

the participants informing them that they would receive a survey link and encouraged participation in the study. A link to the Qualtrics survey was sent out via email to the participants, and they were able to click on the link and complete the survey. There was no incentive offered to participants who completed the survey. In order to increase participation, a reminder email was sent out one week after the initial email and a final reminder was sent before the last day to complete the survey.

Data Analysis

Data collected via the Qualtrics survey were downloaded from the Qualtrics program. It was uploaded into IBM SPSS Statistics Version 23.0 for statistical analysis. Qualtrics did not allow elimination for incomplete responses; therefore, some of the questions did not have a response. The answers were weighted to account for the missing responses. Cross tabulations were used to analyze the data. Cross tabulations included Chi Square and Fishers Exact Test.

The Chi Square test is a nonparametric test of the statistical significance of a relation between two nominal or ordinal variables (Connor-Linton, 2010) and was used in this study to determine if there was a relationship between two nominal variables. The Chi Square test also gave the test statistic, the associated p-value and the assumption that each cell had an expected frequency of five or more. The Fisher's exact test of independence is performed when there are two nominal variables and a small sample size (McDonald, 2009). For this study, Fisher's exact test was used when the Chi Square test gave an unexpected frequency of five or less.

Chapter 4: Results

The purpose of this study is to examine the perception of principals and school food service workers regarding the benefits, barriers, attitudes and beliefs about the implementation of the CEP. Information gathered from this study can be used as a decision making point for the implementation of future CEP programs.

The sample consisted of 68 participants from a total of 230 principals and food workers in the participating CEP schools, with a response rate of 30%. Online surveys typically have low response rates and are on average 11% below mail and phone surveys (Monroe & Adams, 2012). Contributing factors to low response rates include: poor survey design, excessive survey length and lack of interest from participants (Dillman, Smyth & Christian, 2009).

Demographic data revealed that the majority of participants were female (n= 56, 82%), and were school food service cafeteria managers (n= 37, 50%) or administrators (n= 28, 38%). Most had been in their current position for seven or less years (n = 43, 88%). Over 40% (n= 29, 42%) of participants had a post graduate degree. More than half of the participants consumed breakfast four or more days per week (n=60, 86%). (Table 4.1 and Table 4.2) The Fisher's exact test of independence was performed, and no relationship was found between position and days per week of breakfast consumption, (p=.897; Fisher's exact test).

| Table 4-1 Demographics | | |
|---------------------------------------|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| Gender | | |
| Male | 12 | 18 |
| Females | 56 | 82 |
| Education | | |
| High School Diploma | 25 | 36 |
| Associate's Degree | 9 | 13 |
| Bachelor's Degree | 6 | 9 |
| Post Graduate Degree | 29 | 42 |
| Position/Title | | |
| School Administration | 28 | 38 |
| School Food Service Cafeteria Manager | 37 | 50 |
| School Food Service Worker | 9 | 12 |
| Years in current position | | |
| 0-3 years | 21 | 30 |
| 4-7 years | 22 | 32 |
| 8-11 years | 8 | 12 |
| 11+ years | 18 | 26 |

| Table 4-2 Breakfast Consumption (Days per Week) | | |
|--|---------------------------------------|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| Days | | |
| 1 | 3 | 4 |
| 2 | 1 | 1 |
| 3 | 5 | 7 |
| 4 | 14 | 20 |
| 5 | 16 | 23 |
| 6 | 7 | 10 |
| 7 | 23 | 33 |

Objective 1: Identify the Type and Nutritional Quality of Breakfast Served at the School

Participants were asked about the type of breakfast services offered and the nutritional quality of foods served for breakfast to determine the type and nutritional quality of breakfast served at school.

Type of Breakfast Services Offered

Percentages for the “percent of breakfast services offered” rather than “percent of participant responses” were analyzed, and participants were allowed to choose all breakfast services offered at their school; therefore, percentages exceeded 100%. Grab ‘n Go breakfast was the most popular service offered at schools (n=44, 63%). Breakfast in the cafeteria was close in popularity with the Grab ‘n Go service (n=34, 49%) while Breakfast in the Classroom was reported least frequently (n=12, 20%) (Table 4.3).

| | Number of Participants (n) | Percentage of Participants (%) |
|------------------------------------|-----------------------------------|---------------------------------------|
| Breakfast Service in the Cafeteria | 34 | 49 |
| Grab ‘n Go Breakfast | 44 | 63 |
| Breakfast in the Classroom | 14 | 20 |

The Nutritional Quality of the Foods Served for Breakfast

More than three-fourths (n=54, 78%) of the participants indicated that the foods served for breakfast were of high nutritional quality while the remaining participants (n=15, 22%) selected that the foods served for breakfast were of low nutritional quality (Table 4.4). A Fisher’s exact test of independence was

performed, and a relationship was found between position and nutritional quality of foods served for breakfast (Fisher’s exact test, $p=.001$).

| Table 4-4 Nutritional Quality of Foods Served for Breakfast | | |
|--|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| High Nutritional Quality | 54 | 78 |
| Low Nutritional Quality | 15 | 22 |
| No Nutritional Quality | 0 | 0 |

Objective 2: Determine Principals’ and School Food Service Workers’ Satisfaction, Involvement and Attitudes Regarding the CEP

Three questions were asked to determine principals’ and school food service workers’ satisfaction, involvement and attitudes regarding the CEP.

Overall satisfaction of the CEP was evaluated. Table 4.5 shows that the majority of the participants rated their overall satisfaction of the CEP as excellent or above average ($n=59, 86\%$). Only 9 participants (13%) rated their satisfaction of the CEP as average. The remaining participants rated their overall satisfaction with the CEP as average ($n=9, 13\%$). The Fisher’s exact test of independence was performed, and a relationship was found between position and overall satisfaction of the CEP ($p=.021$; Fisher’s exact test).

