

Front Flyleaf

INVESTIGATION OF THE RELATIONSHIP BETWEEN CHILDHOOD OBESITY  
PREVENTION AND ELEMENTARY SCHOOLS' LOCAL SCHOOL  
WELLNESS POLICY WellSAT ASSESSMENT SCORES

by

HUIDA L. HARRIS RUSSELL

A DISSERTATION

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This dissertation is approved by the following members of the Final Oral Review Committee:

Dr. Nirmaljit K. Rathee, Co-Chairperson, Department of Education, Delaware State University  
Dr. Patricia W. Carlson, Co-Chairperson, Department of Education, Delaware State University  
Dr. Janet Hill, Committee Member, Department of Education, Delaware State University  
Dr. Mopelola O. Adegoke, Committee Member, Department of Human Ecology, Delaware State University  
Dr. Dolores Finger Wright, Committee Member, Department of Social Work, Delaware State University

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## **DEDICATION**

My dissertation is dedicated to my parents, Mr. Marshall T. Harris, I and Mrs. Catherine “LaVerne” Harris who instilled in me the importance of God, love, citizenship and education. Whose love inspired and supported me in my youth and continues to inspire me to reach for the sun and the heavens beyond!

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# **Investigation of the Relationship Between Childhood Obesity Prevention and Elementary Schools' Local School Wellness Policy WellSAT Assessment Scores**

**Huida L. Harris Russell**

**Faculty Advisors: Dr. Patricia Carlson and Dr. Nirmaljit K. Rathee**

## **ABSTRACT**

This study examined the increasingly prevalent problem of childhood obesity. In an effort to address this problem, Congress passed the Health, Hunger-Free Kids Act -2010, which requires local educational agencies (LEAs) that participate in the federal school nutrition programs to develop local school wellness policies.

This study assessed eight LEAs in an eastern seaboard state which had a student population of 70 percent or more eligible for free and reduced price school means. The WellSAT 2.0, developed by the University of Connecticut Rudd Center, was used to assess LSWPs effectiveness. The findings indicated a positive correlation (1) between the LEAs' total LSWP WellSAT: 2.0 total assessment scores and the elementary school student attendance for school years 2009 and 2013. The research also indicated moderate correlation (.62) between WellSAT: 2.0 total assessment scores and the parent/guardian survey responses to nutrition education, school meal standards.

Significant findings of this research shows that the ESB State department of education does not have a physical education curriculum nor does it have any standards in reference to the amount of time elementary school students have for physical education or physical activity

during the school day. The only requirement is that elementary school's physical education programs align with the physical education standards of the National Association of Sports and Physical Education.

Children are the most valuable natural resource for any society and their overall health and academic achievement should always be a primary concern.

To ensure students have a strong foundation for academic success, LEAs should develop, implement and sustain a strong LSWP specific for elementary school students, their family and community members. Introducing and teaching the importance of life long healthy habits concerning nutrition education, physical education and physical activity can help reduce the number of children identified as obese, improve student attendance and student overall academic achievement.

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## **COMMON ABBREVIATIONS**

ESB State	Eastern Seaboard State
ESB State DOE	Eastern Seaboard State Department of Education
HHFKA-2010	Healthy, Hunger-Free Kids Act of 2010
LEA	Local educational agency
LSWP	Local school wellness policy
WellSAT: 2.0	Wellness School Assessment Tool 2.0
CNA	Child Nutrition Act
NSLP	National school lunch program
SNP	School nutrition program
SA	State agency
SEA	State educational agency
WIC	Women, Infants and Children Program

## **CHAPTER I: Introduction**

Childhood obesity rates have been escalating for the past 20 years due to interactions between children and their environments (Coffield, Metros, Utz and Waitzman, 2011). Obesity is the result of continuous consumption of food, more food than the body can burn off. Wieting (2008) states that educational, family, physical, and social environments have had negative impacts on students' health, thus increasing the incidences of students identified as overweight and/or obese.

Today, many children living in low-income families do not have access to nutritious foods. Tiefert (2008) wrote in her article, "Underprivileged and Overweight" that continued consumption of foods with minimal nutritional value and decreased physical activity contribute to children being identified as overweight or obese. Being malnourished does not mean low body weight; many overweight/obese children are also malnourished.

The Education Section of a weekend edition of an East coast newspaper highlighted a local educational agency's middle school for providing every student with a free hot breakfast every morning. The article supports how access to nutrition improves student health and behavior in the classroom; teachers, additional instruction and non-instruction support staff stated the school's climate is calmer. There has been a decrease in the number of students seen by the school nurse, and students have more energy to complete their classwork throughout the school day (Albright, 2013).

Tufts University School of Nutrition, Center on Hunger, Poverty and Nutrition Policy published a 16-page statement establishing how malnutrition prevents student academic

achievement. The Link Between Nutrition and Cognitive Development in Children (1994) is a report that supports the notion that children living in impoverished circumstances will have difficulty learning. The following quote explains how children's bodies use energy from the food they eat:

Energy is first reserved for maintenance of critical organ function, second for growth, and last for social activity and cognitive development. As a result, undernourished children decrease their activity levels and become apathetic. This in turn affects their social interactions, inquisitiveness and overall cognitive functioning. (Tufts University of Nutrition Center on Hunger, Poverty and Nutrition Policy, 1994, p. 5).

The "Healthy Children Read to Learn" initiative was founded on the principle that health and education are critical collaborators for student academic achievement. In its January – February 1992 Public Health Report, authors Novello, Degraw, and Kleinman stated that obese children are more likely to be placed in remedial or special education programs due to poor academic performance. Although poor academic achievement can be an indicator of malnutrition and/or other medical conditions that may be associated with childhood obesity, obesity is an indicator or precursor for decreased academic achievement, not the cause for decreased academic achievement (Hoffman, 2012).

A nationally recognized research program, Bridging the Gap, conducts research on policies and other variables that have effects on the health of the Nation's youth (University of Illinois at Chicago and University of Michigan, 1997). In Bridging the Gap 2009 Executive Summary, the authors state children identified as obese miss more school days than non-obese



children do. Childhood obesity may affect the child's academic performance, classroom behavior and self-esteem more than non-obese or overweight children (Chriqui, Schneider, Chaloupka, Ide, and Pugach, 2009).

The Center for Disease Control and Prevention defines childhood obesity for children between the ages of two and 19 years old as having a body mass index (BMI) measured at or above the 95<sup>th</sup> percentile of the child's gender growth chart. The BMI calculations take in account of a child's body composition (Division of Nutrition, Physical Activity, and Obesity, 2015).

The National Health and Nutrition Examination Survey (NHANES) reports 17 percent of the nation's children between the ages of two and 19 years old were identified as obese in 2011-2012 (Center for Disease Control and Prevention, 2014). Nemours Health and Prevention Services reported 40% of children in an Eastern Seaboard (ESB) State between the ages of two and 17 were identified as obese in 2006 and 2011 (Nemours, 2013). A study released in 2013 indicated State Legislatures for the ESB State and neighboring states did not present or pass any obesity prevention policies or policies concerning school nutrition, physical activity/education, school wellness, insurance coverage for obesity, or develop a task force. One neighboring state of the ESB State 2008 House Legislators passed HB 1176 to create a task force to conduct studies concerning childhood obesity (National Conference of State Legislatures, 2013).

In 2010 Congress passed the Healthy, Hunger-Free Kids Act of 2010 (HHFKA-2010), Public Law 111-296 (PL 111-296) which reauthorizes federal funding for national child/school nutrition programs that are permanent or not permanently authorized by previous federal legislation. It requires all local educational agencies/school districts (LEAs) administering any of

the federally funded Child or School Nutrition Programs to establish a local school wellness policy (LSWP) for all schools under the LEA's jurisdiction (USDA Food and Nutrition Service, 2013).

### **1.1 Purpose of the Study**

The purpose of this study was to investigate whether a relationship exists between childhood obesity prevention and elementary schools' local school wellness policy (LSWP) WellSAT: 2.0 assessment scores. The study reviewed student attendance, the amount of time students have for physical activity and education during the school day, and nutrition awareness of students and their parents to prevent childhood obesity.

Research has indicated children diagnosed as overweight or obese (from this point forward any form of the word "obese" includes children identified as overweight) have difficulty achieving their academic potential. Obesity is not a cause of poor academic achievement, but an indicator. Obesity itself does not decrease academic achievement; it is the combination of emotional, medical, and physical conditions associated with childhood obesity that affects student academic achievement (Shore, Sachs, Lidicker, Brett, Wright, and Libonati, 2008).

Barbara Minton, a school psychologist, wrote in her commentary article *Maslow's Hierarchy of Needs Explains Why Some Children Fail* (2008). When children's lives are deficient of continuous physiological, safety, love, and belonging needs, the horizontal levels of Maslow's Hierarchy of Needs pyramid, children cannot focus on learning.

Physical, emotional, and mental health conditions are related to the overall health of all children and especially those identified as obese. Obese children have increased incidences of absenteeism and tardiness from school than non-obese children due to medical and psychological

conditions related to childhood obesity. The emotional, mental, and social bias obese children encounter is not limited to their peers. Adults, lower weight peers, and family attitudes, also affect obese children's emotional and mental wellbeing (Washington, 2011).

## **1.2 Theoretical Framework**

Psychologist Abraham Maslow's Hierarchy of Needs is a motivational theory that serves as the theoretical framework for this study. Maslow's Hierarchy of Needs motivational theory (from this point forward referred to as Maslow's theory) is grounded on his observations, which indicate many of people's actions relate to attaining goals; however, basic human physiological needs must first and continuously be met (Learning Theories, 2013).

In 1943, Maslow's published a paper entitled "A Theory of Human Motivation" which exhibited a pyramid with ascending levels. The two lowest levels always identify people's most basic needs to survive. The base of the pyramid identifies basic human physiological needs: air, food, sleep, shelter. The second level up contains another set of basic needs that revolve around safety as it pertains to a person and/or their various environments and financial security. According to Maslow's theory the third level up pertains to acceptance, love and support. Acceptance from their peers in the various environments the person engages in.

In the educational environment, basic physiological needs are being physically safe in the school building, able to access nutritional sound meals. Safety and security are translated into a school building that provides a controlled environment including classrooms, cafeteria, safe routes to walk or bike to school, and an area to play outside the school. In elementary school students learn how be social and responsible for their actions.

In school, love and belonging are associated with school staff that encourage students,

provide positive feedback, and allow students to grow at their own pace. They also learn how to build and respect relationships with other students and staff in the schools. Students begin to build their independence, find groups of their peers that they can identify with and determine who has significance in their lives. Even if students have not completely mastered the above skills, with a sense of confidence they may be confident and motivated to move to the next level up, which is building their self-esteem (Green, 2000).

While in elementary school students begin to develop their own self-esteem. That is the fourth level of Maslow's (1943) pyramid. At this level, students begin to learn about how to give and receive respect. Children look for groups to identify with and join. Stability is at the fourth level and is equally important as the physiological needs, located on the base of Maslow's theory pyramid.

The fifth and final level is self-actualization. Self-actualization occurs when a person begins to strive to be the best he or she can be. In order for a child to begin to engage in the journey of self-actualization, the lower four levels must be stable. If any of the four lower levels becomes unstable, a person will revert to that lower stage until stability is regained (Boeree, 2013).

Children identified as obese may not always receive emotional and social acceptance from their peers and possibly from their family members. In an article, *Childhood Obesity: Causes and Consequences*, the authors state, "Obesity has been described as being 'one of the most stigmatizing and least socially acceptable conditions in childhood'" (p. 192) affecting social and emotional motivation to move up to the next level. Students not accepted by their peers and family members may have a negative effect on their self-esteem, making the fourth level

(self-esteem) unstable and interrupting the student journey to self-actualization. As children grow from adolescence to teenagers to adults any life experience resulting in a loss can have a negative effect on the journey of self-actualization (Sahoo, Sahoo, Choudhury, Sofi, Kumar and Bhadoria, 2015).

Maslow's theory (1943) is also applied to leaders of different types of organizations in how to influence a group or groups of people to work together for common goals (Northouse, 2013).

### **1.3 Transformational Leadership**

Leaders must have good communication skills and have a positive effect on everyone around them (Bass, 1985). James M. Burns (1978) coined the transformational leadership theory. His theory is that transformational leaders uplift their employees by respecting their personal beliefs, needs and values of each team member. Team members trust a leader who is ethical, honest, and a positive role model (Bass, Bass, 2008).

Maslow's theory (1943) supports the transformational leadership theory, employees working in a safe and secure work environment which is not unduly stressful, and employees' wages are paid allowing the worker to pay for housing, food, clothing and utilities; then, the most basic needs have been met.

Principals may not be able to ensure the salaries of staff, but they can ensure that the school building is safe, instructional and non-instructional staff can develop and use their leadership skills to enhance a positive school culture and climate. Principals must ensure that students feel safe to engage in learning, school staff also should feel safe to apply their new skills

in the school environment. The new skills can lead to enhanced responsibilities, new assignments and promotions, that help employees progress through Maslow's (1943) hierarchy of needs pyramid (Ori, 2012).

#### **1.4 Relevance to Educational Leadership**

Individual LEAs' school boards hire superintendents to be the lead administrator of the LEA's leadership team. The superintendent must present the required educational credentials and documented proof to support his/her leadership abilities to improve the LEA's student educational achievement. The leader's abilities include identifying potential problems, working in collaboration with their leadership team to develop solutions to potential and current problems, as well as improving the abilities of all levels of the leadership team (Marks, Printy, 2003). Stakeholders of the LEA community (parents, business leaders, students, community leaders, and health officials) may also seek the superintendent's leadership skills in an effort to improve their community profile (Hoyle, Bjork, Collier and Glass, 2005).

Often it takes the leadership of a respected local person to initiate change. The identity of this champion varies from community to community. . . . Local champions interest others in physical activity and nutrition issues, and then they establish a broad-based team to address them (Wechsler, McKenna, Lee, and Dietz, 2004, p. 10).

A primary goal and responsibility of the superintendent and administrators of the leadership team is not only to ensure that the students have access to quality education, but also to ensure that the positive results are sustained. The positive results support, and can lead to, advanced levels of instruction for students within their schools. Maslow's (1943) theory of hierarchy of needs and motivation can be applied to the educational curriculum offered in schools. As students

master the current level of instruction offered, the school curriculum team can offer increasing levels of challenging instruction because the students have mastered the fundamental requirements (needs) for a course (Anderson, n.d).

The principal, the lead administrator in most school buildings, has an impact and is held accountable for their school's academic achievement. The principal must also ensure the policies of the LEA and school are successfully implemented as mandated by the LEA or other governing local, state and federal entities. Identifying policy stakeholder categories, the organization's mission, vision and structure, help to build an honest, supportive and engaging relationship, which will benefit students and the stakeholders (Uyeda, Bogart, Hawes-Dawson and Schuster, 2009).

The Healthy Hunger-Free Kids Act of 2010 requires the LSWP be developed by a committee of diverse school and community stakeholders. The committee members should include representation from the student body (when appropriate), parents, instructional staff, and professionals from school health and school nutrition programs. The LSWP committee members must not only develop and assist with the implementation and evaluation, they must also assist with ensuring the LSWP is sustainable. The committee must conduct and report evaluations within timed intervals to the principal and ensure the reports are assessable to the public. The LSWP is actually a living document. It reflects how a school is addressing the seven goals as mandated by HHFKA-2010. (Center for Disease Control and Prevention and Bridging the Gap Program, 2014).

Maslow's (1943) theory is exhibited in a pyramid with ascending levels. The two lowest levels always identify people's most basic needs to survive. The base of the pyramid identifies

basic human physiological needs: air, food, sleep, shelter. The second level up contains another set of basic needs that revolve around safety as it pertains to a person and/or their various environments. Maslow's (1943) theory states that when a lifestyle has routines, predictability and provides stability and security the second level of needs is met. Basic needs listed in the two lower levels must be continuously met before a person can begin to attain the goals listed in the higher levels of the pyramid (Anderson, n.d.; Boeree, 2006; Liberty Zone, 2016).



Figure 1. Maslow's Hierarchy of Needs Theory displayed in a pyramid. When each lower level needs are continuously met, a person is then motivated to move to the next higher level until the highest level is achieved.

Retrieved from: <http://study.com/cimages/multimages/16/maslows-hierarchy-of-needs.jpg>

Summary of Maslow's Hierarch of Needs pyramid is listed below:

- Level 1: Physiological needs – school nutrition programs, secure school building, and safe homes;



- Level 2: Safety, security, controlled classrooms, and safe routes to and from school;
- Level 3: Love and belongingness, a big heart, trust, positive feedback, and family support;
- Level 4: Self-esteem – a blue ribbon with number 1, focus on student strength, approachable, and alert to student needs;
- Level 5: Self-actualization – vitality, creativity, and allow students to engage (Georgia Department of Education, 2010).

Maslow's (1943) theory states satisfaction of the lower level needs motivates a person to move and master higher levels before the top level, self-actualization can take place. According to Maslow, self-actualization occurs when a person has identified purpose(s) for life. Life has goals and values that include truth, uniqueness, justice, humor, wholeness, and autonomy. Maslow identifies the above values as part of the 17 B-Values/meta-needs: the meta-needs will increase a person's self-esteem living life with a sense of purpose (Emrich, n.d).

Schools can assist with providing students with some of the most basic physiological needs that help motivate students to progress up through the next higher levels. Schools can provide or they can provide opportunities to fulfil some of their students' basic physiological needs. School buildings that are well maintained, provide physical safety; increased access to the school breakfast and lunch programs can prevent hunger during the student's school day.

Hunger overpowers the need for security, the second level of Maslow's theory motivational pyramid, and the other higher levels (i.e.: social relationships, self-esteem and self-actualization) (Vockell, 2008).

School Wellness Policy and Practice: Meeting the Needs of Low-Income Students, a guide

published by the Food Research and Action Center (2006), reports some students' lack of attention, difficult behavior, and irritability have been linked to hunger, as well as overall poor nutrition, which includes food insecurity (Cama, Emerson, Parker, Levin and FitzSimmons, 2006). Students identified with iron deficiency in their diets are irritable, tired, and display problems with concentration, all related to decreased cognitive abilities (Sinnott, 2011).

Students with the security of physiological and safety needs being met have the energy and motivation to move to the third level of Maslow's theory motivational pyramid, acceptance, belonging and identifying with a group or several groups of individuals (Huitt, 2007). Maslow's (1943) theory is not just for general educational applications/settings, it has broad applications across all aspects of society. Instructional leaders such as principals and team leaders should respond to students in an all-inclusive approach. The theory can be applied to many educational environments, even in individual classrooms.

In the classroom, Maslow's (1943) theory can be used as a method of classroom management that will benefit both the teacher and students. Ensuring that students have their basic levels met, they are not hungry, thirsty, tired or need to use the bathroom; the classroom becomes an environment in which all students know each other and belong in the class. Teachers will have to ensure that the students are comfortable with informing their teacher of their physiological needs, (i.e.: bathroom break, water, etc.) (Anderson, n.d.; Ray, 1992).

Some instructors in higher education have used Maslow's theory to explain and teach K-12 classroom management. Georgia Department of Education (2010) displayed Maslow's (1943) theory with the five levels of needs ascending upwards with pictures exhibiting actions that help promote student academic achievement. The right side is for parents/guardians, community

members/leaders, and the left side is for local educational agencies and their schools' educational staff, to help students excel academically. Physiological needs are at the bottom level, safety at the second level, love and belonging at the third level, self-esteem the fourth level, and self-actualization, the fifth level and the peak of the pyramid (see appendix A for rendition of Georgia's Department of Education Hierarchy of Needs pyramid).

### **1.5 Physiological Needs – Nutrition.**

The School Cafeteria (1943) states that as early as 1853, many industrial cities realized without access to proper nutrition during the school day, the students were inattentive, mentally lethargic and displayed behavior problems (Bryan and Zabriskie, 1943). In order for students to be ready to learn, the school environment must encourage, support and motivate students to learn. Healthy Hunger-Free Kids Act 2010 (HHFKA-2010) mandates that the local educational agencies (LEAs) will ensure each school under its jurisdiction will develop and implement and sustain a local school wellness policy (LSWP). The policy is required to improve school environment that will support and encourage learning. The policy must also provide nutrition education, physical activity, and physical education and ensure all school meals meet nutrition standards develop by the Institution of Medicine (111<sup>th</sup> Congress, 2010; Long, 2011).

### **1.6 Physiological Needs – School Nutrition**

The Association of State and Territorial Health Officials (2012) reports that in order for children to perform better, they must have continuous access to quality foods to increase their cognitive development and to prevent increased incidences of childhood obesity. Poor academic performance can also be associated with adverse health conditions, and increase absenteeism rates due to emotional, physical and psychological ailments.

Physiological, safety, and sense of belonging are deficient needs children require to have in place every day in order for them to reach the higher levels of Maslow's theory of motivation pyramid, self-esteem and self-actualization. An Assistant Professor in the School of Education at Marian University states children begin to develop their identity once they are able to reach the fourth and fifth levels of Maslow's pyramid (Desautels, 2014).

Cook and Jeng (2009) state that the development of a child's brain is impaired when they do not have continued access to nutritious foods, clean, safe potable water and physical activity on a daily basis. Many students residing and attending elementary schools in under-served communities fail to have their deficient needs met on a daily basis. School Wellness Policy and Practice: Meeting the Needs of Low-Income Students (2006), an executive summary of school wellness policies and practices, reports adverse behaviors of students is linked to hunger, and the failure to have continual access to adequate nutrition.

The Summary also notes that childhood obesity is prevalent in low-income, underserved communities due to limited or no access to supermarkets offering fresh foods. Hostile environments are prevalent in underserved communities that prevent children from engaging in outdoor physical activities (Cama, Emerson, Parker, Levin, and FitzSimmons, 2006).

Students residing and attending elementary schools in low-income communities consume the majority of their meals in school. Schools are most likely the only place students from low-income communities engage in outdoor physical activity. Children from the ages of six to 17 years of age must be enrolled in a formal educational program from kindergarten, grades one through twelve (K-12). For approximately ten months of the calendar year, five days a week and almost seven hours a day, American children are in school. The K-12 environment is one major

institution that has an enormous impact on children and their families (Story, Kaphingst, and French, 2006). It is in elementary school when children begin to establish their independence by deciding which foods they will eat for breakfast and/or lunch meals (Masse, Frosh, Chriqui, Yaroch, Agurs-Collins, Blanck, Atienza, McKenna, and Igoe, 2007).

### **1.7 Student Attendance**

Childhood obesity is a national concern not just due to the medical conditions obese children are diagnosed with it is the emotional and negative stigmas associated with being identified as an obese child. Obesity is also an observable marker that may or may not affect student academic performance (Datar, Sturm and Magnabosco, 2004). Taras and Potts-Datema (2005) questioned if school environment had an effect on obese student attendance; does the school environment make overweight/obese students uncomfortable doing physical activities, cause lack of overall confidence or just emphasize students' medical conditions?

In most states, missing ten percent or more school days is considered chronic absenteeism. Elementary school students are beginning to learn the basic fundamental academic skills needed to build a firm foundation for a successful K-12 educational career. If a student is absent for extended periods, they are not learning and fall behind in their schoolwork (Bruner, Discher, and Chang, 2011).