Additionally, participants were also asked about their involvement with the CEP implementation at their school. Two thirds of the participants indicated that they were somewhat involved and very involved ($n=46, 66\%$) with the CEP implementation while the remaining one third selected they were not involved ($n=23, 33\%$) with the CEP implementation (Table 4.6).

| Table 4-5 Overall Satisfaction of the CEP | | |
|--|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| Ratings | | |
| Excellent | 37 | 54 |
| Above Average | 22 | 32 |
| Average | 9 | 13 |
| Below Average | 0 | 0 |
| Poor | 0 | 0 |

| Table 4-6 Involvement in CEP Implementation | | |
|--|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| Very Involved | 16 | 23 |
| Somewhat Involved | 30 | 43 |
| Not Involved | 23 | 33 |

The majority of the participants (n=43, 63%) felt that their attitude about school breakfast had not changed since the initiation of the provision. The remaining participants felt that their attitude was more positive (n=24, 35%) or more negative (n=1, 1%) about school breakfast since the initiation of the provision (Figure 4.7). The Fisher's exact test of independence was performed, and no relationship was found between position and attitude about school breakfast since CEP implementation ($p=.157$; Fisher's exact test).

| Table 4-7 Attitude about School Breakfast since Provision Initiation | | |
|---|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| More Positive | 24 | 35 |

| | | |
|---------------|----|----|
| More Negative | 1 | 1 |
| No Change | 43 | 63 |

Objective 3: Determine Principals’ and School Food Service Workers’ Perceptions of the Barriers Associated with Implementing the CEP

This objective was measured with question two, which evaluated principals’ and school food service workers’ perceptions of barriers associated with implementing the CEP.

The majority of participants (n=60, 80%) thought there were no major barriers associated with the implementation of the CEP. Among the participants that identified a barrier (n=10, 14%), staffing issues (n=7, 10%) was the most selected barrier (Table 4.8).

| | Number of Participants (n) | Percentage of Participants (%) |
|-----------------------------|-----------------------------------|---------------------------------------|
| Barriers | | |
| Staffing Issues | 7 | 10 |
| Bus Schedules | 2 | 3 |
| Cost | 0 | 0 |
| Parent/Community Opposition | 0 | 0 |
| Administration Opposition | 0 | 0 |
| Teacher Opposition | 1 | 1 |
| No Major Barriers | 60 | 86 |

Objective 4: Determine Principals’ and School Service Workers’ Perception of the Benefits Associated with Implementing the CEP (attendance, tardiness, discipline referrals, school learning environment, student behavior, student attentiveness, time and trash)

One question assessed the benefits associated with implementing the CEP. Participants were asked if attendance, tardiness, discipline referrals, the school’s learning environment, students’ behavior, and students’

attentiveness improved as a result of CEP implementation. More than half of the participants (n=37, 53%) answered they did not know if attendance had improved as a result of the CEP, and the remaining participants felt that attendance had improved (n=17, 24%) and not improved (n=16, 23%) as a result of the CEP (Table 4.9). The Fisher's exact test of independence was performed and no relationship was found between position and improvement of attendance since CEP implementation was examined ($p=.158$; Fisher's exact test).

Over half of the participants, (n=43, 61%) did not know if tardiness had improved while the remaining participants felt tardiness did not improve (n=16, 23%) and did improve (n=11; 16%) as a result of the CEP implementation (Table 4.9). The Fisher's exact test of independence was performed, and a relationship was found between position and improvement of tardiness after CEP implementation ($p=.009$; Fisher's exact test).

Similarly, for the improvement of discipline referrals, the majority of participants (n=44, 64%) did not know if the school's number of discipline referrals had improved, and the remaining participants felt that discipline did (n=11, 16%) and did not improve (n=14, 22%) as a result of CEP implementation (Table 4.9). The Fisher's exact test of independence was performed to examine the relationship between position and improvement of discipline referrals after CEP implementation, and there was a statistically significant relationship between these variables ($p=.000$; Fisher's exact test).

| Table 4-9 School Improvements since CEP Implementation | | | | | | |
|---|------------|----------|-----------|----------|-------------------|----------|
| | Yes | | No | | Don't Know | |
| | n | % | n | % | n | % |
| Attendance | 17 | 24 | 16 | 23 | 37 | 53 |
| Tardiness | 11 | 16 | 16 | 23 | 43 | 61 |
| Discipline Referrals | 11 | 16 | 14 | 22 | 44 | 64 |

In addition to the previous improvements, school learning environment, student behavior, student attentiveness, time and trash were evaluated. More than half of the participants (n=37, 54%) strongly agreed and agreed that the school learning environment improved with the CEP implementation while only one participant disagreed that the school learning environment improved. The majority of the participants (n=44, 66%) strongly disagreed or disagreed that time was wasted as a result the CEP implementation, and the remaining participants (n=5, 7%) agreed that time was wasted. Almost half of the participants strongly disagreed and disagreed (n=37, 47%) that trash was a problem because of the CEP implementation while almost a fourth of the participants (n=15, 23%) strongly agreed and agreed that trash was a problem (Table 4.10).

Objective 5: Identify Principals' and School Service Workers' Level of Agreement with Statements Related to Students' Breakfast Habits, Who is Responsible for Student's Health and the Level of Interest in Nutrition

Participants were asked about the level of agreement with statements related to students' breakfast habits, who is responsible for student's health and the level of interest in nutrition to determine agreement levels related to student's breakfast habits, health and interest level in nutrition.

More than half of the participants (n=59, 86%) strongly agreed or agreed that kids often do not eat breakfast at home while over half (n= 59, 89%) strongly agreed or agreed that in addition to parents, schools have responsibility for student health. Participants were also asked about their level of agreement and disagreement regarding academic performance and breakfast consumption in children. The majority of the participants (n=61, 91%) strongly agreed or agreed that children who eat breakfast performed better in school (Table 4.10).

| | Strongly Agree | | Agree | | Neither Agree nor Disagree | | Disagree | | Strongly Disagree | |
|---|----------------|-----|-------|-----|----------------------------|-----|----------|-----|-------------------|-----|
| | (n) | (%) | (n) | (%) | (n) | (%) | (n) | (%) | (n) | (%) |
| As a result of the CEP, the school learning environment has improved. | 4 | 5 | 33 | 49 | 29 | 43 | 1 | 1 | 0 | 0 |
| As a result of the CEP, student behavior has improved. | 2 | 3 | 23 | 34 | 37 | 55 | 5 | 7 | 0 | 0 |
| As a result of the CEP, student attentiveness has improved. | 2 | 3 | 27 | 40 | 38 | 57 | 0 | 0 | 0 | 0 |
| As a result of the CEP, time is wasted. | 0 | 0 | 5 | 7 | 18 | 27 | 24 | 36 | 20 | 30 |
| As a result of the CEP, trash is a problem. | 6 | 9 | 9 | 14 | 13 | 20 | 26 | 40 | 11 | 7 |
| Kids often don't eat breakfast at home. | 22 | 34 | 34 | 52 | 8 | 12 | 1 | 2 | 0 | 0 |
| In addition to parents, schools have responsibility for student health. | 21 | 31 | 38 | 58 | 5 | 7 | 2 | 3 | 1 | 1 |
| Children who eat breakfast perform better in school. | 32 | 48 | 29 | 43 | 4 | 6 | 0 | 0 | 2 | 3 |