Children reporting to school in poor health or hungry are less likely to concentrate on their schoolwork. The school environment is an ideal location to help students improve their physical health and, in turn, will improve their academic achievement. An article in the Public Finance Review (2010) entitled "Childhood Obesity, Academic Achievement, and School

Expenditures” states that to date no research has directly linked childhood obesity to poor academic achievement. However, improved physical fitness has been shown to increase students’ academic achievement (Gurley-Calvez and Higginbotham, 2010).

### **1.8 Justification of the Research**

The Healthy, Hunger-Free Kids Act of 2010 mandates local school wellness policies (LSWPs) be developed and implemented in all schools participating in any child/school nutrition programs. There is limited research addressing elementary schools LSWPs. The researcher investigated if a relationship exists between elementary schools’ LSWP assessment and childhood obesity prevention, student attendance, physical activity and education, and nutrition awareness for the students and their parents.

Investigating how the implementation of LSWP impacts student attendance, nutrition education, and awareness in elementary schools will include calculating the elementary schools’ LSWP total assessment scores for comprehensiveness and strength. The amount of time students’ have to engage in physical education/activity, and how the elementary school communicates school meal standards to students and their parents, will also be examined.

The researcher will use the Wellness School Assessment Tool 2.0 (WellSAT 2.0) to measure the LSWP’s total score for comprehensiveness and strength. The WellSAT 2.0 is an instrument developed by the University of Connecticut Rudd Center for Food Policy and Obesity to measure LSWPs’ comprehensiveness and strength.

### **1.9 Significance of the Research**

Illinois State Director of Policy Surveillance and Obesity Research, Dr. J. F. Chriqui (2011), in his presentation to the Institute of Medicine (IOM) Committee on Childhood Obesity, stated

there is an insufficient amount of primary measurement and assessment to provide primary and subsequent analysis of LSWPs in relation to childhood obesity, physical activity, and nutrition related activities on state and/or school levels. Brescoll, Kersh, and Brownell (2008) reported that there is limited grant funding for research concerning childhood obesity prevention, nutrition education, physical activity/educational and other factors such as student attendance.

The findings from this research may benefit the participating local educational agencies (LEAs) to support further research concerning how LSWPs can help prevent or reduce the incidences of childhood obesity. Such findings have the potential to encourage support from State legislators for future research on LSWPs and childhood obesity, physical activity/education, student, parent and community nutrition, health wellness, and physical activity awareness.

The Wellness School Assessment Tool 2.0 (WellSAT 2.0) assessment scores for comprehensiveness and strength of an elementary school's LSWP for student attendance, nutrition education and awareness, physical activity, and physical education sections can be used as a reference point for future evaluations of the elementary school's LSWP. The researcher can provide each local educational agency and/or elementary school principals the individual section and overall scores for the LSWP. The WellSAT 2.0 scores can be a reference point for the elementary schools volunteering to participate or for other elementary schools participating in school nutrition programs with similar demographics of the elementary schools volunteering to participate in this study.

More importantly, this research can highlight the participating LEAs' commitment, or lack of commitment, to provide resources for students to be in safe environments that support

students' health and nutritional needs so that they are ready to learn.

### **1.10 Local School Wellness Policy**

Local school wellness policies (LSWPs) are one of the legislative mandates of HHFKA 2010. Each school principal must ensure the development of LSWP committee to formulate, implement, and within timed intervals report the evaluations of the LSWP to the LEA administrator assigned to monitor the evaluations. The evaluations are to be used to assist with ensuring the sustainability of the LSWP. The LSWP committee must document and maintain all changes, revisions and updates, and identify the results of each evaluation of the LSWP, ensuring the document is always accessible and transparent (USDA Team Nutrition, 2013).

### **1.11 Research Questions and Research Hypothesis**

A hypothesis is an educated guess of possible outcomes concerning a phenomenon. Specific research questions developed by the researcher narrow the focus and test the predicted outcomes of the hypothesis presented by the researcher (Creswell, 2009).

The research hypothesis, the general predictions are from the investigation of, if relationships exist between elementary schools' LSWP WellSAT 2.0 assessment scores for comprehensiveness and strength and childhood obesity prevention, physical activity and education, nutrition education, awareness for students and parents, and student absenteeism. The researcher used the following research questions to provide structure when presenting findings from this research.

RQ1 Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and an elementary school's student attendance, and



communication of nutrition, health and wellness education, and awareness of school meal standards to parents?

HY1 Elementary schools will have high comprehensive and strength LSWP WellSAT 2.0 assessment scores for sections one, five and six.

RQ2 Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength for section four and the time students have for physical education and physical activity during the school day?

HY2 Elementary schools will have high LSWP comprehensive and Strength WellSAT: 2.0 assessment scores for section four.

### **1.12 Definitions of Terms**

The following definitions of terms are adapted from Subchapter A-Child Nutrition Programs, 7 CFR Part 210-National School Lunch Program, Part 220-School Breakfast Programs, Delaware Regulations Administrative Code Title 14 and U.S. Congress Public Law 111-296, Center for Disease Control and Prevention, United States Congress, unless otherwise indicated.

- Built communities/environment: An extensive manipulation of a designated area that is built and maintained to fulfill human needs, wants and values (Bartuska, 1994).
- Child/student: Students enrolled in a high school grade or under as determined by the State educational agency. Both terms will be used interchangeably. Children and/or

- students are used interchangeably in this study. Delaware identifies children/students enrolled in schools with grade configurations ranging from pre-kindergarten, kindergarten – 12<sup>th</sup> grade.
- Child Nutrition Programs (CNA): Federally funded food subsidized programs providing nutritious meals to children (national school lunch program, school breakfast program, child, adult care food program, summer food service program, special milk program and fresh fruit and vegetable program).
- Eastern Seaboard State (ESB State): The identifier for the state used in this study.
- Local Educational Agency (LEA): A non-profit public or private governing agency responsible for administration of one or more schools; a school district.
- Local School Wellness Policy (LSWP): A mandate from an amendment of the Child Nutrition Act of 1966; Subsection (§) 204.9 by the Healthy, Hunger-Free Act of 2010, Public Law (PL) 111-296; Reauthorization 2010.
- Local Wellness Policy (LWP): A mandate from an amendment of the Child Nutrition Act of 1966; (§) 204 by the Child Nutrition and WIC Reauthorization Act 2004, PL 108-265; Reauthorization 2004.
- National School Lunch Program (NSLP): A Federally assisted meal program providing nutritionally balanced, low-cost or free lunches to students enrolled in the administering school.
- Obesity/obese: Children and youth with body mass index (BMI)-for-age at or above the 95<sup>th</sup> percentile on the gender-age-height growth chart developed by CDC.

- Overweight: Children and youth with body mass index (BMI)-for-age between the 85<sup>th</sup> and 95<sup>th</sup> percentile on the gender-age-height growth chart developed by CDC; in this study, overweight conditions are included with any versions of the word obese.
- Parent: a father or mother; one who begets or one who gives birth to or nurtures and raises a child; a relative who plays the role of guardian; for this study parent and guardian will be used interchangeably.
- School Nutrition Programs (SNP): Any of the five following programs: (National School Lunch Program (NSLP); School Breakfast Program (SBP); Afterschool Snack Program (ASP); Special Milk Program (SMP); and Fresh Fruit and Vegetable Program (FFVP) federally funded food supplemental programs offering meals, milk and/or snacks in educational sites under the jurisdiction and administered by non-profit local educational agency (LEA).
- School Year (SY): July 1 to June 30 of each calendar year.
- State agency (SA): State educational agency or other agency the State has designated to have legislative authority of the child/school nutrition programs in educational setting; (ESB State DOE).
- State educational agency (SEA): the State legislature: chief State school officer, State Superintendent of Public Instruction, Commissioner of Education, etc.; Department of Education (ESB State DOE).

### **1.13 Summary**

According to the Center for Disease Control and Prevention (CDC), between the years 2011 – 2012, 17.7% of the Nation’s children were identified as obese (CDC, 2011-2012).

Esposito, Fisher, Mennella, Hoelscher, and Huang, (2009) in their article, Developmental Perspectives on Nutrition and obesity From Gestation to Adolescence, indicate that children between six and eight years old identified as being overweight, without intervention, become obese adolescents.

The legislatures passed the Healthy Hunger-Free Kids Act – 2010 mandating every school administering USDA school meals programs develop and implement local school wellness policy to address childhood obesity. Secretaries Vilsack and Duncan signed a letter distributed to all state departments of education that not only addresses childhood obesity, but also addresses students arriving to school hungry (Vilsack and Duncan 2013; USDA 2013). Healthy, Hunger-Free Kids Act-2010 also addresses prevention of childhood obesity, eliminating hunger, and improving student academic performance.

Maslow's Theory (1943) hierarchy of needs is displayed in a pyramid that has five horizontal levels. The five levels are divided into two general categories, deficiency needs and growth needs. Deficiency needs are from the lower three levels; continued access to food, water, air, safety and self-esteem. When a child does not have access to the deficiency needs, their cognitive development is impaired (Tufts University of Nutrition Center on Hunger, Poverty, and Nutrition Policy).

The childhood obesity epidemic has negative effects on children's overall health, self-esteem and their academic performance. Obese children are diagnosed with many chronic medical conditions which have an adverse effect on student academic achievement. Obesity is an indicator of poor academic achievement due to increased incidences of tardiness, absenteeism, and low self-esteem and other chronic physical medical conditions.

An article in the Journal of Health Psychology indicated that the children who are obese and remain obese as they become older, have difficulty in identifying with groups of their peers; they also have difficulty forming relationships, and maintain their academic performance (O'Dea, 2006).

## **CHAPTER II: LITERATURE REVIEW**

Chapter two provides a review of literature focusing on the important role the local school wellness policy (LSWP) mandated by the Healthy Hunger-Free Kids Act of 2010 (HHFKA-2010) has in addressing childhood obesity. The HHFKA-2010 states nutrition education for children and parents, physical activity and physical education are all important components of the LSWP. This study will investigate elementary schools participating in the NSLP, to explore if a relationship exists between elementary schools' LSWP WellSAT 2.0 assessment scores for nutrition education, school meal standards, physical activity and physical education and student absenteeism rate and school leadership's knowledge and support of LSWP development and implementation.

This chapter presents articles from empirical research inquiring or examining how schools can use LSWPs to improve student attendance, nutrition education that enhances or changes students' and their families' eating and physical activity behaviors. Peer-reviewed journals and meta-analyses, that have reviewed articles concerning local school wellness policies, childhood obesity, student attendance, academic achievement, physical education and physical activity are presented in this chapter.

Relationships in the school environment have an impact on a school's climate and culture. This study reviewed how Maslow's theory relates to the important role leadership, school environment (relationships, policy and programs) may have on student physical health, nutritional awareness and attendance.

## **2.1 Potential Risk Factors of Poor Nutrition**

*Cognitive Risks.* Cognitive development of children who do not have access to nutritious foods and time to engage in physical activity on a regular basis have significantly decreased cognitive development that affect their ability to learn (Hunter, 1904; Payne, 2005). The National Food Service Management Institute wrote in their workbook, History of Child Nutrition Programs, the 79<sup>th</sup> Congress considered the National School Lunch Act of 1946 (NSLA-1946) a matter of national security by addressing hunger and malnutrition by safeguarding the health of America's children (1946).

Students face many challenges that can have a negative impact on their academic achievement. The number of students who live in disruptive households continues to increase. Families from various levels of socio-economic status are not able to provide their children with the basic physiological needs (safe home, neighborhood, food security, as well as uninterrupted sleep (Campbell, 2014).

*Childhood Obesity.* The National Initiative for Children's Health Care Quality (NICHQ) reports 31.6% students in the nation were identified as overweight or obese (National Initiative for Children's Health Quality, 2007). The 108<sup>th</sup> Congress began to address childhood obesity by passing the 2004 Child Nutrition and Woman Infant Children (WIC) Reauthorization Act. The 111<sup>th</sup> Congress passed the Healthy, Hunger-Free Kids Act 2010 (HHFKA-2010) which requires the United States Department of Education (US DOE) and the United States Department of Agriculture (USDA) work together to educate, prevent and reduce the incidences of childhood obesity. The HHFKA-2010 would improve students' academic performance by developing and

implementing a local school wellness policy (LSWP) in all schools participating in the NSLP (111<sup>th</sup> US Congress, 2010).

Childhood obesity is an epidemic that not only disrupts students' overall health, but is responsible for health conditions that disrupt the students' availability to be engaged in physical activity in school. Self-esteem, hunger, mental ailments, as well as poverty, prevent students from being mentally present and ready to learn (Payne, 2005). Access to quality school meals, physical activity, and physical education during the school day can help reduce the number of students identified as overweight or obese (Cama, Emerson, Parker, Levin and FitzSimmons, 2006).

## **2.2 Background of Childhood Obesity.**

Before childhood obesity was identified and accepted as a national epidemic, educational, psychological, and healthcare professionals were conducting and publishing empirical research discussing the negative effects childhood obesity has on children's emotional, medical, physical and psycho-social wellbeing and academic achievement. Wang and Veugelers (2008) state that a student's poor health limits cognitive development which is related to limited educational achievement. Poor health in children is not limited to children identified as overweight or obese. A child can be identified as being within their ideal weight for their height; however, not having continuous access to nutritious food will also have an effect on students' cognitive development as well. Physical activity is important for students' development, physical and mental health and cognitive development and social interactions (Trost, 2007).

Childhood obesity affects children from all socioeconomic households and communities. Regrettably, minority children from low-income households are disproportionately affected.



Sharma, Grummer-Strawn, Dalenius, Galuska, Anandappa, Borland, Mackintosh, and Smith (2009) used the Pediatric National Surveillance System (PedNSS) data that indicated nationally from 1998 to 2003 childhood obesity continuously increased from 12.4% to 14.5%. From 2004 to 2011 childhood obesity rates continued to increase from 15% to 16.9% (Trust for America's Health, 2014).

Research has indicated the number of children identified as obese continues to increase. Chicago's Children's Memorial Hospital started conducting research to understand childhood obesity, especially in Chicago. Unger, Kreeger and Christoffel (1990) reviewed 175 medical charts of obese children receiving services at the hospital's Nutrition Evaluation Clinic. Their report indicated the children that were at various stages of obesity were also diagnosed with asthma, hypertension, and diabetes as well as orthopedic and various emotional disorders. The above stated medical conditions were also identified as childhood obesity-related illnesses (Must 1996; Miller, Rosenbloom, Silverstein, 2004).

The American Diabetes Association reports obese children are being diagnosed with type 2 diabetes mellitus that was rarely a primary diagnosis for children (Kibbe, Offner, 2003). The Executive Summary of the American Heart Association Research Summit (2009) indicated the medical community has concerns about the life span of this generation. Secondary medical conditions such as nonalcoholic fatty liver disease, atherosclerosis, hypertension, and type 2 diabetes mellitus once rarely seen in children and adolescents are now prevalent among obese children and adolescents (Daniels, Jacobson, McCrindle, Eckel, and, Sanner, 2009).

The current generation of children participates in less physical activity than children in past generations. A family's socioeconomic status and neighborhood location have also been

linked to the increased incidences of childhood obesity (Gordon-Larsen, Nelson, Page, and Popkin, 2006).

Families' physical location has an effect on students' health and their ability to engage in physical activity outside of the school environment. Children residing in low-income urban and rural areas have limited access to local safe areas to engage in physical activity (Davis, James, Curtis, Felts and Daley, 2008). Handy, Boarnet, Ewing and Killingsworth (2002) define built environments as human made multidimensional concepts that consist of land use for transportation (automobile, transit systems), employment, shopping and other human activity within or surrounding one or several communities. Built communities may or may not encourage physical activity such as walking or bicycling within or to and from the built community. Many large full service chain grocery stores or supermarkets built in a central location to provide service to as many communities as possible are characteristics of built environments (Bartuska, 1994). The failure to have access to private transportation, limited transit routes, and extended long distances along unsafe routes make it practically impossible for low-income and/or families in built communities to reach the full-service grocery stores (Sallis and Glanz, 2006; Schafft, Jensen, Hindrichs, 2009).

For the past 20 years, the rate of obesity in children has steadily increased, especially among elementary school-aged children. From 1980-2000 childhood obesity steadily increased at such a rate that childhood obesity has been identified as, and continues to be, a national epidemic and is stated to be a threat to our national security.

The National Institute of Health published an article entitled "Obesity and the US Military Family" (Tanofsky-Kraft, Sbrocco, Theim, Cohen, Mackey, Stice, Henderson,

McCreight, Bryant, and Stephens 2013). The article reports that the increase in obesity rates has affected active-duty military staff, spouses and their children. The military branches report that obesity is not only affecting the current military members, but the obesity epidemic has caused a decreased number of eligible recruits. The article indicated 27 percent of Americans between the ages of 17 and 24 were identified as overweight/obese, could not lose the weight and, therefore, could not enlist in the military. According to the U.S. Department of Health and Human Services, the number of children between the ages of 6 to 19 identified as overweight or obese continues to increase. The National Center for Health Statistics (NCHS) states approximately 17% of school age children were identified as obese in 2007-2008 (Ogden and Flegal, 2010).

Dr. Joycelyn Elders, U.S. Surgeon General (1993-1994), stated the Nation's public education system cannot educate unhealthy students and students won't be healthy unless they are educated, (Kelly, 1994). The National Association of State Boards of Education (NASBE) declares student health and academic success are interdependent; childhood obesity is associated with other medical conditions. Research has documented overweight and obese children are diagnosed with comorbidities once only associated with adults. Bellows and Roach (2009) stated children identified as obese are more likely to be diagnosed with cardiovascular diseases (CVD), type II diabetes, increased incidences of asthma, sleep apnea and skeletal problems. Students diagnosed with the above stated medical conditions tend to have increased incidences of absenteeism or reporting to school late.

### **2.3 Student Attendance**

Childhood obesity alone does not cause students to have poor academic achievement, but is an indicator of the other health concerns associated with childhood obesity (Karnik and

Kanekar, 2011). Action for Health Kids, published The Learning Connection (2004) that reported on average obese students are absent at least one day a week from school. When students are chronically absent from school they miss valuable class instruction that cause them to fall behind their classroom peers academically and can cause social isolation (Gottfried, 2010).

Student health concerns are not just related to the above-mentioned medical concerns associated with childhood obesity. There are emotional, mental, and psychosocial conditions associated with being identified as obese. Obese students are more openly stigmatized and socially ignored by their non-obese peers, which has a negative effect on student self-esteem.

Zeller, Reiter-Purtill and Ramey state obese children are less likely to be identified as a best friend, or participate in group settings that engage in social and/or physical activities (2007). The third level of Maslow's Hierarchy of Needs pyramid is where students attain acceptance, belonging, and are able to identify with a group(s) of students. Elementary school age students that are identified as obese may not be accepted or be able to identify with any group of students which lowers their self-esteem.

Students with low self-esteem can become depressed and engage in negative behaviors that may include unhealthy eating habits and unexcused absence from school. In 2009, Michael A. Gottfried authored an article entitled Excused Versus Unexcused: How Student Absences in Elementary School Affect Academic Achievement (Gottfried 2009), he states whether students have excused or unexcused absences, missing class instruction has a negative effect on student achievement. Children identified as obese and/or unhealthy cannot concentrate, are not motivated to learn, and have increase incidences of tardiness and absenteeism that effects

students' academic achievement (Basch, 2011; Schwimmer, Burwinkle, and Varni, 2003).

From grades kindergarten to the fifth grade, children spend the majority of their waking hours in elementary school environment. It is therefore logical to begin teaching and exposing students to lifelong healthy habits that include providing nutrition education in school curriculum, eating nutritious foods and engaging in physical activity. The goals of the LSWP includes providing students and families with nutrition education, increasing the amount of time students have for physical education, physical activity and increasing student access to school meal programs that meet the HHFKA-2010 revised nutrition standards.

## **2.4 Background of School Lunch Program**

*The Great Depression.* Before 1930, individual households and community charitable organizations donated food for local educational agencies to use to serve meals to children. By 1933, a vast number of Americans were jobless and many families lived in poverty. Government programs to help assist unemployed workers such as the Supplemental Nutrition Assist Program (SNAP) and unemployment insurance had not been developed. Food insecurity was a major concern; many families went without food for weeks at a time (Schenk, 2011). As the Great Depression continued to reduce families' financial resources, many families had little to no money to purchase food or to give their children money to purchase the lunch meal schools provided. Children arrived at school hungry and without money to pay for their school lunch meals were hungry throughout the entire school day. During this time families having limited resources to purchase food, there was a National concern that children would develop malnutrition illness (Guderson, G. W., USDA Food and Nutrition Service, 2012).

In 1937, 15 states passed legislation authorizing local educational agencies to manage

lunchrooms to prepare and serve lunch meals to students during the school day. Of those 15 states, four states passed local legislation to make special stipulations to feed poor children without cost to the children's family (The Bureau of Agricultural Economics, 1941). The lunch program was operating in 3,839 schools and providing daily school lunches to 342,031 students. By 1939, the number of schools participating in the lunch program had increased by 3.67% and the number of students receiving the meals had increased by 2.61%.

The number of students needing the nutritional benefits from the school lunch meals required the number of schools preparing and serving school lunch meals to increase. By 1946 more than six million students enrolled in 45,119 schools were receiving meals from the lunch program (Guderson, 1971).

*Federal Funding for National School Lunch Program.* In 1946, the 79<sup>th</sup> Congress presented and President Harry S. Truman signed The National School Lunch Act of 1946 (NSLA-1946), Public Law 396. The legislation authorized permanent federal funding for the school lunch program. NSLA-1946 included language stating that the school lunch program will ensure participating students receive and learn good eating habits, which will be shared with other family members (79<sup>th</sup> Congress, 1946). Legislation also declared the purpose of the National School Lunch Act “.... as a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage domestic consumption of nutritious agricultural commodities and other foods....” (Guderson, 1971, p. 14).

NSLA-1946, Subsection §3 contains the verbiage of how federal funds would be transferred from the US Treasury to the Secretary of Agriculture, (USDA). Subsection §4 provides the calculations of how much cash assistance would be allocated to the individual states

and US Territories. The calculations include the total number of children enrolled in schools participating in NSLP and the individual states' per capita income. Subsection §11 contained additional cash assistance to schools within the state that served free and reduced price school meals to students who lived in households that are 130 and 185 percent of the federal income poverty level (Pannell-Martin, 1999; Federal Register, Vol. 64, 1999).

*Reauthorization of the National School Lunch Program.* Every five years, the National School Lunch Act of 1946 (NSLA-1946) and the Child Nutrition Act of 1966 (CNA-1966) go through the process of reauthorization. Although the programs are authorized by NSLA-1946 and CNA-1966 to have permanent federal funding, (an appropriation in the federal budget), the reauthorization process includes a Congressional review of program language, the option to add or revise amendments and approve funding levels.

*Child Nutrition Act of 1966.* On October 11, 1966, President Lyndon B. Johnson signed the Child Nutrition Act of 1966. The Child Nutrition Act of 1966 established funding for the pilot of the School Breakfast Program (SBP). During the signing of this Act President Johnson made the following comments in reference to the important role school meals have in America's schools' educational processes:

This Child Nutrition Act of 1966 will make it possible to close the nutrition gap among children in school. I know what it is to teach children who are listless and tired because they are hungry-and realize the difference a decent meal can make in the lives and attitudes of school children. It can be a heartbreaking and frustrating experience, if there is nowhere to turn for help when your child is hungry (Johnson, 1966).