Almost all participants felt that the link between nutrition and learning (n=67, 98%) and the link between nutrition and health (n=69, 100%) was strong or extremely strong (Table 4.11 and Table 4.12). A Fisher's exact test of

independence was performed, and no relationship was found between position and views about the link between nutrition and learning, ($p=.436$, Fisher's exact test). In addition, a Fisher's test of independence was performed, and no relationship was found between position and views about the link between nutrition and health ($p=.216$, Fisher's exact test).

| Table 4-11 Link Between Nutrition and Learning | | |
|---|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| Extremely Strong | 48 | 70 |
| Strong | 19 | 28 |
| Weak | 2 | 3 |
| Extremely Weak | 0 | 0 |

| Table 4-12 Link Between Nutrition and Health | | |
|---|---|---|
| | Number of Participants (n) | Percentage of Participants (%) |
| Extremely Strong | 52 | 75 |
| Strong | 17 | 25 |
| Weak | 0 | 0 |
| Extremely Weak | 0 | 0 |

Level of interest in nutrition

The majority of the participants, ($n=66$, 96%) indicated they had a high level of interest in nutrition while the remaining participants ($n=3$, 4%) indicated they have a low or no interest in nutrition (Table 4.13). The Fisher's exact test of independence was performed to examine the relationship between position and

level of interest in nutrition, and there was no statistically significant relationship between these variables ($p=.253$; Fisher's exact test).

| Table 4-13 | | |
|---------------------------------------|---|---|
| Level of Interest in Nutrition | | |
| | Number of Participants (n) | Percentage of Participants (%) |
| High Interest | 66 | 96 |
| Low Interest | 2 | 3 |
| No Interest | 1 | 1 |

Chapter 5: Discussion

The purpose of this study is to examine the perception of principals and school food service workers regarding the benefits, barriers, attitudes and beliefs about the implementation of the CEP. Information gathered from this study can be used as a decision making point for the implementation of future CEP programs.

Objective 1: Identify the Type and Nutritional Quality of Breakfast Served at the School.

Several studies have shown an increase in breakfast participation with the implementation of the Grab 'n Go breakfast service. For example, a study was published in 2014 that developed Grab 'n Go menus, added serving locations throughout the school and allowed students to eat breakfast in the hallway. The authors concluded that in addition to increased breakfast participation, more faculty and staff had a greater awareness of the school's breakfast program (Haesly, Nanney, Coulter, Fong & Pratt, 2014). A similar study published in 2011 implemented a Grab 'n Go menu, a hallway delivery service and in classroom eating for six weeks and observed an increase in breakfast participation along with satisfaction from both students and teachers (Nanney, Olaleye, Wang, Motyka & Klund-Schubert, 2011).

There were two main scenarios for the Grab 'n Go breakfast among schools that were surveyed in the current study. This breakfast service operates in the cafeteria, hallways and common areas that are located inside and outside of the building before the start of the school day. For example, students can grab

a meal from a mobile cart located in the hallway and go into the classroom to eat, or they can grab a meal from the serving line in the cafeteria and eat in the cafeteria or classroom. Garbage bags are provided for the classrooms, and the students collect their trash and place it outside the door where it is picked up by custodial staff or a student volunteer. This was the most popular option among schools that participated in this study, and based on studies in the literature, it should lead to an increase in breakfast participation.

Breakfast in the Classroom has also been shown to be beneficial for students, is most effective when all students receive free breakfast regardless of income and is served immediately after the school day begins (FRAC, 2015). It is often served by school nutrition staff, student volunteers or both. Foods served typically consist of items such as breakfast sandwiches, muffins, cereal, milk, fruit and juice.

Research shows that Breakfast in the Classroom has the highest success rates, and participation rates can be as high 98% of the school enrollment (FRAC, 2015). For example, Van Wye, Seoh, Adjoian and Dowell (2013) conducted a study and found that students who had Breakfast in the Classroom were more likely to report eating breakfast in the morning, were typically able to consume breakfast in more than one location, and as a result, consumed more calories than those students who did not have Breakfast in the Classroom. In 2012, a commentary article discussing stakeholder engagement for successful Breakfast in the Classroom implementation was published. It reported that successful implementation of Breakfast in the Classroom is dependent upon

strong engagement from involved stakeholders. They found that Breakfast in the Classroom, opposed to breakfast in the cafeteria, increased breakfast participation and that allowing students to eat Breakfast in the Classroom was the most successful option in regards to increasing breakfast participation because it is convenient and accessible to all students (Creighton, 2012). Breakfast in the Classroom was the second most popular option among participants in the current study. During the time this study was conducted, the Breakfast in the Classroom option consisted of 20 meals for a class of 20 students delivered directly to the classroom.

If the CEP is to increase participation in the SBP, it seems that the Grab 'n Go and the Breakfast in the Classroom options have the highest potential to increase school breakfast participation. In addition, it seems that these options also confer additional benefits, such as increasing awareness among teachers and staff about the school breakfast program and increased satisfaction from both students and teachers. Schools that want to implement the CEP in the future should think about having well designed Grab 'n Go and Breakfast in the Classroom options as these options hold the greatest promise for increasing breakfast participation. An ideal Grab 'n Go breakfast would consist of school food service workers placing breakfast meals in bags for students to pick up from the cafeteria or kiosks located in the hallway as they arrive at school; students would be counted via a POS system, either in the cafeteria, manually or electronically at the kiosk. They could eat before they arrive to class or during the first 10 to 15 minutes of class; clean up would consist of the students placing the

trash in a receptacle to be collected by the custodial staff. An ideal Breakfast in the Classroom service would have school food service workers loading breakfast into coolers or insulated bags and delivering the meals to each classroom where they would be distributed to each student; the school food service workers would record how many meals they distributed. Students would be able to eat breakfast during the first 10 to 15 minutes of class and place their trash in a receptacle located in the hallway for the custodial staff to collect.