The above quote indicates President Johnson personally understood and knew the important role nutrition has in student academic performance. The SBP allowed local educational agencies to provide students a nutritionally balanced meal before the school day started. This meant schools could provide their students with two nutritionally balanced meals, one before the school day started and the other in the middle of the school day. The CNA-1966 also changed the time frame that Congressional reviews (reauthorization) of the school meal programs would occur; instead of every three years the reauthorization process was expanded to every five years.

Although child/school nutrition supplemental programs authorized by NSLA-1946 and CNA-1966 have permanent federal funding, the reauthorization process allows Congressional legislators an opportunity to review the language and the funding levels of the different programs. It also allows them to make amendments to the existing acts by revising, omitting and/or introducing new language into the NSLA-1946 and CNA-1966. The amendments of NSLA-1946 and CNA-1966 of 1977 (Public Law 95-166) added section 19 entitled “Nutrition Education and Training”. Section 19(a)(5) states: “(5) there is a need to create opportunities for children to learn about the importance of the principles of good nutrition in their daily lives and how these principles are applied to the school cafeteria.” (95th Congress, 1977, p. 1341).

*Nutrition Standards.* Section 9 of the National School Lunch Act of 1946 required school meals to use the recommended dietary allowances (RDAs) for developing school meal menus (Guderson, 1971). The CNA-1966 also mandated that all school nutrition programs follow nutrition standards as established for Healthy Americans (Stallings and Yaktine (Eds.), 2007).

“You can’t expect work and achievement out of people unless you feed them properly;



it's as simple as that" (Oliver, 1993, p. 1). The above quote is from Dr. Jean Mayer, an acclaimed investigative human nutrition researcher. He is a professor at Harvard School of Public Health, and has conducted more than 20 years of research on regulation of food intake, obesity in humans and character defects related to obesity. Dr. Mayer and one of his many research teams addressed the positive effects exercise has in the prevention of childhood obesity (Gershoff, 2001).

In 1969, President Nixon appointed Dr. Mayer as Special Consultant on Nutrition to the President of the United States. Dr. Mayer's first assignment was to organize the White House Conference on Food, Nutrition and Health. The White House Conference on Food, Nutrition and Health Final Report included a recommendation (Item Number Ten) concerning health and physical education and recommendation for prevention of obesity, and as a means of preventive and therapeutic medicine (Peters, Woolley, 1969). President Nixon didn't have the support of the Congressional legislators and the Conference recommendations did not materialize.

*Child Nutrition and WIC Reauthorization Act 2004.* Author Pikoff (2009) commented in his article, Updating the Child Nutrition Act – A Chance to Create a Healthier Lifestyle, Child Nutrition and WIC Reauthorization Act of 2004 (CNWIC-RA 2004) would update the nutrition standards for child nutrition programs since the signing of the Child Nutrition Act – 1966. He further stated that new nutrition standards have an opportunity to put emphasis on healthy eating, physical activity and childhood obesity prevention in the school environments.

Obese children diagnosed with illnesses related to poor nutrition, food insecurity, decreased amounts of physical activity and limited nutrition education in public schools continue to be a National concern. In 2003, 15.1% of children the ESB State children were identified as

overweight and 16.9% were identified as obese (Better Policies for a Healthier America, 2014).

The CNWIC-RA 2004 mandated schools develop and implement a local wellness policy (LWP) that included five goals to address childhood obesity through nutrition standards and physical activity by the beginning of the 2007 school year (July 1, 2006):

1. Goals for nutrition education and physical activity and other school based activities designed to promote student wellness in a manner that the local educational agency determines as appropriate;
2. Includes nutrition guidelines selected by the local educational agency for all foods available on each school campus under the local educational agency during the school day with the objective of promoting student health and reducing childhood obesity;
3. Provide assurance that guidelines for reimbursable school meals shall meet previously established U.S. Department of Agriculture regulations;
4. Establish a plan for measuring local wellness policy implementation; include designating one or more persons responsible for ensuring all schools within the local educational agency are meeting the local wellness policy; and
5. The local educational agency had to ensure the local wellness policy included input from parents, students, representatives from the school nutrition administrative/operational staff and public community members for the development of the policy (108th Congress, 2004).

Local educational agencies did not receive any additional federal funding to develop and implement the local wellness policy by July 1, 2006. (Stallings and Yaktine, (Eds), 2007).

Several allied agencies and departments teamed up with USDA to provide technical

assistance on how to develop local wellness policies. The School Nutrition Association developed a sample of a Local Wellness Policy that was accessible through the Association's website and established a link to the USDA-FNS website as well.

The National Alliance for Nutrition and Activity and Action for Healthy Kids developed a toolkit that contained Healthy Foods for Kids: Guidelines for Good Nutrition at School. To assist schools to meet the reestablished nutrition guidelines from CNWIC-RA 2004 the Tool Kit included ways to improve school menus by reducing sodium, sugar, and fat content and increase whole grains, fresh fruit and vegetables (Hoxie-Setterstrom, Hoglund, 2011). In addition to not having any additional funds to implement the local wellness policy, LEA and school administrators were expected to have students meet the academic standards of the No Child Left Behind Act of 2001.

*Local Wellness Policy.* "Bridging the Gap", a Robert Wood Johnson Foundation report that focuses on health care issues of America children, generated an Executive Summary that assessed local wellness policies developed and implemented by local educational agencies. The 2009 report population was a representative sample of 579 local educational agencies from 48 states. This report was the first comprehensive report on local wellness policies. A major finding from the review of the local wellness policies was many of the policies were underdeveloped; language was weak and inconsistent. Many local educational agencies used strong language for activities already implemented in the schools; consequently, no actions were required. Another finding was policies failed to provide strategic plans for sustaining and evaluating the local wellness policy (Chriqui, Schneider, Chaloupka, Ide, and Pugach, 2009).

In order for schools to meet the academic standards of the No Child Left Behind Act of

2001, administrators of local educational agencies allocated increased time for Common Core subjects, science, technology, engineering and math (STEM) instructional time. Consequently, decreased time was allocated for physical activity, physical education, health and related arts, which increases the amount of time students are sitting at their desks (Sibley, Etnier, 2003).

## **2.5 Healthy Hunger-Free Kids Act-2010**

Current Congressional leaders have made amendments to the NSLA and the CNA in response to childhood obesity and the chronic medical illness related to children identified as obese. The Healthy Hunger Free Kids Act of 2010 (HHFKA-2010) mandated changes in the nutritional standards and meal requirements to reduce the number of children identified as overweight and obese.

Congress also mandated USDA/Food Nutrition Service formulate a committee to revise the SNP nutrition standards. The nutrition standards must continue to be founded on scientific research. The committee consisted of members from the Institute of Medicine (IOM), and members from colleges and universities having agriculture, chronic disease, epidemiology, food, nutrition, nutrition science, public health policy research and educational programs. The purpose of the committee was to help revise child nutrition programs that would address childhood obesity (Institute of Medicine, 2008).

The CNWIC-RA 2004 was Congress' initial attempt to have schools engage in the prevention of childhood obesity by mandating local educational agencies develop a local wellness policy.

In 2013 the National School Lunch Program (NSLP) alone served 5,097,655,474 meals to the nation's children across America; 15,310,100 lunch meals were served to children in the

ESB State's schools participating in the NSLP (Food and Nutrition Service USDA, 2014).

Healthy Hunger-Free Kids Act 2010 is as important today as the NSLA was 64 years ago, and the CNA Act 44 years ago. The HHFKA-2010 is Congress' second attempt to respond to the childhood obesity epidemic. It has been more than 30 years since Congress required USDA to implement extensive changes in the nutritional standards and funding levels for SNP, child nutrition programs and child supplemental meal programs. Section 204 of the HHFKA-2010 require all LEAs participating in federally funded child/school meal programs establish a local school wellness committee to develop, implement, evaluate and sustain a local school wellness policy (LSWP). The policy must ensure that all students have time to engage in physical education/activity, school meals that meet the revised nutrition standards, include nutrition education in the school's curriculum that will increase nutrition awareness for students and their families, maintain transparency, sustainability and allow the public access to the LSWP (Chriqui, Resnick, Chaloupka, 2013).

*Local School Wellness Policy (LSWP)*. This first-time collaborative effort of the U.S. Departments of Agriculture and Education to address childhood obesity, child hunger, and student academic achievement is demonstrated by the seven goals of the Local School Wellness Policy. Congress mandated both the U.S. Departments of Agriculture and Education work together in addressing students' health and wellness as a means to improve student academic achievement. The HHFKA-2010 amended CN and WIC Reauthorization Act of 2004 requirements in Section 204 of the National School Lunch Act 1946.

Section 204 title was changed from Local Wellness Policy to Local School Wellness Policy; the five goals required from Reauthorization 2004 were increased to seven goals, the

committee membership was expanded to include community members, parents, physical education instructors, school health and wellness professionals and, when appropriate, student representation, in addition to school administration and representation from school instructional staff from Reauthorization 2004. Two additional requirements are that the policy must be sustainable and at predetermined intervals, the committee must conduct evaluations of the LSWP. The evaluations and changes implemented must be available to the public upon request (USDA Food and Nutrition Service, 2011).

The policy must ensure that students are given time to engage in physical education/activity, school meals meet nutrition standards as per the Institute of Medicine (IOM), include nutrition education in the school's curriculum to increase nutrition awareness for students and their families, maintain transparency, sustainability and allow the public access to the LSWP (Chriqui, Resnick, Schneider, Schermbeck, Adcock, Carrion, and Chaloupka, 2013). This first-time collaborative effort of the U.S. Departments of Agriculture and Education to address childhood obesity, child hunger, and student academic achievement is demonstrated by the seven goals of the LSWP as per HHFKA-2010.

*Healthy Hunger-Free Kids Act-2010: Sub-Section (§) 204.* The HHFKA-2010 §204 expanded the required goals needed to develop the framework of LSWPs developed and implemented in all schools under the jurisdiction of LEAs administering any of the federally funded school/child nutrition programs. The seven goals are:

- Goals for nutrition education, promotion and awareness for student and families;
- Goals for nutrition guidelines for school meals and all foods and beverages available on each school campus during the school day that are consistent with

federal school meal standards and standards for food and beverages sold outside of school meal programs (i.e.: “competitive foods and beverages”);

- Goals for physical activity and other school-based activities promoting student (and family) wellness;
- Permission for stake holders (parents, students, teachers, school board members, community members, etc.) to participate in policy development, implementation, review and updates;
- Require the LEA to inform and update the community about the policies’ content and implementation;
- Require the LEA to report and measure on the wellness policy implementation periodically, including school compliance, alignment with model wellness policies, and a description of progress made in attaining the wellness policy goals; and,
- Designate one or more LEA and/or school officials responsible for ensuring school-level compliance with the wellness policy (111th US Congress, 2010).

## **2.6 National School Lunch Program History**

In 1946, the 79<sup>th</sup> Congress authorized the National School Lunch Program permanent status as part of federal mandatory spending as an entitlement program in the National budget (School Nutrition Association, 2015). The 79th Congress also addressed nutrition requirements: “Lunches served by school participating in the school lunch program under this Act shall meet the minimum nutritional requirements prescribed by the Secretary [of Agriculture] on the basis of tested nutritional research” (Gordon, 2014, p. 3).

Early in the 1970s, President Nixon became aware of the concerns about the nutrition and

overall health of children in America. President Nixon invited researchers and experts in pediatric medicine, children's health, and physical activity, and physical education to participate in The White House Conference on Food, Nutrition and Health to discuss topics concerning how to improve the overall health of Americans of all ages. The Conference included discussions about the importance of nutrition education and how to improve nutrition education in early education programs, K-12 school curriculum, and medical schools (Nixon Library, 1969).

Healthy Meals for Healthy Americans was part of the 1994 Reauthorization Act for child nutrition supplemental meal programs. The 1994 Reauthorization Act required school meal programs to implement the Dietary Guidelines as the nutritional standards for school meals. The Dietary Guidelines establish what healthy Americans from age 2 and older should eat to maintain optimal health. Every five years the U. S. Department of Health and Human Services and U.S. Department of Agriculture develop and publish the Dietary Guidelines for Americans. The guidelines establish levels of the key six nutrients (calories, calcium, iron, protein, Vitamins A & C) which Americans from the age of two and older should consume on a daily and/or weekly base. Every time there is a revision to the Dietary Guidelines for Americans, the NSLP and SBP nutritional guidelines are to be revised (United States Department of Agriculture-Food and Nutrition Service No. 303, 1998).

To assist schools in implementing the Dietary Guidelines for Healthy Americans, Food and Nutrition Service developed the School Meals Initiative for Healthy Meals (SMI). The SMI required the State agencies to conduct an analysis of a week of a school's NSLP and SBP menus and recipes. The final nutritional analysis for each day and the total week compared to the



Dietary Guidelines for Healthy Americans (National Food Service Management Institute, Food and Nutrition Service 2011).

Healthy Hunger-Free Kids Act-2010 requires local educational agencies participating in the National School Lunch Program (NSLP) and the School Breakfast Program (SBP) to adhere to the Dietary Guidelines as recommended by the Institute of Medicine (IOM). Local educational agencies can receive an additional six cents per reimbursable meal served to children in the NSLP and SBP. The local educational agency's State agency must certify that the local educational agency complies with the dietary guidelines IOM developed and USDA approved for NSL and SB Programs (Long, 2013).

*The Eastern Seaboard State's Nutrition Standards.* A School Nutrition Program administrator of a local educational agency, that had a total elementary school enrollment of 1,809 and 71.19 percent (1,288) of the student enrollment eligible for free or reduced price school meals during school year 2013, shared the following information in a recent interview with the researcher. Long before the passage of CN-WIC-RA-2004 the ESB State School Nutrition Program administrators began and continue to address childhood obesity by improving meal preparation, revising their menus, and providing professional development for their entire staff (H.H. Russell, personal communication, January 16, 2015).

More than 25 years ago the state's School Nutrition Program (SNP) administrators omitted the use of deep fat fryers from school meal preparation. As the equipment became inoperable the fryers were replaced with food service equipment that did not require additional fat in meal preparation. This was a bold and major initiative for that state's SNP administrators.

How would the students react to foods that had been deep fried, but were now cooked in convection ovens requiring little to no fat in food preparation? Would it decrease school meal participation?

The SNP administrators discussed and implemented various strategic plans for informing local educational agency administrators, local school boards, students, parents, families and community members about how school meals would be prepared to provide students with healthy menu choices. During the interview the SNP administrator also stated the state's SNP administrators followed the recommended daily allowances by conducting menu audits. They used various meal preparation methods to meet the recommended daily allowance of less than and no more than 30 percent of total calories from fat. As a group the SNP administrators met with food vendors, distributors, and allied food organizations and worked to improve the nutritional quality of the foods served in their SNPs.

The menu for a la carte items was also revised. Baked potato chips replaced the fried potato chips, juice drinks were replaced with 100% fruit juice. Bottled water was added to the a la carte menu and access to water fountains during breakfast and lunch meals had already been implemented. Menu items from the breakfast and lunch menus, especially milk, have always been available for individual purchases. Currently only low fat milk is offered with SNP meals in the state's public schools.

Fresh fruit is always available as a menu option and available for individual purchase. USDA commodity trail mix, when available, was also packaged for a la carte sales. Purchasing fruit packaged in its own juice costs more but reduced the amount of sugar in the school menus.

The SNP administrators continue to meet and collaborate with various food vendors working to provide food items that meet nutritional standards, are low in fat, sodium, sugar, are palatable and appealing to the students' senses of sight, smell, and taste.

Candy, gum and soda have never been available for students as a part of the ESB State's school nutrition programs. Vending machines that are used to produce revenue for other school programs were either turned off or moved from the entrance and inside the school cafeterias. The state's SNP administrators knew quality nutrition provides students with not just the essential nutrients but also adequate calories from complex carbohydrates that would help prevent students from being hungry between school meals.

## **2.7 Childhood Obesity**

Childhood obesity is a national concern not just due to the medical conditions with which obese children are diagnosed. It is an observable health marker, which may or may not affect student academic performance (Datar, Sturm, and Magnabosco, 2004). Taras and Potts-Datema (2005) question if school environments has an effect on obese student attendance; does the school environment make obese students uncomfortable doing physical activities, cause lack of confidence or emphasize students' medical conditions?

Missing ten percent or more school days is considered chronic absenteeism. Elementary school students are beginning to learn the basic fundamental academic skills needed to build a firm foundation for a successful K-12 educational career. If students are absent for extended periods of time, they aren't learning and fall behind in their school work (Bruner, Discher, and Chang, 2011). Children reporting to school in poor health or hungry are less likely to concentrate on their school work. The school environment is an ideal location to help students

improve their physical health and, in turn, improve their academic achievement. An article in the Public Finance Review (2010) entitled “Childhood Obesity, Academic Achievement, and School Expenditures” indicates to date no research has directly linked childhood obesity to poor academic achievement. However, improved physical fitness has been shown to increase students’ academic achievement (Gurley-Calvez and Higginbotham, 2010).

## **2.8 Nutrition Education**

Between the years 2003 and 2006, the obesity rates of the Nation’s children between the ages of six and 11 increased from six percent in 2003 to 17 percent in 2006 (Food and Nutrition Service, 2010). To address childhood obesity rates HHSFKA-2010 mandates all schools under the jurisdiction of the local educational agency (LEA) develop and implement local school wellness policies. The framework of the LSWP must ensure each of the seven goals is addressed and nutrition education and promotion is the first goal. Nutrition education should be broad based to provide knowledge, skills and tools needed to not just change eating habits, but develop behaviors that promote healthy life styles (Federal Register, Vol. 79, No. 38, 2014).

“Health literacy is the ability of an individual to access, understand, and use health-related information and services to make appropriate health decisions. Low health literacy contributes to our nation’s epidemic of overweight and obesity” (Dr. Richard Carmona, U.S. Surgeon General 2002-2006; transcript of the Testimony before Subcommittee on Education Reform “The Obesity Crisis in America” 2003, para. 46).

Story, Nannery and Schwartz (2009) state nutrition education has been available in schools, and the major concerns with nutrition education in the schools prior to HHSFKA-2010

were (a) how much time was allocated for nutrition education, (b) what was the content and format of the nutrition education courses, and (c) which instructional staff taught the nutrition education.

*Promoting Nutrition Education.* Education in schools should not just provide education for purposes of academic achievement and standardized tests; school education should create environments that promote lifelong behaviors that improve the quality of student, family, and community members' lives. The school buildings are designed to accommodate diverse audiences with various educational needs to develop healthy life styles (Perez-Rodrigo and Aranceta, 2001). Knowing what and how much to eat is only one segment of nutrition education. The programs should include how to read and understand food labels, be able to identify food ingredients listed under uncommon names or terms, portion sizes, unit cost, and foods that are nutritionally unhealthy and promote obesity (Briggs, Safaii, and Beall, 2003).

## **2.9 Nutrition Education in Schools**

On October 29, 2013, Secretary of Agriculture Thomas J. Vilsack and Secretary of Education Arne Duncan published a joint policy letter thanking schools for working to make schools healthy environments. This letter indicated the US Departments of Agriculture and Education would continue to work together to address childhood obesity in the school environment. It also encourages schools to continue to provide nutrition education, promote healthy school environments and improve food selections (Vilsack and Duncan, 2013).

School Wellness Policy and Practice: Meeting the Needs of Low-Income Students recommends combining nutrition education in as many academic subjects as possible. Math teachers can use pictures of fruits and vegetables for counting and grouping. Weekly vocabulary

lists can include a fruit and vegetable as grade appropriate. The article also recommends instructional staff partner with school nutrition program professionals to jointly plan education activities and programs (Cama, S., Emerson, B., Parker, L., Levin, M., and FitzSimons, C., 2006).

Falter, Pignotti-Dumas, Popish, Petrelli, Best and Wilkinson (2011) reported in the American Journal of Pharmaceutical Education findings from an empirical qualitative experiment in which participants were elementary school students in grades kindergarten to third grade. This study reported that four weeks, one day a week, the pharmaceutical students provided 30 minutes of nutrition education in the students' classrooms. They used various educational delivery methods which included educational games, videos, homework sheets and food taste tests. The authors report the participants' knowledge of nutrition education has improved.

The John W. Gardner Center for Youth and Their Communities conducted a focus group study concerning their Healthy School Initiative (2012). The schools selected to participate indicated health awareness was an important factor in student achievement; and encouraged coordination between health, physical education, math, science, social studies, English language courses. Parents who participated in the focus group indicated:

- Schools were best suited to provide nutrition education to children and their family members;
  - School staff have substantial influence on influencing student behaviors; and
  - Schools can provide students with life-long skills for healthy living
- (Westrich, Sanchez, Strobel, and Duong, 2012).

Many schools promote and teach about healthy eating and lifestyles as part of the school's health, physical education and/or science components, which may offer less than 15 hours of nutrition education each school year (Porter, Koch, Peralta, and Contento, 2014).

With increasingly diverse communities, students and educational staff have to learn and observe culture, ethnic and medical nutrition sensitive of students. School cafeterias should be used as extended classrooms for nutrition awareness, and promote healthy eating habits. According to Hayes (2005) to improve, establish, and sustain healthy eating habits, nutrition education and promotion should begin well before students reach the sixth grade. The author states students in grades six and above have established eating behaviors and are very reluctant to change. There are factors that should be considered when students are reluctant to change their behaviors. Students in many elementary schools have access to nutritious meals and opportunities to engage in physical activity after they arrive to school. What happens when the child is not in school can be a barrier to preventing childhood obesity.

The framework of nutrition education programs should be a far-reaching program that is designed to provide information about relationships that exist among food, eating and disease prevention (Food and Nutrition Service, 2010). The objective of nutrition education should be more than discussing good and bad foods; the program should encourage positive changes in eating behaviors by addressing the various environments where meals are consumed. The content should be developed and delivered in a manner that will meet the personal needs of the audience.

As the nutrition education program expands, the presentation of the information will also change. The socioeconomic status of families has an important impact on understanding what

nutrition education is, and how, when and where the information can be utilized. Families of all socioeconomic status live and function within the hidden rules of their status. Families that have resided in low income communities for more than two generations equate food to love; food conveys comfort from many types of crises, personal, family and even community (Payne, 2005). As children grow and begin to have to deal with uncomfortable situations, food consoles them. If not addressed, the unhealthy relationship between child and food leads to medical and psychological conditions that may affect academic achievement (Russell-Mayhew, McVey, Bardick, and Ireland, 2012).

Each community will have specific challenges that must be addressed. Nutrition education also includes focusing on how to address barriers to getting access to healthy foods. The barriers are not just environmental but also financial. Local school wellness policy committee members will need to establish community relationships to help reduce the barriers that prevent access to fresh fruits and vegetables. USDA Farm to School Programs have provided another venue for nutrition education.

Nemours, a national non-profit organization dedicated to improving the health of children, conducted a study in which parents and educators were the participants. Of the 1,173 participants that responded, 57 percent (666) were parents and 43 percent (507) were educators. The questions focused around health, physical education, and childhood obesity. In April 2013 KidsHealth.org published the findings from the survey in which parents and educators indicated the school is the best place for students to learn about health, nutrition, and physical education and they want the classes to be required during the school day. Unfortunately, many parents were not able to identify the characteristics used to determine children as overweight or obese.



Educators' responses indicated they wanted physical education courses that are structured and require students to actually participate in order to pass the courses. It was recommended that schools provide additional time during the school day for health and physical education classes (KidsHealth.org, 2013). The curriculum for health and nutrition education should be age and grade appropriate as well as provide information that can be utilized in their homes.

There should be a component in the nutrition education curriculum that addresses the nutrition needs of children that arrive home without adult supervision, latchkey children. The information provided to parents should include food items that children can access easily and eat with little to no preparation. Having access to nutritious foods/meals in school, at home and around the community will help decrease the number of children identified as overweight or obese. This is one reason community and parental involvement is an important goal of the LSWP (Shilling, 2011). Just as USDA's Farm-to-School is an opportunity to teach nutrition education in the school, Farm-to-School can also be used to teach nutrition education in the community.

Joshi, Azuma, and Feenstra (2008), authors of the article "Do Farm-to-School Programs Make a Difference? Findings and Future Research Needs", indicate teachers find positive associations between school gardening and farm visits and increased academic performance. The authors also stated the majority of research concerning nutrition education and school gardens has been limited to studies or reports, and indicated research including data analysis concerning school gardening, nutrition education, and student academic performance is warranted.

## **2.10 Physical Activity and Physical Education**

*Importance of Physical Activity.* Having students engage in physical activity does not

only help to decrease the incidences of childhood obesity but also helps to improve student mental and emotional wellbeing. Childhood obesity is an international health concern that has reached epidemic levels. In 1971 Dr. Lloyd, Institute of Child Health, University of London, stated three percent of British children are obese. There are many causes for childhood obesity and some are complex metabolic conditions or related to the treatment a person receives for other types of medical, emotional and physical conditions or even genetic disorders (American Academy of Child and Adolescent Psychiatry, 2011; Boyse and Clark, 2011).

A sedentary lifestyle is a major contributor to obesity at any age. Obesity in children is a major health concern; it is an international epidemic. Sedentary life styles and eating an excessive amount of calories beyond what is needed to maintain a body's basal metabolic rate leads to obesity. Basal metabolic rate is the number of calories (energy) the body needs to maintain natural functions while at rest, and based on daily activities performed when the body is not at rest (Williams, 1997). Any combination of the above-mentioned conditions/situations can contribute to childhood obesity. The amount of time allocated for physical education and/or physical activity has continuously decreased and classroom time has increased. Authors Smith and Lounsbery (2009) indicate administrators of LEAs and school administrators must meet the No Child Left Behind Act of 2001(NCLB) mandates. Many adjusted their curriculum by increasing the amount of time for academics by decreasing time for physical education and physical activity. The lack of physical activity in children has been linked to poor bone health, which can also be related to increased student absences.

School is the predominant environment of children enrolled in U.S. public primary (K-6) schools. It is in this environment that schools can address childhood obesity by monitoring

student attendance and increasing their access to physical education and physical activity. Engaging in learned physical activities in the primary school years can have an effect on children's lifestyles as they grow older (Sharkey, Yetter, Felix, and Furlong, 2006).

Action for Healthy Kids, The Learning Connection: The Value of Improving Nutrition and Physical Activity in Our Schools, Washington Action For Healthy Kids report physical activity during the school day is linked to student increased concentration on school work thus improving student academic achievement. The report further states only eight percent of elementary schools across the nation provide 222 minutes of physical education/activity per week as recommended by the National Association for Sport and Physical Education (Action for Healthy Kids, 2004). The ESB State, where that this study takes place, The Alliance for a Healthier Generation – Healthy Schools Program 2012 State Report documents 32% of the state's children between the ages of ten and 17 were identified as overweight or obese; 37 of 108 elementary schools provide students with 60 minutes of physical education each school week instead of the recommended 222 minutes which includes recess (Alliance For A Healthier Generation, 2012).

While movement is both innate and essential to an individual's growth and development, it is the role of physical education to provide instructional activities that not only promote skill development and proficiency, but also enhances an individual's overall health. Physical education not only fulfills a unique role in education, but is also an integral part of the school process (Boyce and Mitchell, Retrieved 2002, p.1).

Dr. David Satcher, former U.S. Surgeon General (1998-2002), wrote in his 2005 article, “Healthy and Ready to Learn”, schools with policies that provide community members with space to access resources which support physical activity and other healthy resources have a positive effect on the health of American families. Schools can provide family members access to lessons in lifelong physical activities and nutrition education. His article further states children have better attitudes about attending school, improved school attendance, increased interest in school work, better test scores and an improved classroom environment when physical activity is a customary part of the school day.

*Importance of Physical Education.* In 2010, the Center for Disease Control and Prevention published a report with the National Association for Sport and Physical Education about the association between school-based physical activity, physical education and academic performance use the following to define physical education: “...a curricular area offered in K-12 schools that provides students with instruction on physical activity, health-related fitness, physical competence, and cognitive understanding about physical activity, thereby enabling students to adopt healthy and physically active lifestyles” (Center for Disease Control and Prevention and, The National Association for Sports and Physical Education, 2010, p. 10).

*History of Physical Education.* From 1700 to 1800 English, German, and Swedish immigrants were major contributors to physical activity and physical education in American schools. Immigrants from England introduced games and sportsmanship, which aided in moral and physical development of the students. Swedish immigrants introduced a graceful form of gymnastics that incorporated light physical activity. Participants used ribbons, light ropes and wands as they followed preset forms of physical movement. German immigrants introduced

gymnastics that required large and heavy equipment (Mosher and Keough, 1996).

In 1855 Cincinnati, Ohio was the first city public education system to incorporate physical education in its curriculum. Eleven years later legislators in the state of California passed a law that required public schools to provide students with two exercise periods per day. The exercise periods focused on athletic games and structured physical activity. Playing games helps children develop social, emotional, and cognitive development (Boyce and Mitchell, 2015).

In 1953 Dr. Hans Kraus and Dr. Sonja Weber, Columbia University Presbyterian Hospital Posture Clinic, published a study which revealed American children were not as physically fit as European children. A year later (1954) the doctors developed a medical fitness test consisting of six components. Five components tested the strength of childrens' physical carriage and the sixth component tested the child's flexibility. The test is known as the Kraus-Weber test (Kids Failed Fitness, 2015).

Prior to becoming the 34<sup>th</sup> President, President Eisenhower served in the Army as a Commander of several divisions of the Army during World War II. He received complaints from Army recruiters and officers concerning the poor physical condition of the new recruits and draftees. After hosting a conference on the Fitness of American Youth President Eisenhower established the President's Council on Youth Fitness (Wargo, 2007). President Eisenhower's was the first administration to address physical fitness of American Youth, and increase the amount of research conducted on the benefits of being physically active. From President

Kennedy to President Obama each presidential administration amended the President's Council on Fitness, Sports and Nutrition.

- President Kennedy changed the name to President's Council on Physical Fitness. Its goal was encouraging community organizations and advisors to promote physical fitness for everyone regardless of their age.
- President Johnson established Presidential Physical Fitness Award.
- President Nixon expanded the award to include recreation groups, and to encourage physical fitness programs at work sites.
- President Ford expanded the award to 43 categories.
- President Carter made physical fitness and exercise a national priority and assigned the Center for Disease Control and Prevention as the lead agency.
- President Reagan proclaimed May as the National Physical Fitness and Sports Month and enlisted the National Recreation and Parks to develop fitness programs for surrounding communities.
- President G. H. Bush established Healthy People 2000, CDC research advisor.
- President Clinton developed a Strategic Plan for physical activity and fitness goals of Healthy People 2010. Healthy People 2010 includes 10 Leading Health Indicators, and charged US DOE to develop strategies for improving the physical fitness of America's youth.
- President G. W. Bush's Health and Human Services Department published Physical Activity Guidelines for Americans.

- President Obama changed the Council's name to President's Council on Fitness, Sports and Nutrition (President's Council on Fitness, Sports and Nutrition, 2015).

Since its inception, the Presidential Physical Fitness Council always concentrated on unorganized physical activity. Years later the council included sports performance (Kids Failed Fitness, 2015, p. 2). Between 1917 and 1930 more than 35 states required physical education in their public school curriculum (Mitchell, 2003). Although the Council name changed, awards and categories for awards were revised, the objective of getting America's youth physically active and improving the overall health of American households remained the focus of the Presidential Physical Fitness, Sports and Nutrition Council.

The Healthy Hunger-Free Kids Act of 2010 (HHFKA- 2010) requires the local educational agency (LEA) to have each school under the LEA's jurisdiction participating in the national school lunch program formulate a school wellness committee. The committee members must ensure the school's local school wellness policy (LSWP) works to meet the seven goals of the HHFKA 2010 § 204.

Childhood obesity is a national health epidemic that transcends across all ethnic, racial, and socioeconomic communities. In 2012, 18 percent of the Nation's children between the ages of six and eleven were identified as obese compared to the seven percent in 1980. Childhood obesity is not just a social health concern, it is a national epidemic associated with medical conditions normally associated with adults, cardiovascular conditions, prediabetes, type 2 diabetes, and hypertension (Center for Disease Control and Prevention and Health Promotion 2015).

## **2.11 Summary**

A report by Dr. David Satcher, Surgeon General (1998-2002) and the Founding Chair for Action for Healthy Kids Organization, states in its 2004 Executive Summary improving children health with increased opportunities to learn and engage in life long physical activities combined with nutrition education students' academic achievement increases (Action for Healthy Kids, 2004). In 2010, President Obama signed the HHFKA-2010 that set a precedent by mandating U.S. Departments of Agriculture (USDA) and Education (US DOE) to work together in improving the health and academic achievement of the Nation's children. First Lady Michelle Obama launched the "Let's Move! initiative.

Legislature language required USDA to ensure that all schools administering the national school lunch program convene a school wellness committee. The committee would develop strategic plans to implement a local school wellness policy to address childhood obesity prevention with nutrition awareness and education as well as set national nutrition standards for all meals served in schools. The US DOE require schools to increase opportunities for student to engage in physical education to learn lifelong physical activities before, during and/or after the school day (111<sup>th</sup> Congress).

The physical and emotional health of an entire generation and the economic health and security of our nation is at stake. This isn't the kind of problem that can be solved overnight, but with everyone working together, it can be solved. So, let's move.

(Holecko, 2016, Let's Move launch announcement, 2/9/2010)

The researcher of this study collected quantitative and qualitative data to investigate how



local school wellness policies impacted student attendance, nutrition education, communication of health awareness, physical education and activity in elementary schools that had student enrollment of 70% or more eligible for free or reduced price school meal benefits.

## **CHAPTER 3: METHODOLOGY**

### **3.1 Research Design**

The research design is defined as the structure the researcher uses to explain the plan that the researcher(s) will use to conduct their study (McMillan, 2000). An individual study that uses both qualitative and quantitative data to investigate a phenomena or occurrences is a mixed methods study. The researcher of this study used both qualitative and quantitative data to investigate the impact of local school wellness policy WellSAT: 2.0 total assessment scores on student attendance, nutrition education and awareness, physical activity and physical education in elementary schools.

According to Creswell (2009) mixed methods research design is more than merging the two types of data. A researcher using the mixed methods design has to incorporate a philosophical statement and use both qualitative and quantitative data to answer research questions and decide if the data support the philosophical statement the researcher introduced in the study. The strength of the mixed methods research design is that both sets of data work cohesively; in this study, the quantitative and qualitative data will remain separate (Creswell, 2009).

This study followed the explanatory sequential mixed methods design collecting and analyzing quantitative data first. The analysis of the quantitative data determined the participants that were involved in the qualitative data collection and analysis of this study.

### **3.2 Research Questions and Research Hypothesis**

A hypothesis is an educated guess of possible outcomes concerning a phenomenon. Specific research questions developed by the researcher narrow the focus and test the predicted outcomes of the hypothesis presented by the researcher (Creswell, 2009).

This study investigated if relationships exist between elementary schools' local school wellness policy WellSAT: 2.0 assessment scores and nutrition awareness/education of the student and guardians, amount of time students have to engage in physical activity, physical education, and student absenteeism rate.

### **3.3 Research Rationale**

According to May, Freedman, Sherry and Blanck (2013), between 2009 and 2010 childhood obesity rates in the United States have increased to 17% as compared to five percent (5%) in 1971 to 1974.

To address childhood obesity the HHS-2010 mandates all schools administering the national school lunch program (NSLP) must implement a local school wellness policy (LSWP) that addresses the seven goals documented in the HHS-2010. To address childhood obesity school leaders must ensure the LSWP provide students adequate time to access lunch meals that contain quality nutritious food, provide nutrition education and outreach to student guardians and time for students to engage in physical activities and physical education.

The ESB State SNP administrators and professional staff have always looked ahead at how they can continue to provide nutritious meals to reduce the incidences of childhood obesity. They were, and continue to be, ready to participate in their local educational agencies'

development, implementation and evaluation of local school wellness policies (H. Russell, personal communication, January 16, 2015).

Maslow's hierarchy of needs motivational theory (Maslow's theory, 1943) in the educational environment requires schools to meet students' basic physiological needs before learning can begin. Many students' days begin with problems, stressors that evolve from outside the school environment. Those stressors can involve the inability to have nutritious food for meals at home, or not being able to engage in physical activity outside of their home.

Schools that meet students' basic physiological needs are emotionally, environmentally and physically safe, allows students to be motivated to the level where learning, knowledge and understanding take place (Reigeluth and Beatty, 2003). School leaders, teachers, teacher assistants, and school support staff provide students with a sense of belonging and respect that also motivates them to attend school and reduce student absenteeism (Vockell, 2008; California Department of Education, 2014). Research has indicated when schools allocate time in their curriculum for students to engage in school lunch, nutrition education, physical activity and physical education student behavior and academic achievement improve (Trost, 2007; Story, Nanny, and Schwartz, 2009).

### **3.4 Data**

Quantitative data was used to discover if the local school wellness policies of elementary schools having a percentage of 70% or more of students eligible for free and reduced price school meals have an impact on decreasing the school's student absenteeism rate, and if so, by what percentage. The researcher used qualitative data to identify if there are relationships between an elementary school's local school wellness policy WellSAT: 2.0 total assessment

scores and the school's student and parental nutrition educational outreach.

The analysis of the qualitative data collected from the LSWP WellSAT: 2.0 assessment supports findings concerning changes in elementary school student absenteeism rate, nutrition education in the school, at their homes and in communities where students live.

*Quantitative Data.* The researcher used the secondary data collected from ESB State DOE Public Reports website to identify which elementary schools had 70% or more students eligible for free and reduced price (F/Rd) school meals during SYs 2009 and 2013. Student participation in the NSLP and student absenteeism rate were collected from the ESB State DOE Public Reports' website and documented. The analysis of students eligible for F/Rd price school meals for SYs 2009 and 2013 identified to the researcher the elementary schools to request to volunteer to participate in this study. The elementary school student absenteeism rate is secondary quantitative data from the ESB State's Department of Education Data Resources public website.

*Qualitative Data.* Healthy Hunger Free Kids Act of 2010 (HHFKA-2010) mandates that each school administering federal school nutrition programs formulate a local school wellness committee. The committee must have diverse representation from professional and operational staff; school nutrition program staff, school health professionals, physical education, representatives from the community the students reside in, as well as parents and students when age appropriate. The committee is required to evaluate the effectiveness of local school wellness policy (LSWP) in reference to adhering to the goals for addressing childhood obesity prevention, nutrition education in the school and surrounding communities and opportunities for students to engage in physical activity and physical education.

The WellSAT: 2.0 total assessment and individual scores for the nutrition education and awareness, school meal standards, physical activity, and physical education section scores were convert to primary qualitative data, LSWP assessment questions. Answers to the WellSAT: 2.0 questions are numerical, primary quantitative data.

### **3.5 Instrumentation**

CN/WIC RA-2004 and Healthy, Hunger-Free Kids Act of 2010 (HHFKA-2010) require local educational agencies (LEAs) to evaluate the effectiveness of their school wellness policies.

The state of Utah conducted an instate analysis of its school wellness policies. An objective of the research was to assess compliance with the Reauthorization 2004 that mandated all LEAs implement school wellness policies. The findings indicated that 78 percent (23) of the 30 schools had implemented a school wellness policy. The strength of the school wellness policies was determined by using any form of the two words. Any form of the word ‘mandate’ would be an indication of strong policy, while any form of the word ‘recommend’ was an indication of a weak policy. The research did not provide any data concerning the comprehensiveness and/or strength of school wellness policies. The authors state that implementation of school wellness policy does not ensure comprehensiveness and strength (Metos and Nanney, 2007).

The School Nutrition Association published an article in 2011 that evaluated implementation of school wellness policies of all public schools in Mississippi. The article stated that there were improvements on the implementation of school wellness policies between 2006 and 2008. The survey could not provide any data concerning the comprehensiveness or strength

of the public schools' school wellness policies (Molaison, Howie, Kolbo, Rushing, Zhang, and Hanes, 2011).

It was hard to develop one standardized instrument accepted nationally to score comprehensiveness and strength of LEAs' school wellness policies or schools' local school wellness policy (LSWPs). As a result, it was hard to develop any national baseline data for scoring the comprehensiveness and strength of LSWPs that were implemented (Brener, Chiqui, O'Toole, Schwartz and McManus, 2011).

*School Health Index: A Self-Assessment and Planning Guide.* Before legislation mandated the implementation of School Wellness Policy (Public Law 108-265, 2004) and Local School Wellness Policy (Public Law 111-296, 2010) schools used the School Health Index for Physical Activity and Healthy Eating: A Self-Assessment and Planning Guide Elementary School. This planning guide developed by the Centers for Disease Control and Prevention Foundation and the Robert W. Woodruff Foundation was initially published in 2000. The guide is a self-assessment of a school's ability to detect weak or strong policies implemented for improving the overall health of the school's students and staff.

The guide was developed to focus on high risk behaviors students may engage in (i.e. drug and tobacco use, nutrition abnormalities and sexual activity, etc.). The School Health Index also helps to provide supplemental assistance in areas concerning nutrition services, physical education, mental health, school policies, psychological health, and social services (Centers for Disease Control and Prevention, 2012).

The School Health Index does not focus on the seven goals that an elementary school's local school wellness policy must address that promote activities to help improve student overall

health and which can have a positive impact on student academic achievement.

The seven goals as mandated by HHFKA-2010, Section 204:

- Goals for nutrition education, promotion and awareness for student and families;
- Goals for nutrition guidelines for school meals and all foods and beverages available on each school campus during the school day that are consistent with federal school meal standards and standards for food and beverages sold outside of school meal programs (i.e.: “competitive foods and beverages”);
- Goals for physical activity and other school-based activities promoting student (and family) wellness;
- Permission for stake holders (parents, students, teachers, school board members, community members, etc.) to participate in policy development, implementation, review and updates;
- Require the LEA to inform and update the community about the policies’ content and implementation;
- Require the LEA to report and measure on the wellness policy implementation periodically, including school compliance, alignment with model wellness policies, and a description of progress made in attaining the wellness policy goals; and,
- Designating one or more LEA and/or school officials responsible for ensuring school-level compliance with the wellness policy (111<sup>th</sup> US Congress, 2010).

The Healthy, Hunger-Free Kids Act of 2010 (HHFKA-2010) Sub Section 204 of PL.

111-296 mandates that LEAs develop, implement and within specified time frames evaluate the implementation of the local wellness policy implemented in the schools under the jurisdiction of



a LEA administering federal funded school meal programs. This allows each school to develop and promote a local school wellness policy tailored to meet the school's individual needs in combating childhood obesity and improving student overall health (Center for Disease Control, 2012).

The HHFKA-2010 required changes in how LEAs' individual schools would develop local wellness policies to address childhood obesity prevention by improving nutritional standards in all school meal programs, promoting health and nutrition education for students and families, and ensure students' school mealtime environments provide adequate time to access and consume their meals.

Local school wellness policy (LSWP) committees must have broad representative membership, develop strategic plans to implement and sustain the seven goals, evaluate the LSWP and have transparency for community members (USDA Healthy Meals, 2014). Local educational agencies (LEAs), public health agencies and allied stakeholders in promoting childhood obesity prevention and improving students' overall health need an elemental system to complete evaluations of the local wellness policies.

In the Journal of the American Dietetic Association, authors Brener, Chriqui, O'Toole, Schwartz and McManus (2011) stated assessments of local school wellness policies have been completed using various instruments to evaluate the school wellness policies, although none have been identified or accepted as a standardized scoring instrument.

*Wellness Policy School Assessment Tool: WellSAT: 2.0.* The researcher used the University of Connecticut Rudd Center Wellness Policy School Assessment Tool 2.0 (WellSAT: 2.0) to measure elementary schools' LSWP for school years (SYs) 2010 and 2013 (the initial

year and three years after the passage of HHFKA-2010). WellSAT 2.0 measures LSWP comprehensiveness and strength, "...**comprehensiveness** score, which reflects the extent to which recommended content areas are covered in the policy; and a **strength** score, which describes how strongly the content is stated" (University of Connecticut Rudd Center, 2015, p. 1).

The Robert Wood Johnson Foundation provided funding for the University of Connecticut Rudd Center for Food Policy and Obesity Wellness School to develop an instrument to measure the comprehensiveness and strength of individual schools' local school wellness policies. In 2010, the Rudd Center developed the Wellness School Assessment Tool (WellSAT-96) that contained 96 questions used to evaluate local school wellness policies. The WellSAT-96 instrument converted the qualitative data (an elementary school's wellness policy verbiage) into primary quantitative data (WellSAT-96 scores).

Researchers associated with the Rudd Center for Food Policy and Obesity at the University of Connecticut received another grant to streamline the WellSAT-96 into an instrument that professionals in public health, education, and allied agencies can use. The Wellness School Assessment Tool (WellSAT) instrument contained 50 items located at its own website, [www.wellsat.org](http://www.wellsat.org).

Experienced researchers and the novice target users could easily navigate the website in order to assess local wellness policies (Schwartz, 2011).

The WellSAT: 2.0 is the latest version of the instrument developed by Rudd Center at University of Connecticut. This version continues to measure the quality of the written local

school wellness policy's comprehensiveness and strength. The WellSAT: 2.0 addresses the additional requirements of the local school wellness policy mandated by HHFKA-2010 (WellSAT: 2.0 FAQ, 2013).

The researcher used the WellSAT: 2.0 website to assess the participating elementary schools' LSWP total scores for comprehensiveness and strength. Comprehensiveness reflects the extent to which recommended content areas are covered in the policy. Strength describes how strong the content is stated using language that is direct and topic specific (WellSAT: 2.0, How WellSAT Scores are Calculated, 2013). Appendix B contains a hard copy of the WellSAT: 2.0 tool.

To date, there is no published research characterizing the comprehensiveness and strength of the state of ESB State's elementary school LSWPs.