The nutritional quality of the foods served during breakfast was rated as high by the majority of participants in the current study. Breakfast is considered the most important meal of the day, and research has shown that students are more likely to consume foods that are adequate or exceed standards for vitamins and minerals when they have breakfast at school. In addition, regular breakfast consumption positively correlates with more fiber, calcium, iron, vitamin and mineral intake and less fat, cholesterol and sodium intake (FRAC, 2014).

Documents from the FCPS system indicate that foods offered for breakfast include but are not limited to milk (1%, skim, plain or flavored), 100% fruit or vegetable juice or a combination of the two that total 100%, cold cereal, granola bars, muffins and bagels. Foods served during breakfast in the schools surveyed in this study met the SBP federal guidelines. The implications are that students have the opportunity to improve their health and well-being.

The USDA's CEP Evaluation reported that "the findings on meal quality and choices provide evidence of little change in meal quality" and "the only significant effects on meal quality were the positive impact on vegetables offered

and the negative impact on meeting future intermediate sodium target.” The authors also reported that due to the timing of the study, it was too premature to conclude if the effects on meal quality were transient (reflecting CEP implementation, introduction of new standards, or both) or would be continuous (Logan et al, 2014).

Objective 2: Determine Principals’ and School Service Workers’ Satisfaction, Involvement and Attitudes Regarding the CEP.

Overall satisfaction with the CEP was high in this study. This result was not surprising because the CEP acts as a supplement to the SBP. The schools surveyed in this study already had an established breakfast program, and participation has increased over the years. The CEP is a positive program that ensures that all students regardless of income are able to receive a free and healthy breakfast. This eases the mind of students, parents, administrators and school food service workers. Involvement with CEP implementation can either be direct or indirect. It was interesting that 66% of participants considered themselves “very involved” and “somewhat involved” with CEP implementation. In theory, all participants in the study were involved in the implementation of the CEP at their school. The principals had to work and coordinate with the FCPS Child Nutrition Department, and the school food service workers had to work with the Child Nutrition Director, Coordinator and principals to ensure that implementation was successful.

Interestingly enough, the 63% of participants who said their attitudes about school breakfast did not change was similar to the number of participants who said they were “very involved” or “somewhat involved.” It seems as though

participants who were “very” or “somewhat” involved in CEP implementation would have a more positive attitude about school breakfast since the initiation. Another fascinating fact was that the 34% of participants not involved in implementation correlated with a more positive attitude (n=24, 35%) about school breakfast since implementation. This could possibly be due to the fact that most of the school food services workers were not directly involved with implementation. The assumption can be made that these individuals deal directly with the students who consume breakfast, and they are able to witness the positive changes that the CEP has made for the students.

Objective 3: Determine Principals’ and School Service Workers’ Perceptions of the Barriers Associated with Implementing the CEP.

The USDA’s CEP Evaluation also examined perceived barriers to CEP implementation. Schools included in this evaluation identified lack of financial viability, reimbursement funds, educational program funding, time, participation discrimination, financial perceptions, difficulty establishing a school breakfast program, a non-supportive community and non-supportive key LEA or school officials as barriers. Barriers in the current study included staffing issues, bus schedules, cost, parent/community opposition, administration opposition and teacher opposition. Barriers such as cost, parent/community opposition and administration opposition were not identified as barriers by participants in this study but were identified in the CEP evaluation study. It could be that the FCPS Child Nutrition Department has educated parents, administrators and the community about the CEP and its benefits for students, which eliminated the stress and worry about students starting the school day hungry or going

throughout the school day without eating. Since FCPS already have an established SBP, this was not identified as a barrier as was in the case of the evaluation report where schools were now implementing the SBP.

Barriers including time, financial burden, participation discrimination and financial perceptions were mentioned in the CEP evaluation study but were not asked in the current study. It could be that the principals and school food service workers knew that the CEP is supplemental to the SBP and were permitted enough time to understand the CEP; therefore, no time constraints limited their school's participation. In the USDA's CEP Evaluation report, participating LEAs felt that they may be viewed as poor (financial burden and perceptions) and treated differently than other schools (participation discrimination), which may not have been of major concern to the participants in this study because of the continuous success rate of the CEP in FCPS and the large amount of schools in the district that participated in the CEP implementation.

Of the 14% of individuals who identified a barrier related to the CEP, staffing and bus schedules were the most identified barriers with CEP implementation. More cafeteria managers saw staffing as a barrier compared to school administrators. The FCPS Child Nutrition Department is a separate entity from FCPS school administration and staff; therefore, staffing could be a potential barrier for cafeteria managers because of a shortage of school food service workers. In order for CEP implementation to be successful, school administration, staff and school food service workers have to work as a cohesive unit.

Bus schedules can prevent students from consuming breakfast. Some possible issues with bus scheduling include: the bus arriving late to the school, unreliable bus schedules and students missing the bus. If a bus arrived late to school, it could possibly cause students to miss breakfast altogether or be rushed to consume their breakfast in a short period of time. According to the FRAC School Breakfast Scorecard, starting in the 2012-2013 school year, all school districts in Kentucky were required to arrange bus schedules so that buses would arrive in a timely manner and allow sufficient time for students to eat breakfast before the start of the school day (FRAC, 2014). Lent and Emerson (2007) published an article on the preliminary findings of the universal free breakfast initiative in Milwaukee Public Schools and found that a barrier to breakfast participation was the late arrival of buses preventing students from eating breakfast prior to the start of the school day (Lent & Emerson, 2007). Additionally, Lambert et al (2007) conducted a study on perceived advantages, disadvantages and barriers to participation in the SBP and established that conflicting bus schedules were identified as a disadvantage to student participation in the SBP because buses were scheduled to arrive at school just minutes before the start of the school day (Lambert et al, 2007).

Objective 4: Determine Principals' and School Service Workers' Perceptions of the Benefits (attendance, tardiness, discipline referrals, school learning environment, student behavior, student attentiveness, time and trash) Associated with Implementing the CEP.

This study supported the perceptions of the benefits (attendance, tardiness, discipline referrals, school learning environment, student behavior, student attentiveness) associated with implementing the CEP. Interestingly

enough, 55% of participants mentioned that they neither agreed nor disagreed with the statement that as a result of the CEP, student behavior had improved and as a result of the CEP, student attentiveness had improved. There is a limited amount of literature and research that supports the relationship between effects of breakfast consumption and improved behavior and attentiveness in school aged children. It might be that as schools continue to implement the CEP that they need to carefully document students' behavior before and after implementation of the program. Also, it is important to share the results of the improvement with the entire school population so that everyone is aware of the benefits of the program.

Over half of participants in this study agreed or strongly agreed that as a result of the CEP, the school's learning environment was improved. Similar findings were reported in the literature. Basch (2011) conducted a literature review on breakfast and the achievement gap among urban minority youth and found that students' participation in school breakfast programs was linked to reduced absenteeism. He concluded that the opportunity to consume a free nutritional breakfast for low income families might motivate parents and students to attend school and arrive on time.

Research has shown that students who consume school breakfast show improvements in behavior, attendance, test scores, decreased tardiness and decreased discipline referrals. In addition, research has concluded that students who participate in the SBP at CEP schools show great improvements in punctuality, depression, anxiety, and hyperactivity (FRAC, 2014).

Objective 5: Identify Principals' and School Service Workers' Level of Agreement with Statements Related to Students' Breakfast Habits, Who is Responsible for Student Health, and the Level of Interest in Nutrition.

Research has shown that students often do not consume breakfast at home, and students that consume breakfast perform better at school.

Participants were surveyed about their perception of whether children were eating breakfast at home as well as their perception of who was responsible for students' health and whether children who ate breakfast performed better at school. They were also surveyed about the link between nutrition, learning and health and the level of interest in nutrition. Over half of participants (86%) agreed or strongly agreed that children often do not eat breakfast at home. In addition, over half of participants (89%) also agreed or strongly agreed that in addition to parents, schools have responsibility for students' health.

The FRAC indicated that "school breakfast offered to all students for free may eliminate disparities between food secure and food insecure children" and "access to school breakfast decreases the risk of marginal food insecurity and breakfast skipping, especially for low income children" (FRAC, 2014). Bartfeld and Ahn (2011) conducted a study examining the relationship between the availability of the SBP and household food security among low income third grade students. They concluded that the SBP seemed beneficial in addressing food related concerns among at risk families and that an effective strategy to sustain food security among low income households would be to increase access to school breakfast (Bartfeld & Ahn, 2011).

Students who do not eat breakfast at home might get rides to school from their parents or sleep in late. For students that get rides from their parents, if the

parent is running late, it makes them late for school and unable to eat breakfast or makes them have to rush to eat breakfast before class. Students who sleep in late might not eat breakfast at home because they do not have time to eat or have to rush to catch the bus. Research has shown that sleep is a priority for school aged children, and adolescents need 8-10 hours of sleep each night; however, only 15% report getting 8.5 hours of sleep each night (Sabol, 2011). Hearst, Shanafelt, Wang, Leduc and Nanney (2016) concluded that a common reason for rural adolescents not eating breakfast is because they don't have time or have to get rides to school from their parents. One way to eliminate this problem would be to make sure that students are getting enough sleep at night to ensure that they wake up early enough to eat breakfast before school.

Good academic performance is strongly related to breakfast consumption in students (Acham, Kikafunda, Malde, Oldewage-Theron & Egal, 2012; Boschloo et al, 2012; Edwards et al, 2011; Gajre et al, 2008). Research has shown that students who consume breakfast perform better in school. In addition, research has also shown that students who consume breakfast closer to class and test taking time perform better on standardized tests than those who do not and that providing breakfast at school enhances concentration, comprehension, memory and learning (FRAC, 2014). A study conducted on breakfast eating habits and its influence on school achievement concluded that students who consume breakfast regularly, as opposed to irregularly or not at all, have higher school achievement in subjects such as science and English (Gajre, Fernandez, Balakrishna & Vazir, 2008). Edwards, Mauch & Winkleman (2011) reported that

students who consumed breakfast five or more days per week achieved higher scores on math assessments compared to those that did not.

The health of children has been associated with breakfast consumption. In addition to parents, participants felt that schools have responsibility for students' health. The rate of diabetes and other comorbidities has increased in the school aged population. Current research indicates that participation in school breakfast has been associated with a decrease in body mass index, overweight and obesity, and students who consume breakfast have more advantageous short and long term weight related outcomes such as lower waist circumference than those who do not consume breakfast (FRAC, 2014). In addition to poor health outcomes, behaviors such as smoking, alcohol consumption, lack of physical activity and eating disorders have been related to students that do not consume breakfast. The literature has shown that students from low income households who consume breakfast at school have a better diet quality overall compared to students who do not. A study that explored associations between breakfast location, breakfast skipping and body mass index indicated that students who did not consume breakfast were at a greater risk for an increased body mass index during childhood and possibly leading into adulthood (Tin, Ho, Mak, Wan & Lam, 2012). If principals and school food service workers continue to encourage breakfast participation, it might lead to a decrease in health compromising behaviors and diseases.

Physical activity plays an important role in student health; however, physical inactivity has become more prominent among school aged children. In

the past, it was a requirement for students to enroll in physical activity. It can be taken as an elective for children in high school, and most elementary school children get their physical activity through recess only. Research has shown a positive correlation between breakfast consumption and physical activity. Vissers et al (2011) and Sandercock et al (2010) established an association between breakfast consumption and physical activity in children and concluded that children who consumed breakfast engage in more physical activity than those who do not. In the current study, a large number of principals and school food service workers felt that schools are also responsible for student health.

Conclusion

Principals and school food service workers from participating CEP schools were surveyed. Alternate breakfast services such as the Grab 'n Go and Breakfast in the Classroom had a positive influence on breakfast participation. The introduction of these breakfast options facilitated an increase in breakfast participation, as demonstrated by the literature review. Additionally, the nutritional quality of foods served at breakfast received a high rating among participants. With the CEP implementation, the schools surveyed in this study are obeying the federal guidelines and providing students with the required amounts of calories, vitamins, minerals and additional nutrients.