Research scientists conducted field tests for school and public health practitioners and reported: "Correlations between independent raters' strength and comprehensiveness scores were strong,  $r=.88$  and  $r=.77$ , respectively. During field testing, WellSAT was well accepted by public health practitioners and members of the school community" (Brissette, Wales, and O'Connell, 2013, p. 757). The research scientists also stated in their Journal of School Health article that the WellSAT is a reliable instrument to assess and use to improve school wellness policies.

According to Schwartz, Lund, Grow, McDonnell, Probart, Samuelson, and Little (2009), the internal reliability of the instrument is Cronbach's  $\alpha = .60 - .93$ , and the intraclass correlation coefficient is 0.82.

The researcher followed the instructions for scoring each section of the participating

elementary school's LSWP. The WellSAT: 2.0 has six areas that will be reviewed: a) Nutrition education, b) Nutrition standards for school meals, c) Nutrition standards for competitive foods, d) Physical education and physical activity, e) Wellness promotion and marketing, and f) Implementation, evaluation, and communication.

Local school wellness policy item/topic areas have the potential to receive a score from zero to the number two. Each score is specific in reference to each item/topic. A score of zero (0) indicates the item/topic is not mentioned in the local school wellness policy (LSWP); a score of one (1) indicates the item/topic was mentioned using weak and non-directive language; a score of two (2) indicates the item/topic was stated using language that is clear, committed and directive.

Procedures for assessing LSWP comprehensiveness and strength using WellSAT: 2.0 began by calculating each of the six sections individually, totaling 78 policy items.

**Comprehensiveness score.** Each policy statement receiving a score of either “1” or “2” was totaled then divided by the total policy items in the section. That total was then multiplied by 100.

**Strength score.** Each policy statement receiving a score of “2” was totaled then divided by the number of policy items in the section. That total was then multiplied by 100.

**Total Comprehensiveness.** All six sections comprehensiveness scores were totaled, and the total was divided by 78 (total policy items) and the quotient was multiplied by 100.

**Total Strength.** All six sections of the strength scores were totaled, divided by 78 (total policy items) and the quotient was multiplied by 100 (WellSAT: 2.0, 2014).

The researcher used the website Random Integer Set Generator (<https://www.random.org/integers/>) to assign each LSWP an identifier. The researcher developed an Excel spreadsheet documenting the score of each LSWP by its random integer.

*Surveys.* The researcher used a survey instrument for the collection of qualitative and some limited quantitative data from a subgroup of the researcher's sample that may or may not be applied to the population. The analysis of the survey responses transforms the survey qualitative data into quantitative data that is measurable. The surveys used in this research were unobtrusive; the researcher did not have any contact with the respondents of the surveys. In this study, the researcher utilized two different surveys. The researcher used one survey instrument to assess participating elementary school principals' knowledge of their school's LSWP. The second survey assessed participating elementary school students' guardians' awareness of nutrition education and promotion, communication of school meal standards, physical education and physical activity.

*Parent Survey.* Healthy Hunger-Free Kids Act of 2010 requires the LSWP committee be a diverse group with representation from students' parents, members of the school community, instructional staff, school health, education, school nutrition professionals, school administration, and school board members. The policy is a living document that promotes modification and updates that are available to the public upon request (USDA Team Nutrition, 2014).

The researcher secured permission from Illinois Evanston/Skokie District 65 Parent to employ its LSWP Parent survey for this study (Appendix C-1). The researcher used the Parent Survey to investigate how schools participating in this research promote and distribute their local school wellness policies and nutrition education to students' families and the school community.

The original Parent Survey instrument (Appendix C-2) was revised to meet these research criteria. A parent Guardian Informed Consent to participate in this research also introduced the principal researcher (Appendix C-3). Guardian Informed Consent to participate in the parent survey (Appendix C-4) is the revised parent survey instrument.

*Leadership.* Policies are developed and implemented to regulate behaviors within an organization, specific groups or the society at large (Dye, 2002). Childhood obesity continues to be a national concern. The Healthy Hunger-Free Kids Act of 2010 (HHFKA-2010) PL 111-296, section 204 provided stronger verbiage requiring local educational agency administrators to ensure each building administrator develop, implement, evaluate and sustain a local school wellness policy for their individual school.

“School wellness is not just about improving the health of our kids, it has to involve the entire community” (Bisceglie and Krause, 2008, p. 36). Research has indicated students enrolled in schools that have daily routines feel safe and feel they belong which allows students to focus on learning tasks. School environments that promote student health improve student readiness to learn and decrease student disruptions by improving the school climate (Satcher, 2004; Reigeluth and Beatty, 2003; Maslow, 2000). Administrators and the school board of the local educational agency, school community leaders and parents hold school principals accountable for the academic success or failure of their assigned schools (Villani, 2005). Principals are the necessary component and must be actively involved in the success of the local school wellness policy; without the principal’s support the LSWP may not be sustainable (Fontenot, Carr, and Hubbard, 2007).

*Principal Survey.* The researcher reviewed Davis’s thesis capstone project titled: An

Evaluation of King County School District Wellness Policies (2013) that contained a principal survey. The researcher secured permission from Ms. Davis to use the Principal Survey with revisions to meet this study's criteria. Appendix D contains three documents: a) D-1 email granting permission to use the survey instrument, b) D-2 the original survey instrument; and c) D-3 revised survey used in this study. The above survey instrument was used as an indicator of how involved the principal was in the development and implementation of their school's LSWP and how knowledgeable each principle is about the local wellness policy. The survey also provided additional information pertaining to the research questions and hypothesis developed for this research:

- **RQ 1:** Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and an elementary school's student attendance, and communication of nutrition, health and wellness education, and awareness of school meal standards to parents?
- **HY1:** Elementary schools will have high comprehensive and strength LSWP WellSAT: 2.0 assessment scores for sections one, five and six.
- **RQ2:** Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength for section four and the time students have for physical education and physical activity during the school day?

- **HY2:** Elementary schools with have high LSWP comprehensive and strength WellSAT: 2.0 assessment scores for section four.

### **3.6 Procedures for Research**

The researcher purchased a secure USB drive to secure all data pertaining to this research; the USB drive remained in a locked file cabinet located in the researcher's office. The researcher also developed an Excel spreadsheet documenting each elementary school volunteering to participate in this research with a random integer. All data for each participating elementary school was documented on the Excel spreadsheet using the random integer assigned to the elementary school. There were no perceived or identifiable risks associated with the collection of data since human subjects did not receive any treatment. The researcher's National Institutes of Health (NIH) Office of Extramural Research Certificate of Certification is located in Appendix E.

Upon approval from the Delaware State University Institutional Review Board, the researcher began the process of contacting administrators of the ESB state local educational agencies. An Eastern Seaboard State (ESB State) volunteered to participate in this study. The ESB state has 15 local educational agencies (LEAs) that have elementary schools under their jurisdiction. The researcher used the ESB state Department of Education public website to obtain contact information for the 15 LEAs administrators US Postal addresses, and their electronic transmission addresses. Using the contact information for each LEA, the researcher also obtained the contact information for the school nutrition programs (SNPs) administrators of the 15 LEAs US Postal addresses and electronic transmission addresses.



The LEA administrators each received a packet that contained a hard copy of a synopsis of the proposed research, Letter of Informed Intent and Consent to Conduct Research (Appendix F).

The synopsis also included an introduction of the principal researcher, request for a copy of the wellness policy and the most current copy of the elementary school's local school wellness policy (LSWP), Letter for Informed Intent and Consent to Conduct Research (from this point forward the Informed Intent and Consent to Conduct Research is 'the Letter'). The LEA administrator and building principal could indicate at the bottom of the Letter if the elementary schools would participate in this research. Copies of the Parent/Guardian and principal research surveys were included as attachments. Contacting and receiving responses from LEA administrators occurred within a three-week period. Follow-up began after the second week of the US Postal mail contact.

### **3.7 School Data**

*School Data for Physical Activity and Physical Education.* In 2012, Nemours Health and Prevention Services reported that the ESB State elementary schools have been working towards providing 150 minutes of moderate to vigorous physical activity a week (Davis, 2012). The researcher collected data for physical activity and physical education from the WellSAT: 2.0, Section 4: Physical Education and Physical Activity. The physical activity and physical education data from elementary schools volunteering to participate in this research was documented on an Excel spreadsheet with columns to identify the physical activity and physical education data corresponding with the school's assigned random integer.

*School Data for Student and Parent Awareness of Nutrition Education.* According to

Healthy, Hunger-Free Kids Act of 2010, Title II-Reducing Childhood Obesity and Improving the Diets of Children, Subtitle A-National School Lunch Program, Section 204, §9A. Local School Wellness Policy § (5) et seq.: "...a requirement that the local educational agency inform and update the public (including parents, students, and others in the community) about the content and implementation of the local school wellness policy...." (124 STAT. 3217, 111<sup>th</sup> US Congress).

The researcher used the following data to document nutrition education and awareness for students and parents in the volunteering schools from:

- WellSAT: 2.0 Section 1. Nutrition Education,
- WellSAT: 2.0 Section 6. Communication and Promotion, School files of documentation sent to parents, community members and organizations,
- Parent survey addressing school nutrition and local school wellness policy.

### **3.8 Survey Procedures**

*Parent and Principal Survey Procedures.* Using unobtrusive methods for data collection limits the control the researcher has on the data collected from the surveys (Trochim, 2006). Having limited control of the data collected will reduce the amount of influence the researcher will have on participant survey responses.

The survey included an introduction of the principal researcher, brief explanation of the research, and informed consent forms with instructions for returning the completed surveys. The principal researcher submitted surveys to the voluntary LEA administrator and the LEA SNP administrator who distributed the instruments to the elementary school (LEA 433 E/S) parent

guardians and principals. The LEA SNP administrator contacted the principal researcher when all surveys were collected. Surveys were sealed in a manila envelope identified with the principal researcher's name.

### **3.9 Sample Population**

More than 90 percent of the Nation's children are enrolled in public school systems that require students to attend school for at least six hours a day for a minimum of 180 days of the calendar year (Peterson and Fox, 2007). The majority of public schools have a vital role in promoting and providing nutritious meals and physical activity (Story, 2006). Schools that cultivate an environment that meet students' basic physiological needs are the foundation of Maslow's theory pyramid. Once students' basic needs are met, they are motivated to play and learn to listen to others and how to speak (Wilensky and Satcher, 2009).

The participants were elementary schools that have 70% or more enrolled students eligible for free and/or reduced price school meals during school years 2009 and 2013; and have indicated they are volunteering to participate in this study.

There are 19 local educational agencies in the ESB state; four local educational agencies do not have schools with grades below the sixth grade. The remaining 15 local educational agencies have 108 elementary schools under their jurisdiction, which include seven early education and kindergarten centers. Households must meet the income criteria of 185% or more below the federal poverty level for enrollment in early education and kindergarten centers.

The researcher reviewed secondary quantitative data collected from ESB State DOE Technology and Public Reports website to identify and select elementary schools that have 70%

or more students who were eligible for free and reduced price school meals during school years 2009 and 2013.

*Procedures for Elementary School Selection.* Of the 108 elementary schools in the ESB State 15 local educational agencies, the researcher will determine the sample by eliminating elementary schools with fewer than 70% student enrollment eligible for free and reduced price school meals. Only elementary schools with the highest percentage (70% or more) of students eligible for free and reduced price school meals which agreed to participate were included in this study.

*Physical Activity and Physical Education.* The record of time students have access to structured physical activity (physical education) and unstructured physical activity (recess, physical activity breaks in classroom) was to be collected from the individual elementary school SYs 2009 and 2013 curriculum and from the LSWP WellSAT: 2.0 Section 5: Physical Education and Physical Activity.

### **3.10 Limitations**

Three major limitations to this research are: (a) LEAs and schools' active participation in this research is voluntary; (b) participants' answers to the survey instrument are personal opinions of the participants and not representative of the total parent population of the school, (c) the percentage of elementary school students eligible for free and reduced price meals are secondary data collected from the ESB State Department of Education website and (d) ESB State DOE would not provide written approval/support of the research. Only one of the 15 LEA administrators agreed to volunteer to participate in the research and provide primary data from one of the elementary schools under the LEA's jurisdiction.

### **3.11 Delimitations**

Delimitations are boundaries which the researcher omits from the research in order to: (a) make the research manageable; (b) maintain the focus of the research; and (c) ensure unnecessary and unrelated characteristics and/or data are not collected (Simon, 2011; Simon, M. G., Goes, J., 2013).

The researcher imposed the following restrictions for this study: (a) Population – investigation was limited to elementary schools because during this developmental stage children are beginning to establish their eating habits and engage in social interaction; (b) a convenience sample of 15 of the 19 public local educational agencies that have elementary schools under their jurisdiction was to used; (c) elementary schools in which 70 percent or more enrolled students who are eligible for free and reduced price school meals would be selected to participate in the study.

### **3.12 Data Analysis**

Mixed methods research is comprised of quantitative and qualitative data used to both understand and dispel a relationship between variables. Both types of data have equal value to respond to the research questions (Creswell, 2009).

This was an exploratory sequential research study to investigate if a relationship exists between the implementation of a local school wellness policy using their WellSAT: 2.0 assessment scores and student attendance for SY 2009 and 2013, nutrition education, the amount of time students have to engage in physical activity and physical education to combat childhood obesity and promote students' overall health and communication to students and parents about school meal standards.

Students whose school day starts with a nutritious meal, engage in physical activity and/or physical education activities at least twice a day, and have time to consume a nutritious lunch meal improve their overall general health allowing students to have increased rate of student attendance. The researcher used Excel software to conduct all data analyses for this research.

*Research Hypothesis.* One thing that is common among research hypotheses is that the statements posit an unequal relationship between variables in the hypothesis and since the hypothesis indicates positive interaction between the independent and dependent variables, the two research hypotheses are directional (Salkind, 2011).

*Data Analysis of Research Hypothesis.* The researcher used LEA 433's elementary school, LEA 433 E/S LSWP WellSAT: 2.0 school wellness policy section scores and total assessment scores for comprehensiveness and strength to test the research hypotheses.

The hypotheses propose local school wellness policies with high scores would have a positive impact on nutrition awareness, education, and promotion, amount of time students will have to engage in physical activity and physical education as well as improve student attendance in LEA 433 E/S.

The researcher used Critical Values of the Pearson Product-Moment Correlation Coefficient (r Critical Value Table) to analyze the hypotheses of this research.

HY1 Elementary schools will have high comprehensive and strength

LSWP WellSAT: 2.0 assessment scores for sections one, five and six.

HY2 Elementary schools with will have high comprehensive and strength LSWP

WellSAT: 2.0 assessment scores for section four.

*Research Questions.* This research will use statistical data analyses to examine the following research questions:

- RQ1 Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and an elementary school's student attendance, and communication of nutrition, health and wellness education, and awareness of school meal standards to parents?
- RQ2 Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength for section four and the time students have for physical education and physical activity during the school day?

*Data Analysis of Research Questions.* The researcher calculated the following statistical analyses of the participating LEA 433 elementary school:

- LEA 433 E/S LSWP WellSAT: 2.0 comprehensiveness and strength scores for LSWP total assessment, section 1 nutrition education, section 2 school meal standards, section 4 physical education and physical activity, section 5 promotion and marketing of school wellness, and section 6 implementation, evaluation and communication of LSWP objectives.
- LEA 433 E/S LSWP WellSAT: 2.0 comprehensiveness and strength scores for LSWP Section 1 nutrition education and parent survey responses.
- LEA 433 E/S LSWP WellSAT: 2.0 comprehensiveness and strength scores for LSWP

total assessment scores and the school's student attendance percentage for the entire school years 2009 and 2013.

### **3.13 Data Analyses**

The researcher calculated the Pearson product-moment correlation to explore possible relations between the independent variable (local school wellness policy WellSAT: 2.0 assessment scores) and the dependent variables (nutrition awareness, education and awareness, time for physical activity and physical education, and student attendance).

### **3.14 Summary**

The researcher investigated if relationships existed between childhood obesity prevention and elementary schools' local school wellness policy WellSAT: 2.0 assessment scores. This research has one independent variable, the elementary school local school wellness policy. There are three dependent variables are a) amount of time students have for physical activity and physical education activities; b) nutrition education awareness, communication and promotion; and c) student absenteeism rate for school years 2009 compared to 2013.

The surveys used in this research were vetted for completeness. Incomplete surveys were omitted. Parent survey response were added, and some central tendencies were calculated.



## CHAPTER IV: RESULTS

### 4.1 Summary of Research

This study investigated if a relationship existed between LEA 433 E/S's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and student attendance for SYs 2009 and 2013, nutrition education, communication of health and wellness, and school meal standards, implementation, evaluation and communication of LSWP. The research also investigated if a relationship existed between LEA 433 E/S's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and the time students have to engage in physical education and physical activity.

An Eastern Seaboard (ESB) State that was selected to participated in this study has 15 local educational agencies (LEAs) with elementary schools within their jurisdiction. Seven of the LEAs have 28 elementary schools with student populations of 70% or more students eligible for free and reduced price school meals. The ESB DOE would not provide any documentation to support this research. Only one of the 15 LEAs volunteered to participate and provide primary data for the research. LEA 433 allowed one elementary school identified as LEA 433 E/S, to distribute parent surveys and the LEA distributed surveys to its six elementary school principals.

*Healthy Hunger-Free Kids Act 2010.* Healthy Hunger-Free Kids Act of 2010, Sect. 9A requires local educational agencies administrating federally funded school nutrition programs to establish local school wellness policy for all schools under the LEAs' jurisdiction. The purpose of the LSWP is to sponsor and encourage healthy activities that will reduce and prevent the incidences of behaviors contributing to the national childhood obesity epidemic. Research has

acknowledged children identified as obese are diagnosed with chronic health conditions that have an adverse effect on their overall health and interferes with students' school attendance.

A committee of diverse membership is to develop the LSWP. The LSWP is to provide and promote nutrition, health, and physical education and ensure students have time for physical activity (111<sup>th</sup> Congress, 2010).

Each school's LSWP committee is to have representation from within the school's leadership team, instructional, school support staffs, parents and community members. The committee members are required to ensure transparency and provide timely evaluations of the LSWP for effectiveness and sustainability. All changes and improvements of the LSWP are accessible to the public upon request.

#### **4.2 Research Questions and Research Hypotheses**

Primary and secondary data were collected and reviewed to investigate the following research questions and hypotheses:

- RQ1: Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and an elementary school's student attendance, and communication of nutrition, health and wellness education, and awareness of school meal standards to parents?
- HY1: Elementary schools will have high comprehensive and strength LSWP WellSAT: 2.0 assessment scores for sections one, five, and six.
- RQ2: Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength for section

four, physical education, and physical activity and the time students have for physical education and physical activity during the school day?

- HY2: Elementary schools will have high comprehensive and strength LSWP WellSAT: 2.0 assessment scores for section four.

#### **4.3 Methodology Summary**

*Eastern Seaboard State Local Educational Agencies.* The research population was limited to an Eastern Seaboard State's local educational agencies with elementary schools under their jurisdiction that volunteered to participate in this study. To protect the identities of the eight ESB State local educational agencies in this research, the LEAs were randomly assigned three digit integers generated by the RANDOM.ORG website.

*Sample Population.* The researcher used the ESB State Department of Education public website to obtain secondary data to identify LEAs that had elementary schools with 70% or more students eligible for free and reduced price school meals during SYs 2009 and 2013. Secondary data were used for the seven LEAs with 28 elementary schools. One LEA provided primary data from one elementary school and six of its elementary school principals were used for this research.

*Local School Wellness Policies.* Healthy, Hunger Free Kids Act of 2010 requires LEAs to ensure all schools within their jurisdiction have a LSWP. A review of the 29 elementary schools' websites revealed none of the elementary schools had an individual LSWPs; instead, there are links connecting the elementary schools' child/school nutrition department to its LEA's Child/School nutrition department websites. Local school wellness policies from previous school years were not available on any of the LEA's Child/School Nutrition Program websites.

*School Wellness Assessment Tool: WellSAT: 2.0.* The University of Connecticut Rudd

Center Wellness School Assessment Tool 2.0 (WellSAT: 2.0) was used to assess the eight LEAs LSWP. The researcher followed the WellSAT: 2.0 procedures documented on the WellSAT.org website. The WellSAT: 2.0 Assessment tool contains six sections that coincide with the HHFKA-2010 goals to address methods of reducing incidences of childhood obesity and encourage healthy habits for improve student health in K-12 school environments.

- Section One: Nutrition Education assesses how the LEA meets the nutrition education goals for students.
- Section Two: Standards for USDA Child Nutrition Programs and School Meals assesses if school meals meet USDA dietary guidelines. If regulations and policies governing how USDA child nutrition programs are administered.
- Section Three: Nutrition Standards for Competitive and Other Foods and Beverages assesses if there are foods and beverages offered to students that compete with USDA child nutrition school meal programs. This standard also addresses if foods sold as a la carte are nutrient dense and meet the USDA Smart Snack standards as opposed to food of minimal nutritional value (FMNV) being offered during the school day.
- Section Four: Physical Education and Physical Activity assesses if the LEA is meeting national and/or state physical education standards that include time for physical activity for students.
- Section Five: Wellness Promotion and Marketing assesses if the LEA is promoting consistent messages of healthy eating, physical education and physical activity that are consistent with improving student health.

- Section Six: Implementation, Evaluation and Communication assesses if the LEA has formulated a diverse committee representative of school and the community the school serves. Does the LSWP meet USDA policy and regulations and is it sustainable? Section Six also asks how often the LEA evaluates the LSWP for effectiveness and how the LEA communicates changes and effectiveness of the LSWP to students, parents and the school communities.

#### **4.4 Local Educational Agencies Local School Wellness Policy Total Assessment Scores**

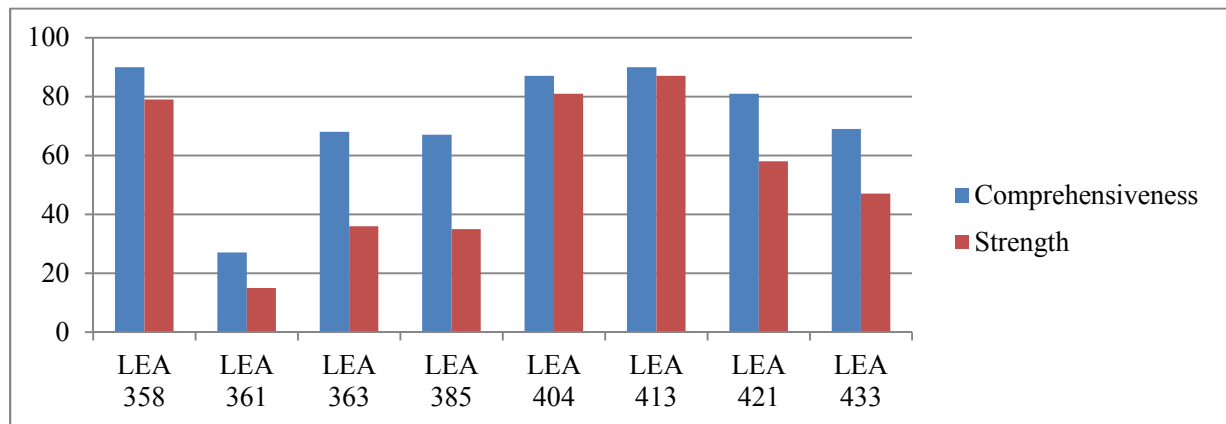
The eight LEAs WellSAT: 2.0 scores for comprehensiveness ranged from 27 to 90 and total strength scores ranged from 15 to 87 (table 1 and figure 2).