It was most interesting that the majority of the participants did not see any major barriers to CEP implementation. Despite involvement from principals and school food service workers, staffing was the most indicated barrier. As mentioned previously, the Child Nutrition Department functions as a separate

entity, and a lack of staff might be one of the main reasons they felt staffing was a barrier. With more encouragement and support from each other, the participants in this study can overcome current and future barriers associated with CEP implementation.

Overall satisfaction with the CEP was high among all the participants. This might be because this provision allows all students to eat breakfast for free regardless of income. The most fascinating discovery came with involvement with CEP implementation and change of attitude since initiation. Most participants were involved with implementation; however, they indicated no change in attitude about school breakfast since the CEP implementation. It seems logical that if participants were involved in implementation, they would have a more positive attitude about school breakfast.

Benefits such as improved attendance, tardiness, behavior and attentiveness, along with academic performance and the responsibility of student health have been comprehensively reviewed. A large number of participants neither agreed nor disagreed that behavior and attentiveness had improved since CEP implementation. With limited literature and research in these areas, future researchers can analyze the relationship between breakfast consumption and student behavior and attentiveness. Most participants agreed that the learning environment had improved as a result of the CEP. In the future, the schools surveyed in this study can be innovative and strengthen the existing benefits associated with the CEP.

Implications

This research has several implications for the future study of CEP implementation in schools statewide and nationally. It provides a basis for further exploration of perceived barriers and benefits associated with the CEP among principals and school food service workers, improvement in student behavior and attentiveness as well as involvement and attitudes associated with CEP implementation.

This study can assist future researchers in understanding how principals and school food service workers perceive barriers and benefits to CEP implementation. Presently, there is a gap in the literature on information related to the perceptions of principals and school food service workers regarding the implementation of the CEP. Future research should include not only administrators, food service workers, parents and students, but should include teachers, as they are the ones closest to students and might be more apt to determine changes in behavior and learning. The USDA's Evaluation report included barriers related to lack of financial viability, reimbursement funds, educational program funding, time, participation discrimination, financial perceptions, difficulty establishing a school breakfast program, a non-supportive community and non-supportive key LEA or school officials. Future studies should also include these barriers.

This study collected quantitative data. Future studies should combine qualitative and quantitative methods to explore these perceptions and gather information on why participants feel the way they do in regards to CEP implementation. According to Ochieng and Meetoo (2015), a mixed methods

approach will “likely address any potential drawbacks of individual methods by exploiting the strengths of each at the various stages of research.” The authors also discussed that combining methods could possibly provide alternate ways of approaching complex problems and the importance of researchers using mixed methods interactively during their research. In summary, the authors concluded that “the use of qualitative and quantitative methods is likely to enrich our understanding of the interrelationship between wellbeing and the experiences of the community” (Ochieng & Meetoo, 2015).

Appendix A: Qualtrics Survey

Choose the most appropriate answer for the following questions.

1. What is your position/title?
 - Principal
 - Vice Principal
 - School Food Service Cafeteria Manager
 - School Food Service Worker

2. Which of the following, if any, were barriers to this school implementing the Community Eligibility Provision (CEP)? (Select all that apply.)
 - Staffing issues
 - Bus schedules
 - Cost
 - Parent/community opposition
 - Administrative opposition
 - Teacher opposition
 - No major barriers

3. What type(s) of school breakfast services are offered at this school? (Select all that apply.)
 - Breakfast service in the cafeteria
 - Grab 'n Go breakfast
 - Breakfast in the classroom

4. Has attendance at this school improved since implementing the CEP?
 - Yes
 - No
 - Don't know

5. Did this school's tardiness percentage improve after implementing the CEP?
 - Yes
 - No
 - Don't know

6. Did this school's number of discipline referrals improve after implementing the CEP?

- Yes
- No
- Don't know

7. Please rate your level of agreement/disagreement with each of the following statements.

| | Strongly Agree | Agree | Neither Agree nor Disagree | Disagree | Strongly Disagree |
|--|-----------------------|-----------------------|-----------------------------------|-----------------------|--------------------------|
| a. As a result of the CEP, the school learning environment has improved. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| b. As a result of the CEP, student behavior has improved. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| c. As a result of the CEP, student attentiveness has improved. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| d. As a result of the CEP, time is wasted. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| e. As a result of the CEP, trash is a problem. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| g. Kids often don't eat breakfast at home. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| h. In addition to parents, schools have responsibility for student health. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| i. Children who eat breakfast perform better in school. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. How would you rate your overall satisfaction of the Community Eligibility Provision?

- Excellent
- Above Average
- Below Average
- Poor

9. How involved were you in implementing the Community Eligibility Provision at this school?

- Very involved
- Somewhat involved
- Not involved

10. How has your attitude about school breakfast changed since implementation of the Community Eligibility Provision?

- I have a more positive attitude about school breakfast since initiation of the provision.
- I have a more negative attitude about school breakfast since initiation of the provision.
- My attitude about school breakfast has not changed since initiation of the provision.

11. Please rate the nutritional quality of the foods served for breakfast at this school.

- High nutritional quality
- Low nutritional quality
- No nutritional quality

12. What is your gender?

- Male
- Female

13. What is your highest level of education?

- High School Diploma
- Associate's Degree
- Bachelor's Degree
- Post Graduate Degree

14. How many years have you been in your current position?

- 0-3 years
- 4-7 years
- 8-11 years
- 11+ years

15. How many days per week do you eat breakfast?

- 1
- 2
- 3
- 4
- 5
- 6
- 7

16. Please rate your level of interest in nutrition.

- High interest
- Low interest
- No interest

17. How strong do you feel the link is between nutrition and learning?

- Extremely Strong
- Strong
- Weak
- Extremely Weak

18. How strong do you feel the link is between nutrition and health?

- Extremely Strong
- Strong
- Weak
- Extremely Weak

**Thank you for your time.
Your participation is greatly appreciated.**

BIBLIOGRAPHY

Acham, H., Kikafunda, J. K., Malde, M. K., Oldewage-Theron, W. H., & Egal, A. A. (2012). Breakfast, midday meals and academic achievement in rural primary schools in Uganda: implications for education and school health policy. *Food and Nutrition Research*, 56, 1-12. doi:10.3402/fnr.v56i0.11217

Adolphus, K., Lawton, C. L., & Dye, L. (2013). The effects of breakfast on behavior and academic performance in children and adolescents. *Frontiers in Human Neuroscience*, 7, 1-28.