Table 1.  
Local Educational Agencies WellSAT: 2.0 Total Assessment Scores

<b>LEA</b>	<b>Section 1</b>	<b>Section 2</b>	<b>Section 3</b>	<b>Section 4</b>	<b>Section 5</b>	<b>Section 6</b>	<b>Total</b>
358	100 - 100	86 – 79	82 – 82	95 – 80	80 – 53	100 – 100	90 – 79
361	100 – 71	43 – 21	27 – 18	15 – 0	13 – 13	0 – 0	27 – 15
363	100 – 100	64 – 43	45 – 18	75 – 25	73 – 40	55 – 18	68 – 36
385	100 – 100	64 – 43	45 – 18	75 – 25	67 – 33	54 – 18	67 – 35
404	100 – 100	64 – 43	100 – 100	80 – 80	93 – 80	100 – 100	87 – 81
413	100 – 100	71 – 71	91 – 91	90 – 80	93 – 93	100 – 100	90 – 87
421	100 – 86	64 – 36	64 – 45	90 – 50	73 – 53	100 – 100	81 – 58
433	100 – 89	93 – 79	54 – 36	85 – 45	60 – 47	18 – 0	69 – 47

Figure 2

*Graph of Eight LEAs' WellSAT: 2.0 Total Assessment Scores for Comprehensiveness and Strength*



#### **4.5 Individual Local Educational Agencies LSWP WellSAT: 2.0 Assessment Scores.**

The following are the primary data from the eight individual Eastern Seaboard state's LEAs' LSWPs' WellSAT: 2.0 Assessment Scores for Comprehensiveness and Strength for sections one, nutrition education; section two, standards for school meals; section three, nutrition standards for competitive foods and beverages; section four, physical activity and physical education; section five, LSWP promotion and marketing; and section six, implementation, evaluation, and communication.

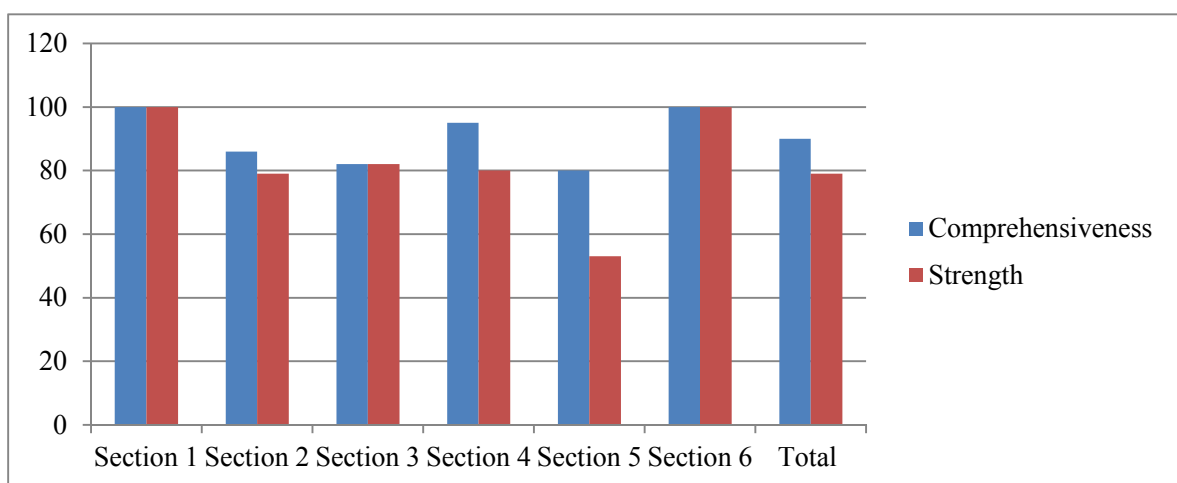
Local educational agency 385's total LSWP WellSAT: 2.0 scores for comprehensiveness are 90 and for strength 79. The LEA has one elementary school that met the research criteria. The elementary school home website did not have any information pertaining to a LSWP for the school. Clicking on the 'school menus' button on the elementary school website crumb bar

provided access the LEA school/child nutrition website. To view the LSWP have to click on the link entitled ‘View Wellness Policy’, which is located in the LEA policy manual under the Pupil Services section.

The preamble of the LSWP states students’ health and academic success are integrated and is written to encourage behaviors that support lifelong healthy lifestyles. The LSWP has four major sections: nutrition, physical education and physical activity, mental health and evaluation. School Nutrition Network Software Company powers the LEA child/school nutrition website. LEA 358 WellSAT: 2.0 total assessment scores for comprehensiveness and strength are displayed in figure 3.

Figure 3.

*LEA 358 WellSAT: 2.0 LSWP Total Assessment Scores*



Local educational agency 358 section one, Nutrition Education LSWP WellSAT: 2.0 scores for comprehensiveness are 100 and for strength 100. The local educational agency’s LSWP states its nutrition education is integrated into the LEA’s K-12 health curriculum. School environments are used to promote nutrition education during the school day.

This section of the LSWP indicates all schools will promote nutrition education throughout the school environment using classrooms, cafeterias, gymnasiums, and hallways to inform students of positive eating behaviors. Nutrition education is promoted to family and community members in after school programs that encourage healthy eating behaviors and physical activity. The policy use the USDA nutrition guidelines for all foods served during the school day that meets the Federal USDA nutrient standards for school meals and healthy snacks and ensures students have access to fresh drinking water for the entire school day.

Local educational agency 358 Section Two, Standards for USDA School Meals LSWP WellSAT: 2.0 scores for comprehensiveness are 86, and for strength 79. The LEA's LSWP states all school meals will meet the dietary guidelines mandated by HHFKA-2010. The nutrition department will complete a nutritional analysis of all foods served in the school meal programs and make the analysis accessible to the public on the department website.

School cafeteria environments will be attractive and support nutrition education information consistent with health and education curriculum. Seating arrangements will ensure once students are seated they will have adequate time to consume their meals; ten minutes for breakfast and 15 minutes for lunch.

Local educational agency 358 Section Three, Nutrition Standards for Competitive and Other Foods and Beverages LSWP WellSAT: 2.0 scores for comprehensiveness are 82, and for strength 82. Foods of minimal nutritional value (FMNV) will not be sold or offered during the school day. Students will have access to free drinking water throughout the school day. All snacks and beverages offered to students during the school meal programs and during the established school day will comply with USDA Smart Snack regulations. Only nutrient dense



foods will be offered to students in classroom and school celebrations. Fundraisers are to promote nonfood items or food and beverage items that comply with LEA competitive food policy. An attachment to the LEA's LSWP list acceptable snacks and beverages that can be offered or sold to students during the school day and recommended for fundraisers.

Local educational agency 358 Section Four: Physical Education and Physical Activity, LSWP WellSAT: 2.0 scores for comprehensiveness are 95, and strength 80. The LSWP states that physical education and physical activity are integrated into the LEA's K-12 curriculum and are aligned with the ESB State physical education standards. Recess is available to K-5 students on a daily basis. The policy states the LEA promoted and invites family and community members to participate in physical activity events. The LSWP use the physical education and physical activity component to assist students in developing skills for self-confidence by becoming team workers and leaders.

Local educational agency 358 Section Five: Local School Wellness Policy Promotion and Marketing scores for comprehensiveness are 80, and strength 53. Local school wellness policy urged staff to model positive health behaviors that include eating healthy and engaging in physical activity.

The LEA utilizes emails, robo-calls, flyers, newsletters (electronic and hard copy) to alert families and community members of various nutrition education, physical activity events and updates concerning the federally funded school meal programs administered in schools under the LEA jurisdiction.

Local educational agency 358 Section Six: Implementation, Evaluation, and

Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LEA has implemented a three-step procedure that includes procedures on the school level, district and superintendent/school board level for implementing and evaluating its LSWP.

On the school level, each school has a school wellness committee that is required to meet twice during the school year. During the meetings, the committee is to complete the School Health Index and ensure the school's wellness plan complies with current USDA policy and regulations. The individual schools are required to collect data pertaining to students' physical fitness, student participation rate for the federal funded school nutrition programs administered in the school and during the extended school day.

Annually, the school wellness committee must report to the LEA's wellness committee its progress in sustaining its school wellness policy. The district wellness committee review the data needed to complete the School Health Index report, and the school's committee report on the effectiveness of programs that are a part of the LSWP. The LEA's wellness committee formulates the annual report for the LEA superintendent.

The superintendent reviews and evaluates the LEA's wellness committee report. The review includes ensuring all school LSWPs comply with USDA and state policy and regulations. Prior to submitting the annual LSWP report to the LEA school board and posting on the LEA website, the superintendent may provide changes and revisions.

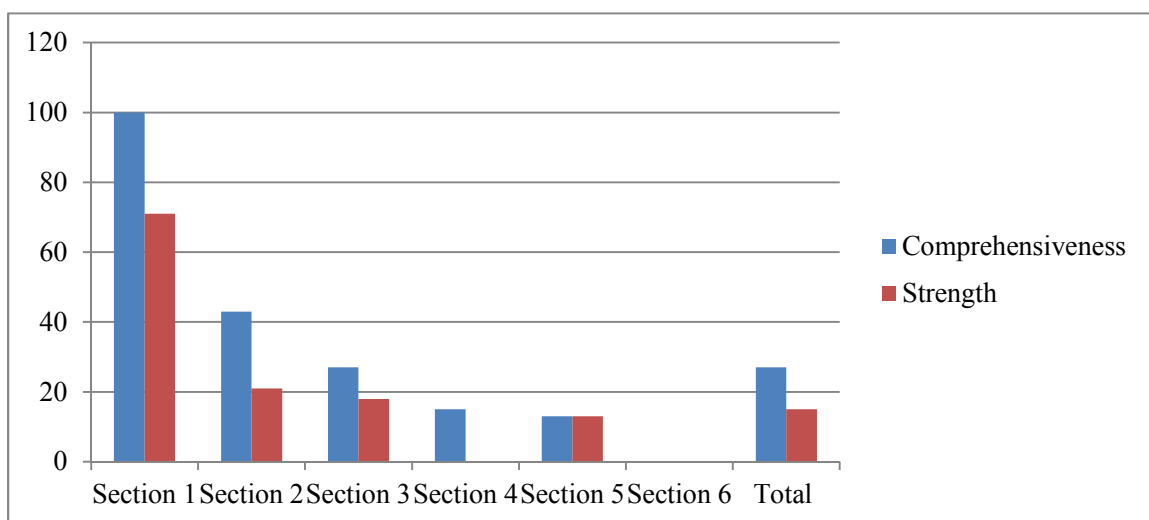
Local educational agency 361 total LSWP WellSAT: 2.0 Scores for comprehensiveness are 27, and strength 15. The LEA has six elementary schools that meet the research criteria. None of the individual school's home website had any information pertaining to the school's

LSWP. Clicking on the individual school's menu link connects to the LEA's menus. The menus include in depth information about food allergens for all menu food items. The school/child nutrition link did not have a link to access the LEA's LSWP.

The LSWP is located on the LEA's website under the link for the LEA's policy manual, and under three different headings before accessing the LSWP. The school's mission statement includes promoting health and wellness, and two schools' home websites included a link to promote the increase in physical education and physical activity during the school day. LEA 361 WellSAT: 2.0 assessment scores for the six sections and the LSWP total assessment score for comprehensiveness and strength are displayed in figure 4.

Figure 4.

*LEA 361 WellSAT: 2.0 LSWP Total Assessment Scores*



Local educational agency 361 Section One: Nutrition Education, LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 71. Nutrition education is addressed in a LEA policy entitled Child Nutrition. The Child Nutrition policy does not have a section for nutrition

education. This policy does acknowledge that nutrition education is to be an essential component of the LEA's curriculum. The LEA's LSWP preamble states the LEA acknowledges the importance of healthy eating behaviors. Both documents imply that healthy behaviors for eating and physical activity are important for student success. There are links to USDA nutrition standards for federally funded school meal programs.

Local educational agency 361 Section Two: Standards for USDA School Meals, LSWP WellSAT: 2.0 scores for comprehensiveness are 43, and strength score 21. The LSWP states all school meals served to students will meet the USDA Dietary Guidelines. Once students are seated, students will have adequate time to eat their meals, ten minutes for breakfast and 20 minutes for lunch.

Local educational agency 361 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages, LSWP WellSAT: 2.0 scores for comprehensiveness are 27, and strength 18. Foods and beverages sold during the school day will meet USDA Smart Snack regulations.

Local educational agency 361 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness are 15, and strength 0. Physical education and physical activity are addressed under the LEA's LSWP. The policy acknowledges that physical education is important to student academic achievement. The policy verbiage for students to engage in physical education and physical activity is vague by indicating the LEA will support opportunities for students to engage in physical activity during the school day. Schools are to provide physical education to enable students to adopt lifelong healthy behaviors.

Two of the elementary schools meeting the criteria for this study announced on the

schools' websites that students would have increased access to physical education and physical activity. The schools implemented the Coordinated Approach to Child Health (CATCH) that incorporates physical education in the students' weekly special classes. The Take 10 is a physical activity in which teachers provide students with ten minutes of physical activity in the classroom.

Local educational agency 361 Section Five: Wellness Promotion and Marketing LSWP WellSAT: 2.0 scores for comprehensiveness are 13, and strength 13. The wellness/nutrition policy states as role models in the school environment, school staff are to engage in healthy eating and physical activity behaviors.

Local educational agency 361 Section Six: Implementation, Evaluation, and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 0, and strength 0. The Wellness/Nutrition or Child Nutrition policies do not provide any information as to when the policies will be evaluated or how information concerning the LSWP is communicated to students, parents and community members. Documentation in both policies indicate the LEA and/or the school board reviewed and adopted the LSWP in 2000 and 2006, and revised them in 2012, 2014, and 2015.

Local educational agency 363 Total LSWP WellSAT: 2.0 scores for comprehensiveness are 68, and strength 36. The LEA had seven elementary schools that met the research criteria. No individual school had information pertaining to the school's LSWP. Clicking on the school's lunch menu button on the elementary school's home website connects to the LEA's school/child nutrition website. The LSWP is accessed from the LEA school/child nutrition crumb bar.

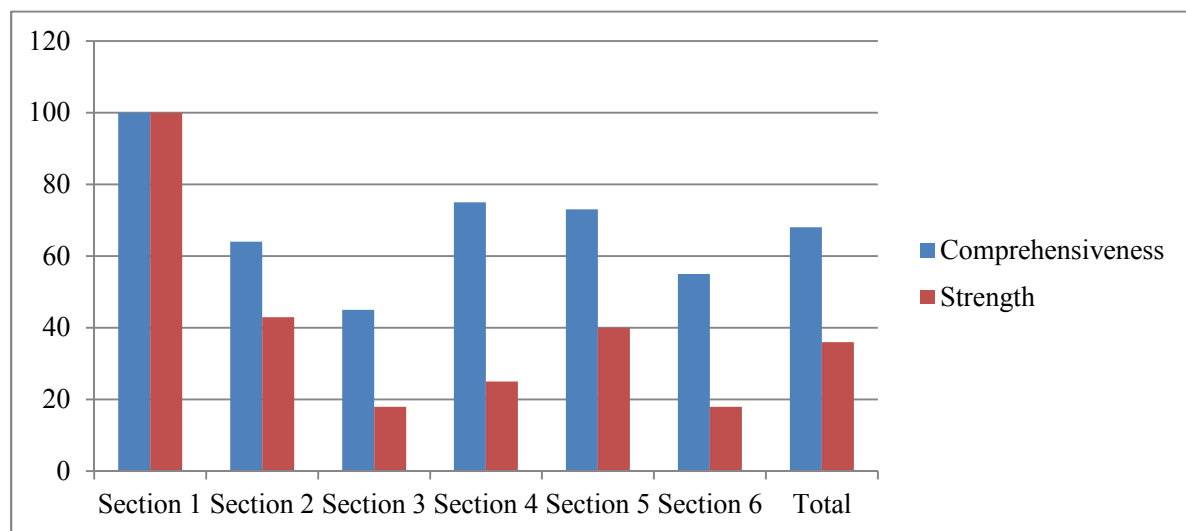
The preamble of the LSWP acknowledges the importance of healthy eating and physical activity behaviors in connection to student achievement, and improved student attendance. The

five goals the LEA used for its LSWP are from Federal Public Law 108-265, Section 204, as opposed to the HHFKA-2010, Section 9A seven goals for LSWPs.

LEA 363 WellSAT: 2.0 assessment scores for the six sections and the LSWP total assessment score for comprehensiveness and strength are displayed in figure 5.

Figure 5.

*LEA 363 WellSAT: 2.0 LSWP Total Assessment Scores*



Local educational agency 363 Section One: Nutrition Education, LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LSWP states nutrition education is incorporated into the LEA's health education curriculum offered at all grade levels and may be addressed in other curriculum subjects. Nutrition and health education are promoted in school cafeterias, gymnasiums, and nurse and guidance offices.

Local educational agency 363 Section Two: Standards for USDA School Meals LSWP WellSAT: 2.0 scores for comprehensiveness are 64, and strength 43. All foods served in the school meal programs and during the school day will meet recommended USDA Dietary

Guidelines. Schools will promote the federal school meal programs to increase student participation. Once students are seated, students will have adequate time to eat their meals, ten minutes for breakfast and 20 minutes for lunch.

Local educational agency 363 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages LSWP WellSAT:2.0 scores for comprehensiveness are 45, and strength 18. The LSWP states FMNV will not be offered during the school day. Milk, water and 100 percent juice are the only beverages that will be sold as a la carte items in elementary schools. Snacks and beverages offered during the school day must be fresh fruit and vegetables and meet the Smart Snack standards. After the school day, Smart Snacks offered with foods of minimal nutritional will be marketed and priced to be competitive.

Local educational agency 363 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness are 75, and strength 25. The LSWP states students have 150 minutes per week to engage in physical activity via classroom physical activity breaks, physical education, and recess. The LEA's schools use fitness testing to assess students' health to provide data for the LEA physical education programs. Elementary school students are allocated 20 minutes for recess, and the LSWP states students should be able to engage in a form of physical activity after two or more hours of inactivity.

Parents and community members must contact the LEA and/or individual school for information pertaining to what physical education and physical activities are available to their child during the school day and are part of any after school programs.

Local educational agency 363 Section Five: Local School Wellness Policy Promotion and Marketing LSWP WellSAT: 2.0 score for comprehensiveness are 73, and strength 40. The

LSWP states that all foods and beverages offered during the school day on the school campuses will meet the nutrition standards established by USDA. School fundraising activities are to promote healthy lifestyles by offering nonfood items and encourage physical activity. Schools are encouraged to implement the USDA nutritional standards for foods and healthy snacks for classroom and/or school celebrations.

Local educational agency 363 Section Six: Implementation, Evaluation, and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 55, and strength Score 18. The LEA's district wellness committee reviews, revises, and provides resources for individual schools to implement LSWP programs. Building principals are responsible for ensuring their buildings are implementing and sustaining the LEA's LSWP programs.

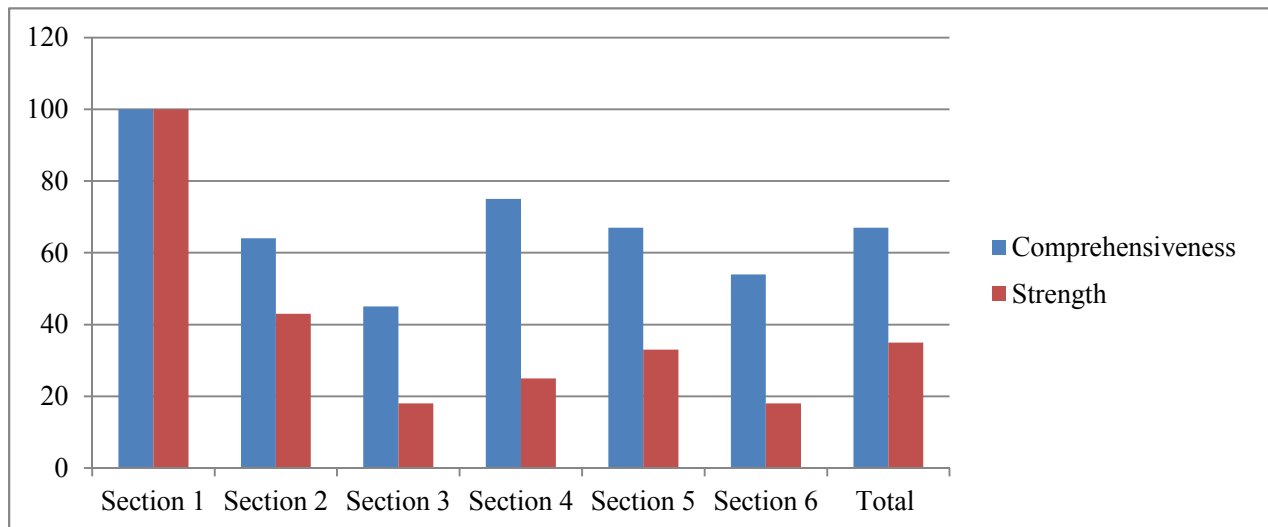
The superintendent provides the LEA school board with an annual report of individual schools' compliance with the LEA's LSWP. The final report is distributed to building principals, school staff wellness committee members, parent/teacher organizations and school health service providers.

Local educational agency 385 total LSWP WellSAT: 2.0 scores for comprehensiveness are 67, and strength 35. The LEA had six elementary schools that meet the research criteria. None of the individual school had information pertaining to the school's LSWP. Clicking on the school menu button on the elementary school home website connects to the LEAs child/school nutrition department website. The LEA's LSWP preamble states its initial goal is to have an impact on enrolled students' eating behaviors that lead to healthy lifestyles. The LEA's WellSAT: 2.0 Scores for the six sections and the LEA total scores for comprehensiveness and strength are displayed in figure 6.



Figure 6.

*LEA 385 WellSAT: 2.0 LSWP Total Assessment Scores*



Local educational agency 385 Section One: Nutrition Education, LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LEA's nutrition education requirement is aligned with the ESB State's DOE requirements for nutrition education. The schools promote nutrition education in the classrooms, cafeterias, and hallways.

Nutrition education information is also provided on the child/school nutrition webpage that includes links to other public websites promoting healthy eating behaviors. Schools are encouraged to participate in the LEA's Wellness taskforce/Coordinated School Health Programs. The taskforce promotes nutrition education resources and communication between classrooms and school cafeterias and educate school staff to identify students engaging in unhealthy eating behaviors. The nutrition education section addresses the nutrition standards for all foods offered during the school day.

Local educational agency 385 Section Two: Standards for USDA School Meals LSWP

WellSAT 2.0 scores for comprehensiveness are 64, and strength 43. School meals will meet and comply with USDA Dietary Guidelines. School menus provide resource information concerning foods offered in school meal programs. Once students are seated, students will have adequate time to eat their meals, ten minutes for breakfast and 20 minutes for lunch.