Alexis Nicole Sabol. (2011). Student and Parent Perceptions of Barriers to and Benefits of the School Breakfast Program in Southeast Alabama (Master's thesis). Retrieved from ProQuest Dissertations and Theses database.

Anzman-Frasca, S., Djang, H. C., Halmo, M. M., Dolan, P. R., & Economos, C. D. (2015). Estimating Impacts of a Breakfast in the Classroom Program on School Outcomes. *JAMA Pediatrics*, 169(1), 71. doi:10.1001/jamapediatrics.2014.2042

Bartfeld, J. S., & Ahn, H. (2011). The School Breakfast Program Strengthens Household Food Security among Low-Income Households with Elementary School Children. *Journal of Nutrition*, 141(3), 470-475. doi:10.3945/jn.110.130823

Basch, C. E. (2011). Breakfast and the Achievement Gap Among Urban Minority Youth. *Journal of School Health*, 81, 635-640.

Boschloo, A., Ouwehand, C., Dekker, S., Lee, N., Groot, R. D., Krabbendam, L., & Jolles, J. (2012). The relation between breakfast skipping and school performance in adolescents. *Circulation Research*.

Chopade, S., Baylis, M., Jomaa, L., McDonnell, E., Orlofsky, C., & Probart, C. (2007). School Employees' Perceptions of School Breakfast Programs. *Journal of the American Dietetic Association*, 107(8), A108. doi:10.1016/j.jada.2007.05.413

Connor-Linton, J. (2010). Chi Square Test. In *Encyclopedia of Research Design*. Retrieved from <http://srmo.sagepub.com/view/encyc-of-research-design/n48.xml>

Cooper, S. B., Bandelow, S., & Nevill, M. E. (2011). Breakfast consumption and cognitive function in adolescent schoolchildren. *Physiology and Behavior*, 103, 431-439.

Cooper, S. B., Bandelow, S., Nute, M. L., Morris, J. G., & Nevill, M. E. (2012). Breakfast glycaemic index and cognitive function in adolescent school children. *British Journal of Nutrition*, 107, 1823-1832.

Corder, K., Sluijs, E. M., Steele, R. M., Stephen, A. M., Dunn, V., Bamber, D., . . . Ekelund, U. (2010). Breakfast consumption and physical activity in British adolescents. *British Journal of Nutrition*, 105, 316-321.
doi:10.1017/S0007114510003272

Creighton, L. S. (2012). Stakeholder Engagement for Successful Breakfast in the Classroom Implementation. *Journal of School Health*, 82(11), 496-498.
doi:10.1111/j.1746-1561.2012.00728.x

De la Hunty, A., Gibson, S., & Ashwell, M. (2013). Does Regular Breakfast Cereal Consumption Help Children and Adolescents Stay Slimmer? A Systematic Review and Meta-Analysis. *Obesity Facts*, 6(1), 70-85.
doi:10.1159/000348878

Deshmukh-Taskar, P. R., Nicklas, T. A., O'Neil, C. E., Keast, D. R., Radcliffe, J. D., & Cho, S. (2010). The Relationship of Breakfast Skipping and Type of Breakfast Consumption with Nutrient Intake and Weight Status in Children and Adolescents: The National Health and Nutrition Examination Survey 1999-2006. *Journal of The American Dietetic Association*, 110(6), 869-878.
doi:10.1016/j.jada.2010.03.023

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Mail and Internet Surveys: The Tailored Design Method*, Third edition. New York: John Wiley and Sons

Edefonti, V., Rosato, V., Parpinel, M., Nebbia, G., Fiorica, L., Fossali, E., . . . Agostoni, C. (2014). The effect of breakfast composition and energy contribution on cognitive and academic performance: a systematic review. *Am J Clin Nutr*, 100, 626-656. doi:10.3945/ajcn.114.083683

Edwards JU, Mauch L, & Winkelman MR. (2011) Relationship of nutrition and physical activity behaviors and fitness measures to academic performance for sixth graders in a midwest city school district. *J Sch Health*, 81: 65-73.

Food Research and Action Center. (2014). FRAC Breakfast for Health. Retrieved from <http://frac.org/federal-foodnutrition-programs/school-breakfast-program/breakfast-in-the-classroom/>

Food Research and Action Center. (2014). FRAC Breakfast for Learning. Retrieved from <http://frac.org/federal-foodnutrition-programs/school-breakfast-program/breakfast-in-the-classroom/>

Food Research and Action Center. (2012). Community Eligibility « Food Research & Action Center. Retrieved from <http://frac.org/federal-foodnutrition-programs/national-school-lunch-program/community-eligibility/>

Food Research and Action Center. (2015). FRAC Facts Community Eligibility Provision An Amazing Opportunity. Retrieved from <http://frac.org/federal-foodnutrition-programs/national-school-lunch-program/community-eligibility/>

Gajre, N. S., Fernandez, S., Balakrishna, N., & Vazir, S. (2008). Breakfast Eating Habit and its Influence on Attention-concentration, Immediate Memory and School Achievement. *Indian Pediatrics*, 45, 824-828.

Haesly B, Nanney MS, Coulter S, Fong S, Pratt RJ. Impact on staff of improving access to the school breakfast program: a qualitative study. *J Sch Health*. 2014; 84: 267-274.

Hearst, M. O., Shanafelt, A., Wang, Q., Leduc, R., & Nanney, M. S. (2016). Barriers, Benefits, and Behaviors Related to Breakfast Consumption Among Rural Adolescents. *J School Health*, 86(3), 187-194. doi:10.1111/josh.12367

Kentucky: Cabinet for Health and Family Services - Data Book. (2016, February 19). Retrieved from http://chfs.ky.gov/dcbs/Data_Book.htm

Kentucky Department of Education. (2011). School Meal Access Expanded for Children in Need. Retrieved from <http://education.ky.gov/comm/news/documents/r056universalmeals.pdf>

Lambert, L. G., Raidl, M., Carr, D. H., Safaii, S., & Tidwell, D. K. (2007). School Nutrition Directors' and Teachers' Perceptions of the Advantages, Disadvantages, and Barriers to Participation in the School Breakfast Program. *The Journal of Child Nutrition & Management*, (2).

Lent, M., & Emerson, B. (2007). Preliminary Findings from the 2006-2007 Universal Free Breakfast Initiative in Milwaukee Public Schools.