Local educational agency 385 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages LSWP WellSAT: 2.0 scores for comprehensiveness are 45, and strength 18. Snacks and beverages sold must meet USDA Smart Snacks standards. Free drinking water is available to students during meal times. All beverages sold during the school day must have 50 percent real fruit and no additional sweeteners.

Fundraisers and promotion of free foods to students must promote healthy eating habits. A list of healthy snacks is an attachment to the LEA's LSWP.

Local educational agency 385 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness are 75, and strength 25. The LEA physical education requirements are aligned with the ESB State Department of Education requirements. The LSWP states on a daily basis students should be allowed to engage in 60 minutes of physical activity that includes physical education classes, classroom physical activity breaks, recess and extended day athletic activities.

Local educational agency 385 Section Five: Local School Wellness Policy Promotion and Marketing LSWP WellSAT: 2.0 scores for comprehensiveness are 67, and strength 33. The LEA offers health fairs that include information about healthy eating, label reading and nutrition resources sent home with students. Fundraising activities are regulated by each individual school. The LSWP supports school fundraising activities that promote nutritious or nonfood items. The

promotion of healthy foods extends on the school campus during school hours.

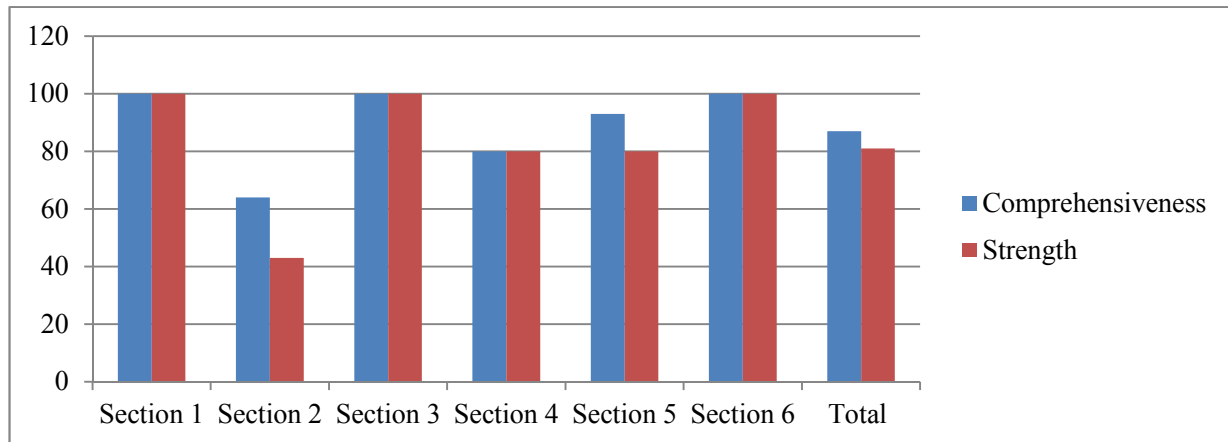
Local educational agency 385 Section Six: Implementation, Evaluation, and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 54, and strength 18. The LEA has a Wellness Policy Coordinated School Health Advisory Panel that is responsible for the implementation of the wellness policy. The LSWP states the panel will coordinate wellness activities with building principals, administrative and instructional staff. There is no indication when meetings are held or how information is disseminated to parents and community members.

Local educational agency 404 total LSWP WellSAT: 2.0 Scores for comprehensiveness are 87, and strength 81. The LEA had seven elementary schools that met the research criteria. No individual school had information pertaining to a LSWP for the school. Each school has a link to the LEA child/school nutrition service department, from the nutrition department webpage the nutrition education link is used to access the LEA's LSWP. There are three different documents each state the five goals from PL. 108-265 as opposed to the seven goals from HHFKA-2010. The LEA's WellSAT: 2.0 for the six sections and total scores for comprehensiveness are displayed in figure 7.

Local educational agency 404 Section One: Nutrition Education LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LSWP states nutrition education is promoted by the use of various activities. The LEA nutrition education requirement is to be aligned with the ESB State Department of Education Health, Safety, Physical Education, and Family and Consumer Sciences curriculum standards.

Figure 7.

*LEA 404 WellSAT: 2.0 LSWP Total Assessment Scores*



The State has a comprehensive curriculum that addresses four different grade levels and is taught by LEA instructional staff. Elementary school principals can employ members from the community that meet LEA criteria. The LSWP states nutrition education is integrated in age appropriate classes. The policy has an appendix that lists resources for nutrition education.

The LEA has wellness committee liaisons that use USDA and allied agencies for nutrition education resources to disseminate flyers, menus, newsletters, to families and provide information about LEA and school websites with nutrition education information.

Local educational agency 404 Section Two: Standards for USDA School Meals LSWP WellSAT: 2.0 scores for comprehensiveness are 64, and strength 43. The LEA's LSWP states all meals served during the school day will meet USDA nutritional guidelines for school meal programs. The LSWP includes a link to the USDA regulations for school breakfast and national school lunch programs. Information concerning school meal patterns is part of the LSWP appendices.

The school cafeteria environment will encourage healthy eating habits and provide adequate seating. Once students are seated, students will have adequate time to eat their meals, ten minutes for breakfast and 20 minutes for lunch.

Local educational agency 404 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages scores for comprehensiveness are 100, and strength 100. Foods of minimal nutritional value (FMNV) are not served or offered to students during the school day which includes 30 minutes after the scheduled school day ends. All beverages and snacks offered or sold to students must meet the USDA Smart Snack standards. The LSWP has appendices that provide lists of healthy beverages, snack items for school day activities.

Only fundraisers held during the school day must comply with Smart Snack standards. An appendix provides websites for healthy snack resources.

Local educational agency 404 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness are 80, and strength 80. The LEA's LSWP states its physical education goals are to meet the ESB State's Department of Education standards. Standards for elementary schools require students to have 30 to 50 minutes of physical education each week. Physical fitness assessments are part of the physical education requirement. Students that have documented special needs are also required to participate in modified physical education classes.

The LSWP addresses physical activity as a goal; students are urged to participate in recess. Instructional staff are to incorporate physical activity breaks for students during class time. The LEA has Afterschool programs that offer students opportunities to participate in programs that promote physical activities.

Local educational agency 404 Section Five: Local School Wellness Policy Promotion and Marketing LSWP WellSAT: 2.0 scores for comprehensiveness are 93, and strength 80. The LEA's LSWP states that the schools within the LEA are to promote uniform messages in addressing student health and wellness in cafeterias, classrooms, and material that is disseminated to students, family and community members. All foods offered on the campus during the school day are to meet USDA nutrition standards for meals, healthy snacks and competitive foods. Fundraising activities that offer food to students must also meet USDA nutrition standards; the LSWP has an appendix that lists non-food fundraising activities. All foods offered during the school day on the LEA's school campuses must meet USDA Nutrition standards mandated for all federal funded school meals.

Local educational agency 404 Section Six: Implementation, Evaluation, and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LSWP states each school will have a wellness committee that coordinates the implementation of the school LSWP with the LEA's LSWP. Each LSWP committee chair provides reports to the building principal. The building principal is responsible for assessing, implementing and sustaining the school's LSWP. Annually the principal prepares a report for the superintendent; the superintendent compiles all school reports for the LEA report. The LEA report is available on the LEA website.

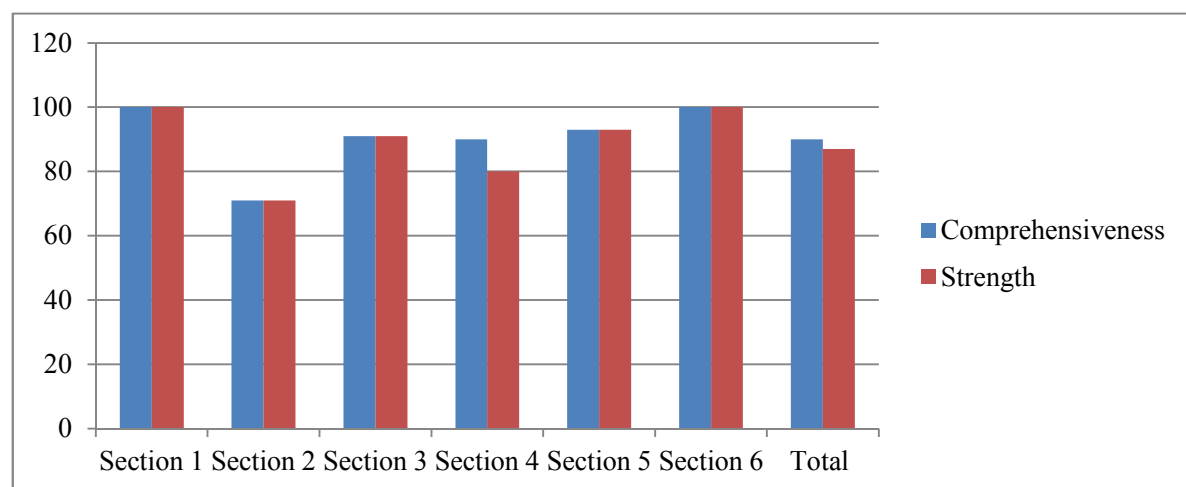
Local educational agency 413 total LSWP WellSAT: 2.0 Scores for comprehensiveness are 90, and strength 87. The LEA has ten elementary schools that met the research criteria. No individual school had information pertaining to a LSWP for the elementary school. Clicking on the individual school menu link connects to the LEA's child/school nutrition department website.

The LSWP preamble indicates the LEA follows the coordinated school health model, and addresses food in the classrooms, classroom celebrations and school fundraisers. There is another link for the LEA's Wellness Policy, which states it will comply with Public Law 108-265, Section 204. The policy does not address the seven goals of the HHFKA-2010.

The LEA's WellSAT: 2.0 scores for the six sections and total assessment for comprehensiveness and strength are displayed in figure 8.

Figure 8.

*LEA 413 WellSAT: 2.0 LSWP Total Assessment Scores*



Local educational agency 413 Section One: Nutrition Education LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LSWP states the LEA will incorporate nutrition education into its curriculum. Schools should engage in nutrition education and promotion in the school's curriculum and be grade appropriate. Nutrition education includes teaching students how to read food labels, learn about portion control, and practice healthy eating behaviors. The LSWP indicates school gardens, science programs, and classroom activities are used to provide nutrition education.

Schools use classrooms, cafeterias, hallways, and gymnasiums to promote nutrition education to students. School staff is encouraged to participate in Coordinated School Health Programs to connect the school child/school nutrition program and nutrition education in the classrooms.

Nutrition education information is disseminated to family and community members via flyers, school menus, and websites. The LSWP states it hosts health fairs, eating seminars and nutrition nights for family and community members to learn about nutrition. The LEA child/school nutrition website has links to other public and private organizations that provide nutrition education resources.

Local educational agency 413 Section Two: Standards for USDA School Meals LSWP WellSAT: 2.0 scores for comprehensiveness are 71, and strength 71. The LEA's LSWP states all school meals will meet USDA nutritional standards and has links to USDA Dietary Guidelines, Myplate, and Healthier Generation websites. The nutrition department conducts nutritional analysis of foods served in the school meal programs. The LEA nutrition department website will publish the nutritional analysis. Once students are seated, students will have adequate time to eat their meals, ten minutes for breakfast and 20 minutes for lunch. The LSWP has appendices that list healthy food choices and nutrient standards for school meals and resources for healthy meals.

Local educational agency 413 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages LSWP WellSAT: 2.0 scores for comprehensiveness are 91, and strength 91. Foods of minimal nutritional value will not be available to students during the school day. Free drinking water is available to students during the school day. All beverages and



snacks offered or sold during the school day must comply with USDA Smart Snack standards. Water and/or 100 percent fruit juice are beverages allowed for classroom celebrations. If dessert is provided, fresh fruit, vegetables and pretzels must also be offered in classroom celebrations. The LEA's LSWP includes an appendix that lists healthy snack ideas.

Fundraisers occurring during the school day will comply with USDA Smart Snack standards. School day fundraisers cannot compete with federal school meal programs. Fundraisers occurring after the end of the LEA scheduled school day do not have to comply with Smart Snack standards. The LSWP has an appendix that lists suggestions for food and nonfood items for fundraisers.

Local educational agency 413 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness are 90, and strength 80. The LSWP states if the ESB State Department of Education approves, 150 minutes of physical education will be required in all elementary schools. Physical education classes will be modified for students with special needs and cannot be waived for other classes.

Elementary schools will provide students with opportunities for physical activity breaks and recess is scheduled before lunch. Community organizations can use schools for physical activity programs.

Local educational agency 413 Section Five: Local School Wellness Policy Promotion and Marketing LSWP WellSAT: 2.0 scores for comprehensiveness are 93, and strength 93. The LSWP preamble states the LEA promotes all school site functions should provide foods with high nutritional value. The LEA will work at providing nutrition education to students, their family members and the schools community members. Beverages and snack foods given or sold

on school campus must meet the USDA Smart Snack Standards. The LSWP provides a list of food items that are high in nutritional value. Food marketing must be aligned with the LSWP nutrition health education messages.

Local educational agency 413 Section Six: Implementation, Evaluation, and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LEA's Wellness Policy Committee meets every quarter; the committee assesses the implementation, coordination of nutrition and physical activity programs for reports.

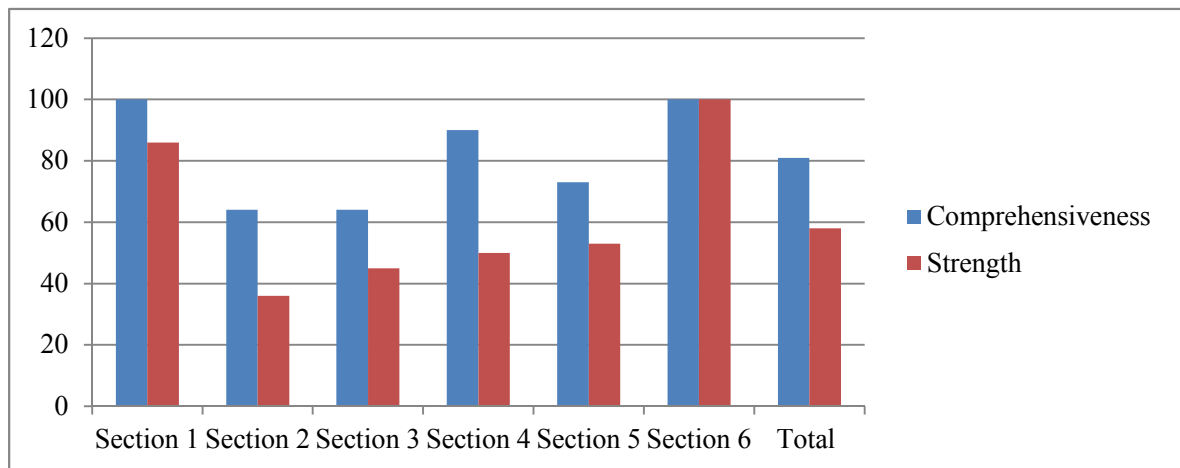
Committee members are liaisons between the LEA, community, and students' family members and ensure schools formulate individual school councils. The school councils provide reports to the LEA Wellness Policy Committee. The LSWP states the committee will meet every three years to review and revise the LSWP.

Local educational agency 421 total LSWP WellSAT: 2.0 scores for comprehensiveness are 81, and strength 58. The LEA had three elementary schools that met the research criteria. No individual school had information pertaining to a LSWP for the elementary schools. Clicking on the school menu link connects to the LEA child/school nutrition service website, the nutrition education link connects to the LEA's LSWP.

The LSWP preamble states promoting fitness, nutrition education, physical activity, and wellness to the school community is its goal. The School Nutrition Network operates the LEA's child/school nutrition website. The LEA's WellSAT: 2.0 scores for the six sections and total comprehensiveness and strength assessment scores are displayed in figure 9.

Figure 9.

*LEA 421 WellSAT: 2.0 LSWP Total Assessment Scores*



Local educational agency 421 Section One: Nutrition Education LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 86. The LEA's LSWP preamble states nutrition education is important and its goal is to promote healthy eating behaviors. The LEA acknowledges the important role its schools have in establishing the basis of positive nutrition behaviors through nutrition education. Nutrition education is to be integrated in the LEA's K-12 health curriculum, and align with the ESB State's Department of Education nutrition education requirements.

Nutrition education messages and resources are disseminated through links on the child/school nutrition website, school menus, and community education programs.

Local educational agency 421 Section Two: Standards for USDA School Meals LSWP WellSAT: 2.0 scores for comprehensiveness are 64, and strength score 36. The LEA's LSWP states school meals will meet USDA regulations. Students will have access to free drinking water during school meal times. School cafeterias will provide healthy eating habits information and

students will have at a minimum ten minutes to eat their meals. Nutritional information for school meals is published on the LEA's nutrition department website.

Local educational agency 421 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages LSWP WellSAT: 2.0 scores for comprehensiveness are 64, and strength 45. Foods of minimal nutritional value will not be available during the school day. Beverages and snacks offered to students during the school day will meet USDA Smart Snack standards. Teachers must approve students' access to drinking water in the classroom.

Local educational agency 421 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness is 90, and strength 50. The LSWP states the LEA's K-12 physical and health education courses are aligned with the ESB State Department of Education standards. Elementary school students may have the opportunity for recess before lunch. Students have opportunities to engage in other physical activities in class within the school day with activity breaks, and as part of after school programs.

Local educational agency 421 Section Five: Local School Wellness Policy Promotion and Marketing LSWP WellSAT: 2.0 scores for comprehensiveness are 73, and strength 53. The LEA's LSWP preamble states a goal of the LSWP is to convey a consistent message of the importance of nutrition, fitness, and wellness.

Local educational agency 421 Section Six: Implementation, Evaluation and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 100. The LEA's school board policy states the LEA administrator of child/school nutrition programs, directors of education and principals' work together to implement and evaluate the LSWP.

The LSWP does not have a procedure concerning communicating the policy and/or revisions to parents/guardians and community members or any timeframe as to when the policy will be reviewed and evaluated for its effect.

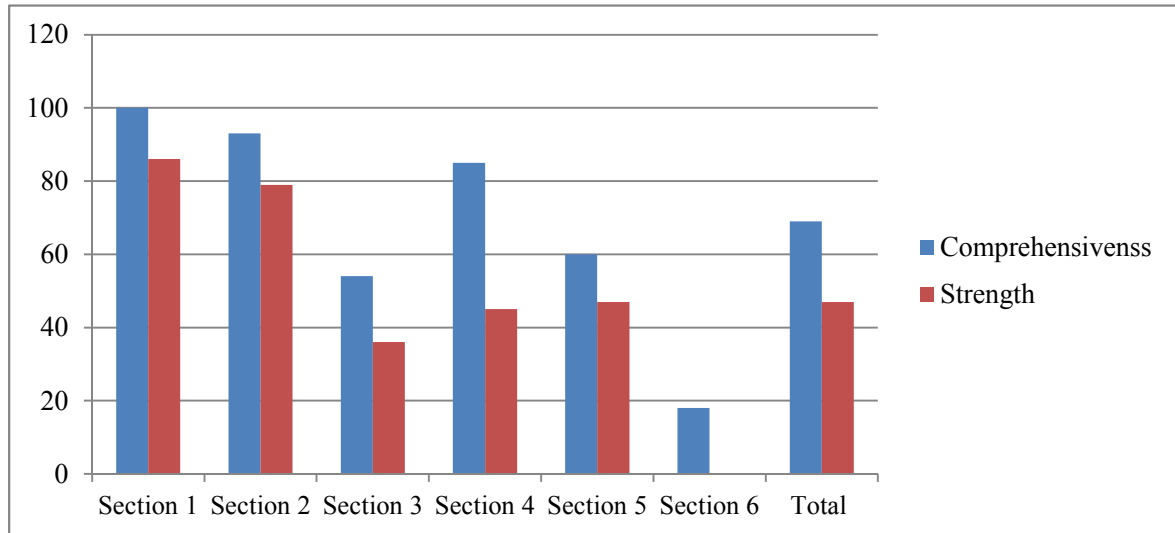
Local educational agency 433 total LSWP WellSAT: 2.0 Scores for comprehensiveness are 69, and strength 47. This LEA did not have an elementary school that met the research criteria but wanted to participate in this research. This LEA is geographically located in the middle of the ESB state thus provide educational services to rural, suburban and urban households. A recent change in the LEA's leadership can be an indication of the new LEA administrator's role of moving the LEA forward.

The LSWP preamble states student health and academic achievement is interconnected, and to enhance its students' educational endeavors health, fitness and wellness must be addressed in its schools. Students' mental and emotional health is included in the LSWP. The LEA's WellSAT: 2.0 assessment scores for the six sections and the LEA's total scores for comprehensiveness and strength are displayed in figure 10.

Local educational agency 433 Section One: Nutrition Education LSWP WellSAT: 2.0 scores for comprehensiveness are 100, and strength 86. The LEA's school board LSWP states schools should provide nutrition education that is comprehensive, sequential, standards based, taught in core, elective subjects and health classes. Nutrition education messages are to be coordinated with nutrition messages provided in the school cafeterias and links with physical fitness messages in physical education and health classes. The LEA will collaborate with community service programs and allied agencies to promote nutrition education to students, family and community members.

Figure 10.

*LEA 433 WellSAT: 2.0 LSWP Total Assessment Scores*



The LEA's LSWP preamble acknowledges a relationship exists between student academic achievement, attendance, health, fitness, and wellness. To address childhood obesity the LSWP states the LEA will promote school activities that promote health and fitness. The policy states that the schools' nutrition education standards will align with USDA Dietary Guidelines and the link is embedded in the LSWP.

Local educational agency 433 Section Two: Standards for USDA School Meals LSWP WellSAT: 2.0 scores for comprehensiveness are 93, and strength 79. The LEA's LSWP states all school meals will meet USDA nutrient standards and Dietary Guidelines as per HHS-2010. Students will have access to free drinking water during school meals. The LEA strives to improve student participation in federal school meal programs. The LSWP includes links to USDA Team Nutrition and Healthier US websites. Once students are seated, students will have adequate time to eat their meals, ten minutes for breakfast and 20 minutes for lunch.

Local educational agency 433 Section Three: Nutrition Standards for Competitive and Other Foods and Beverages LSWP WellSAT: 2.0 scores for comprehensiveness are 54, and strength 36. Foods of minimal nutritional value will not be available to students during the school day. Beverages and snacks offered to students during the school day meet USDA Smart Snack standards. Fundraisers are to promote and support healthy eating habits.

Local educational agency 433 Section Four: Physical Education and Physical Activity LSWP WellSAT: 2.0 scores for comprehensiveness are 85, and strength 45. The LEA's physical education curriculum is aligned with the ESB State Department of Education K-12 education standards and coordinated with the LEA's health curriculum. Physical education classes are modified to ensure students with special needs have access to structured physical activity.

Each day elementary schools have time for recess that encourages unstructured physical activity. Information supporting lifelong physical activities students, family and community members can engage in is disseminated by the LEA's individual schools. The LEA partners with community organizations to foster positive physical activity for its community members.

Local educational agency 433 Section Five: Local School Wellness Policy Promotion and Marketing LSWP WellSAT: 2.0 scores for comprehensiveness are 60, and strength 47. Fundraising activities that include food and beverages during the school day are to be consistent with USDA's competitive food/Smart Snacks policy. Fundraising activities occurring beyond the school day are to reinforce healthy food behaviors that are communicated and practiced during the school day.