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-Based Dentistry*, 7(1), 24-25. doi:10.1038/sj.ebd.6400375

Logan, Christopher W., Patty Connor, Eleanor L. Harvill, Joseph Harkness, Hiren Nisar, Amy Checkoway, Laura R. Peck, Azim Shivji, Edwin Bein, Marjorie Levin, and Ayesha Enver. Community Eligibility Provision Evaluation. Project Officer: John R. Endahl. Prepared by Abt Associates for the U.S. Department of Agriculture, Food and Nutrition Service, February 2014.

- Liu, J., Hwang, W., Dickerman, B., & Compher, C. (2013). Regular breakfast consumption is associated with increased IQ in kindergarten children. *Early Human Development*, 89, 257-262.
- McDonald, J. (2009). *Handbook of Biological Statistics: Fisher's exact test of independence*. Retrieved from <http://udel.edu/~mcdonald/statfishers.html>
- Monroe, M., & Adams, D. (2012). Increasing Response Rates to Web-Based Surveys. *Journal of Extension*, 50(6).
- Nurul-Fadhilah, A., Teo, P. S., Huybrechts, I., & Foo, L. H. (2013). Infrequent Breakfast Consumption Is Associated with Higher Body Adiposity and Abdominal Obesity in Malaysian School-Aged Adolescents. *PLoS ONE*, 8(3), 1-6. doi:10.1371/journal.pone.0059297
- Ochieng, B. M., & Meetoo, D. (2015). Using mixed methods when researching communities. *Nurse Researcher*, 23(1), 16-19. doi:10.7748/nr.23.1.16.e1323
- Rampersaud, G. C., Pereira, M. A., Girard, B. L., Adams, J., & Metz, J. D. (2005). Breakfast Habits, Nutritional Status, Body Weight, and Academic Performance in Children and Adolescents. *Journal of The American Dietetic Association*, 105, 743-760. doi:10.1016/j.jada.2005.02.007
- Sandercock, G. R., Voss, C., Dye, L., & Sandercock, G. (2010). Associations between habitual school-day breakfast consumption, body mass index, physical activity and cardiorespiratory fitness in English schoolchildren. *European Journal of Clinical Nutrition*, 64, 1086-1092. doi:10.1038/ejcn.2010.145
- Shimada, T. (2009). *Evaluating School Breakfast and Implementing Second Chance Breakfast*. California Food Policy Advocates.
- Stroebele, N., McNally, J., Plog, A., Siegfried, S., & Hill, J. O. (2013). The Association of Self-Reported Sleep, Weight Status, and Academic Performance in Fifth-Grade Students. *Journal of School Health*, 83(2), 77-84.
- Szajewska, H., & Ruszczyski, M. (2010). Systematic Review Demonstrating that Breakfast Consumption Influences Body Weight Outcomes in Children and Adolescents in Europe. *Critical Reviews in Food Science and Nutrition*, 50(2), 113-119. doi:10.1080/10408390903467514
- Tin, S. P., Ho, S. Y., Mak, K. H., Wan, K. L., & Lam, T. H. (2011). Breakfast skipping and change in body mass index in young children. *International Journal of Obesity*, 35, 899-906. doi:10.1038/ijo.2011.58

- Tin, S. P., Ho, S. Y., Mak, K. H., Wan, K. L., & Lam, T. H. (2012). Location of breakfast consumption predicts body mass index change in young Hong Kong children. *International Journal of Obesity*, 36, 925-930. doi:10.1038/ijo.2011.262
- United States Department of Agriculture. (2013). The School Breakfast Program. Retrieved from <http://www.fns.usda.gov/sbp/school-breakfast-program-sbp>
- United States Department of Agriculture. (2015). Community Eligibility Provision | Food and Nutrition Service. Retrieved from <http://www.fns.usda.gov/school-meals/community-eligibility-provision>
- United States Department of Agriculture. (2016). Community Eligibility Provision Alternative Breakfast Models. Retrieved from <http://www.fns.usda.gov/school-meals/community-eligibility-provision-resource-center>
- United States Department of Agriculture. (2014). Supplemental Nutrition Assistance Program (SNAP) | Food and Nutrition Service. Retrieved from <http://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program-snap>
- Utter, J., Scragg, R., Mhurchu, C. N., & Schaaf, D. (2007). At-Home Breakfast Consumption among New Zealand Children: Associations with Body Mass Index and Related Nutrition Behaviors. *Journal of The American Dietetic Association*, 107, 570-576. doi:10.1016/j.jada.2007.01.010
- Van Wye, G., Seoh, H., Adjoian, T., & Dowell, D. (2013). Evaluation of the New York City Breakfast in the Classroom Program. *American Journal of Public Health*, 103(10), 59-64.
- Vissers, P. A., Jones, A. P., Corder, K., Jennings, A., Van Sluijs, E. M., Welch, A., . . . Griffin, S. (2011). Breakfast consumption and daily physical activity in 9-10-year-old British children. *Public Health Nutrition*, 16(7), 1281-1290.
- Wesnes, K. A., Pincock, C., & Scholey, A. (2012). Breakfast is associated with enhanced cognitive function in schoolchildren. An internet based study. *Appetite*, 59, 646-649.
- Wesnes, K. A., Pincock, C., Richardson, D., Helm, G., & Hails, S. (2003). Breakfast reduces declines in attention and memory over the morning in schoolchildren. *Appetite*, 41, 329-331. doi:10.1016/j.appet.2003.08.009
- Young So, W. (2013). Association between Frequency of Breakfast Consumption and Academic Performance in Healthy Korean Adolescents. *Iranian J Publ Health*, 42(1), 25-32.

VITA

Shirlena Marie Moore

Place of birth:

- Hopkinsville, Kentucky

Education:

- Bachelor of Science in Human Nutrition, University of Kentucky, May 2009
- Dietetic Internship, University of Kentucky, August 2015

Professional Positions:

- Supervisor of Food and Nutrition Services, Frankfort Regional Medical Center, Frankfort, Kentucky, October 2015-Present
- Teaching Assistant, University of Kentucky, Department of Dietetics & Human Nutrition, January 2013-Present

Scholastic Honors:

- Lyman T. Johnson Fellowship Recipient Fall 2014-Spring 2015