Local educational agency 433 Section Six. Implementation, Evaluation, and Communication LSWP WellSAT: 2.0 scores for comprehensiveness are 18, and strength 0. The

LSWP does not identify the formation of a LEA LSWP committee or that individual schools have a LSWP committee. The school board policy and LEA policy documents the date the policies were last reviewed and projected review dates.

#### **4.6 Research Question One Data Analysis**

In this research, the LSWP WellSAT: 2.0 assessment scores are the independent variables and the dependent variables are the elementary school attendance, parent survey, and principal survey responses.

*Research Question One.* Research question one investigates if there is a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and an elementary school's student attendance, and communication of nutrition health and wellness education, and awareness of school meal standards to parents. Parent surveys were distributed to one elementary school from LEA 433. Principal surveys were distributed to Local educational agency 433 elementary schools.

*Pearson Product-Moment Correlation Coefficient.* The researcher used the Pearson Product-Moment Correlation Coefficient (Pearson correlation coefficient,  $r$ ) to determine if there is a relationship between the dependent and independent variables exist. The coefficient values range between 1 to -1. Values between 1 and 0 indicate a positive linear relationship, -1 to 0 indicate a negative linear relationship, and a value of 0 indicates no linear relationship exists. A scatter chart is used to further clarity of value of  $r$  (Laerd Statistics, 2016, Salkind, 2011). The Critical Value Table was used to analyzed the hypotheses.

This research investigated if a relationship exists between the independent variable (X axis) local school wellness policy WellSAT: 2.0 assessment scores for comprehensiveness and



strength and the dependent variables (Y axis), elementary school student attendance for SYs 2009 and 2013, responses from the parent and principal surveys.

*Student Attendance.* The researcher computed the Pearson product-moment correlation coefficient between LEA 433 WellSAT: 2.0 total assessment scores and student attendance for the elementary school for SYs 2009 and 2013. The correlation coefficient value is 1 for the elementary school attendance for SYs 2009 and 2013 indicating that there is a strong positive relationship between the LEA LSWP WellSAT: 2.0 total assessment scores and student attendance. Figure 11 displays the scatter gram of LEA 433E/S student attendance SY 2009 and SY 2013 student attendance scatter gram is displayed in figure 12.

Figure 11

*LEA 433 WellSAT: 2.0 Total Assessment Scores and Elementary School Student Attendance SY 2009*

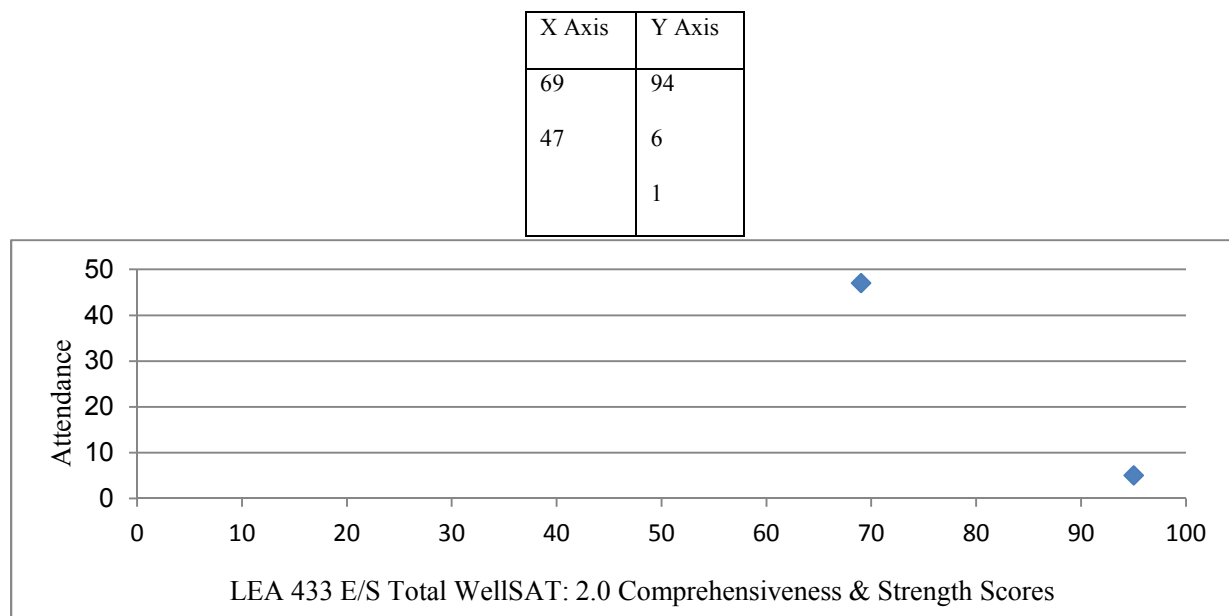
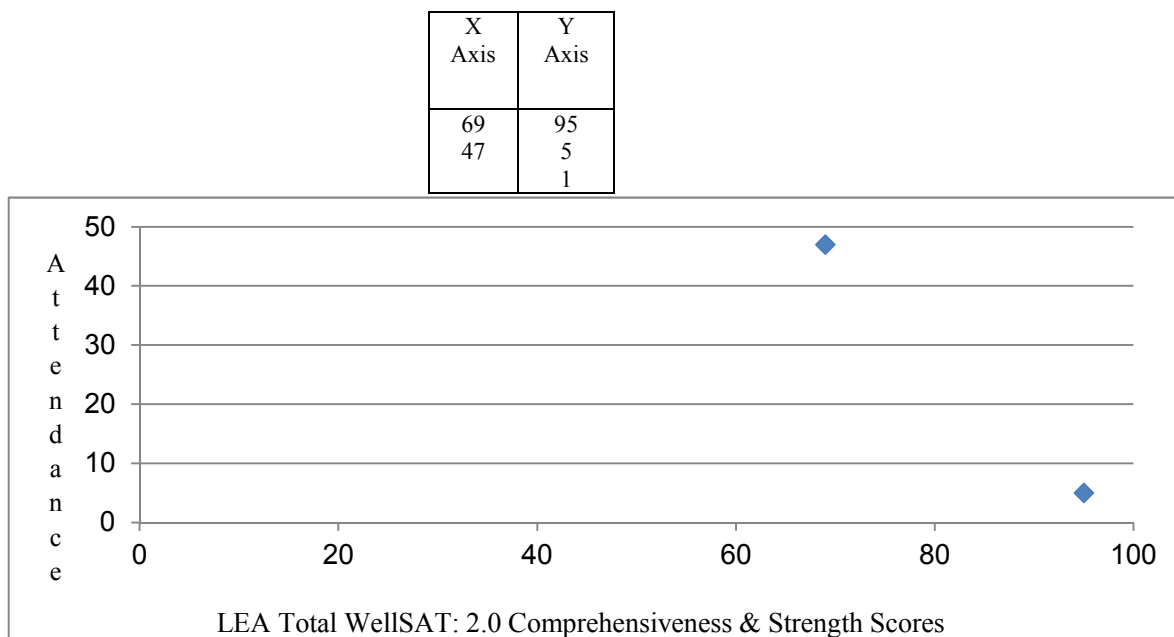


Figure 12.

*LEA 433 WellSAT: 2.0 Total Assessment Scores and Elementary School Student Attendance SY 2013*



*Surveys.* Surveys were used to investigate if a relationship exists between LEAs LSWP WellSAT: 2.0 assessment scores and survey responses from student parents and principals. LEA 433 volunteered one elementary school to distribute surveys to students' parents/guardians (Appendix C-4) and the LEA's elementary school principals (Appendix D-3).

*Survey Vetting Procedures.* The researcher implemented the following procedure to vet the parent/guardian and principal surveys for completeness, consistency, and omission. Only completed surveys were included in the analysis. The surveys missing demographic information, and those with no responses for entire section(s) were omitted.

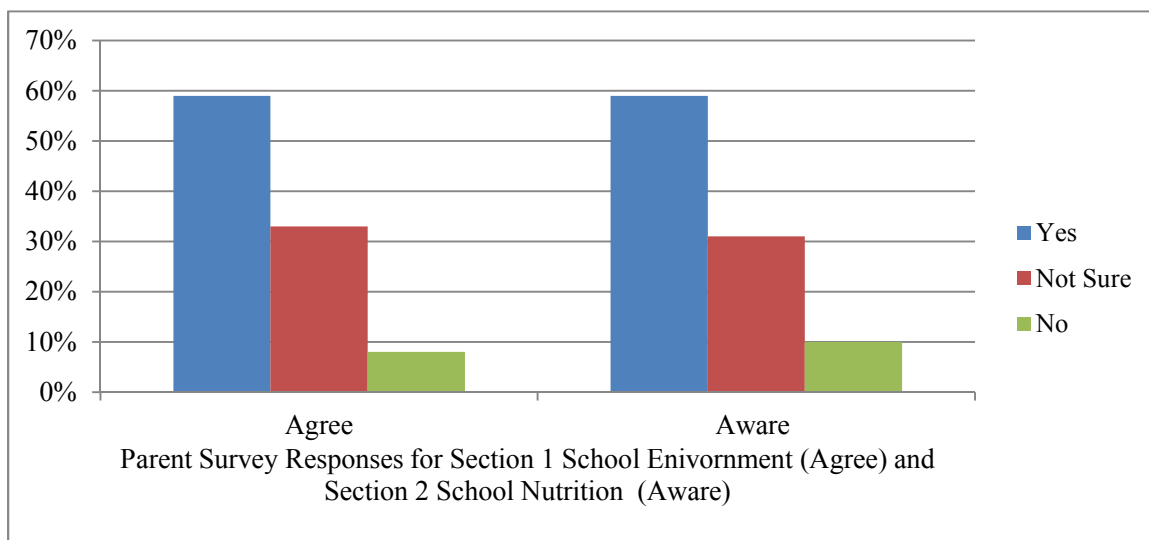
*Parent Survey Data.* The parent guardian survey had four sections with a total of 29 open-ended questions. The first two sections contained questions about the elementary school's local school wellness environment and school nutrition information. Section one: Do you agree

with the following local school wellness policy environment information for your child/children school? Respondents were asked to answer 11 questions with one of the following three possible responses: Yes, I'm not sure, or No. Section two: Were you aware of the following local school wellness nutrition information? Respondents were asked to answer seven questions and the response options from section 1.

There were 11 open-ended questions in sections three and four of the survey inquiring about families' level of interest in engaging in school wellness activities. Section three: What opportunities for participating in family activities would you and your family be interested in? Respondents were asked to respond to six open ended questions with the following response options: Would love to!, Possibly, or Not for me. There are five questions in section four: Would you be willing to help make your child's school healthier by. The response options are the same as section three. Figure 13 displays the Parent Guardian survey responses

Figure 13.

*LEA 433E/S Parent/Guardian Survey Responses to School Environment*



Section 1: Do you agree with the following LSWP environment information for your child/children school?

Section 2: Are you aware of the following LSWP nutrition information?

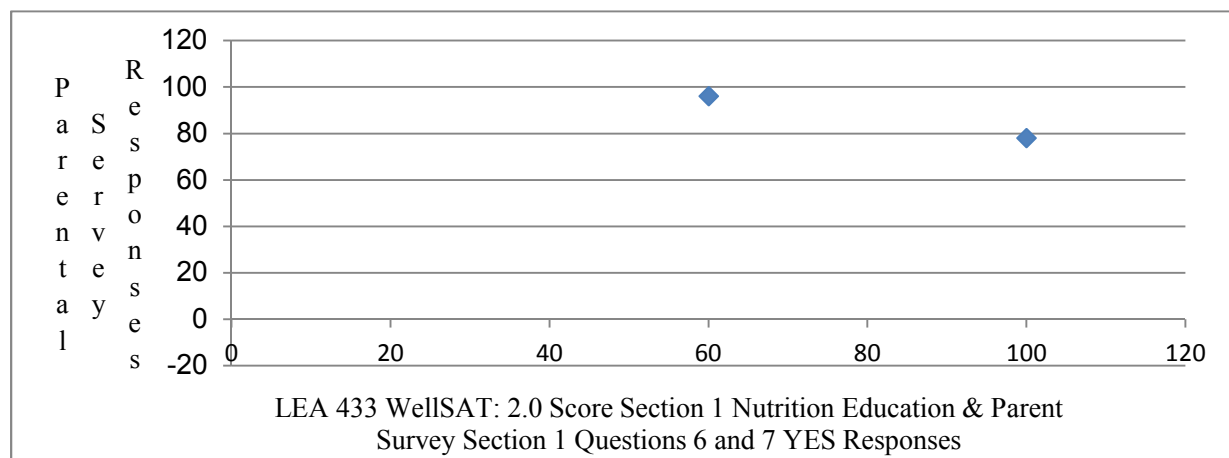
(Appendix D-2 for Parent Survey).

*Parent Survey Responses to Nutrition Education and LEA 433 WellSAT: 2.0 Section One.*

The correlation coefficient between the WellSAT: 2.0 Section 1 Nutrition Education and parental survey YES responses for nutrition education was -1 indicating a strong relationship. The scatter gram shows a decreasing linear line between the independent variable, the elementary school's LSWP WellSAT: 2.0 total assessment scores for comprehensiveness and strength and the dependent variable, the elementary school parent/guardian survey responses to section one questions number six and seven. Figure 14. scatter gram displays WellSAT: 2.0 Section One: Nutrition Education and Parent Survey Section 1 Questions 6 and 7 YES Responses: -1.

Figure 14.

*WellSAT: 2.0 LEA 433E/S WellSAT: 2.0 LSWP Total Assessment Score and Parent Survey Positive Responses to Nutrition Education Questions.*

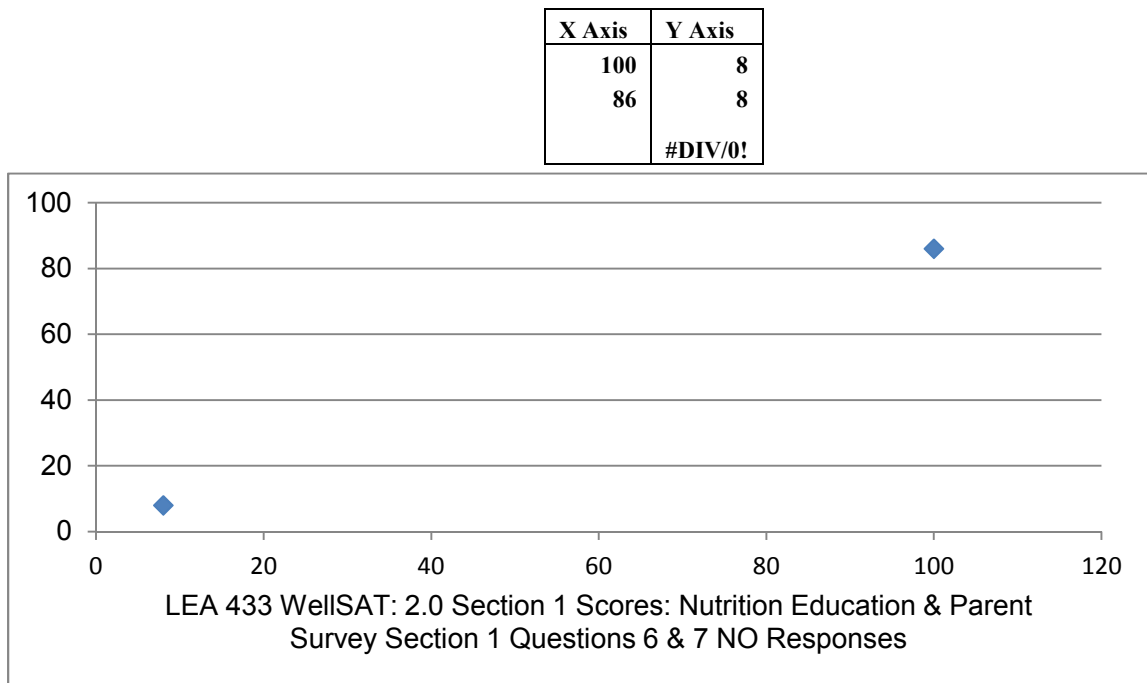


The correlation coefficient between WellSAT: 2.0 Section 1 Nutrition Education and parental survey negative (NO) responses for nutrition education could not be calculated because there were eight negative responses for survey section one questions number six and seven.

Figure 15 displays the scatter gram of the parent negative survey responses to nutrition education questions and LEA 433E/S WellSAT: 2.0 assessment scores for Section one.

Figure 15.

*LEA 433E/S WellSAT: 2.0 Total Assessment Scores and Parent Negative Responses to Nutrition Education Questions*

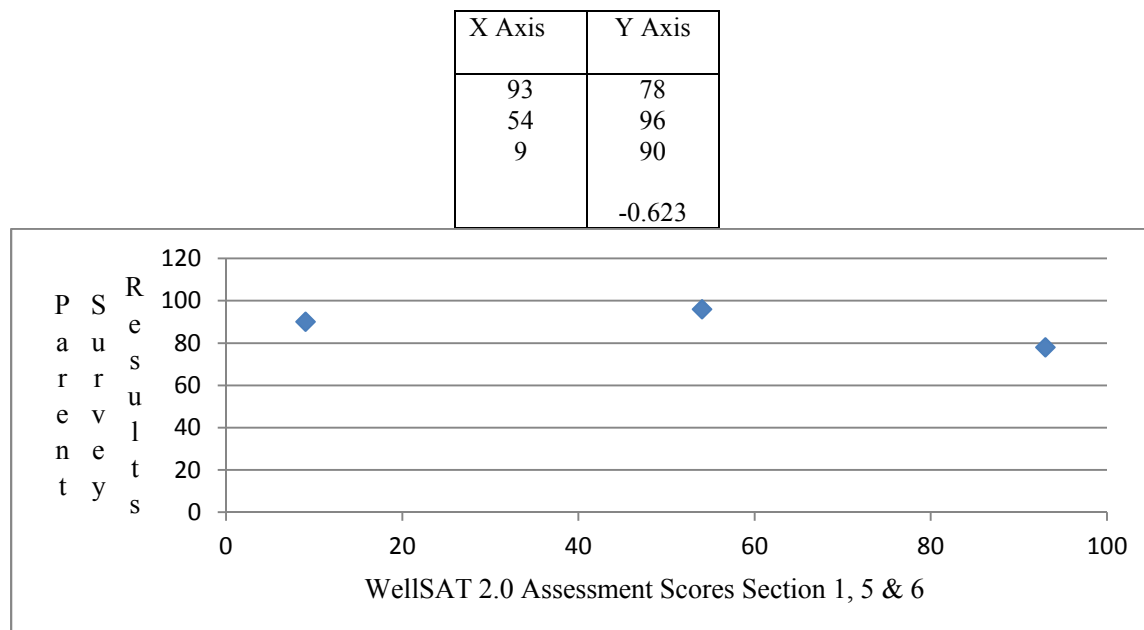


*Parent Survey Responses to Section One and Five and WellSAT: 2.0 Sections One, Five, and Six.* The correlation coefficient between the LEA WellSAT: 2.0 section one nutrition education, section five LSWP promotion and marketing and section six implementation, evaluation and communication and parent survey responses from section one nutrition education

and section five is -0.62 indicating a moderate relationship. This may indicate that the elementary school is communicating with students, their guardians, and the school community about nutrition education, health, and wellness. Figure 16 displays the scatter gram of the parent positive survey responses to school meal standards, promotion and marketing and implementation of LSWP questions and LEA 433E/S WellSAT: 2.0 assessment scores for sections two, five and six.

Figure 16.

LEA 433E/S WellSAT: 2.0 Assessment Scores for Sections 2, 5 and 6 and Parent Survey Responses from Section 1, 2 and 3



#### 4.7 Research Hypothesis One Data Analysis

Hypothesis one states that elementary schools would have high scores in sections one, five, and six of the WellSAT: 2.0 LSWP assessments for comprehensiveness and strength.

The researcher used the Delaware State University graduate program grading system to establish the criteria for high scores in this research. Grades from 100 – 90 = A. Grades from 80 – 80 = B. LSWP assessment scores from 100 to 80 are high scores.

Local educational agencies with local school wellness policies that had WellSAT: 2.0 total comprehensiveness and strength ranging from 100 to 80 were identified as high. Table 4.2 displays the percentage and number of LEAs with LSWP having high WellSAT: 2.0 high scores for total assessment, section one section five, and section six.

Table 2.

*LEAs with High WellSAT: 2.0 High Assessment Scores*

<b><u>WellSAT: 2.0 Sections</u></b>	<b><u>Percent</u></b>	<b><u>Total Numbers</u></b>
Total Assessment	25%	2 of 8
Section 1: Nutrition Education	88%	7 of 8
Section 5: LSWP Promotion and Marketing	25%	2 of 8
Section 6: Implementation, Evaluation and Communication	50%	4 of 8

*Null or Alternative Hypotheses.* The correlation coefficient (r) is 0.623 indicating there is a moderate relationship between LEA 433E/S LSWP WellSAT: 2.0 assessment scores for section one, nutrition education; section five, marketing and promoting health and wellness; section six, implementation, evaluation and communication of LSWP and the parent survey responses concerning nutrition education, school meal standards and receiving communication concerning LSWP and health and wellness.

To determine if the proposed hypotheses is null, that there is no relationship or any alternative to the null hypotheses, there is a relationship between the independent variable,

LSWP assessment scores and the dependent variables parents' knowledge of nutrition education, communication and awareness of health and wellness, and LSWP implementation, evaluation and communication.

Using the *r* Critical Value Table the Alpha level supports the following data was used: Degrees of freedom ( $df\ n-2 = 13$ ),  $r=.623$ . The intersection of Alpha (.05) is .514, rejecting the null hypotheses and supports the alternative hypotheses. The alternative hypotheses support the theory that there is a relationship between LEA 433E/S LSWP WellSAT: 2.0 assessment scores and the parent positive responses to survey questions.

#### **4.8 Research Question Two Data Analysis**

##### *WellSAT: 2.0 Section Four: Physical Education and Physical Activity*

*Comprehensiveness and Strength Scores.* RQ2: Is there a relationship between an elementary school's LSWP WellSAT: 2.0 total assessment score for section four physical education and physical activity comprehensiveness and strength assessment scores and time students have for physical education and physical activity during the school day?

The comprehensiveness scores for the LSWPs ranged from 95 (one LEA) to 15 (one LEA). The strength scores ranged from 80 (three LEAs) to zero (one LEA); table 3 is a table that displays the eight LEA's LSWP WellSAT: 2.0 section IV comprehensiveness and strength scores. The comparison between LEAs' LSWP WellSAT: 2.0 total comprehensiveness assessment scores and Section IV Physical Education and Physical Activity comprehensiveness assessment scores is displayed in figure 17. The comparison between eight LEAs' total strength scores and Section IV assessment scores for strength is displayed in figure 18.



Table 3.

*LEA WellSAT: 2.0 Section 4: Physical Education & Physical Activity Assessment Scores*

LEA Number	WellSAT: 2.0 Section 4 Physical Education and Activity Scores	
	<u>Comprehensiveness</u>	<u>Strength</u>
358	95	80
361	15	0
363	75	25
385	75	25
404	80	80
413	90	80
421	90	50
433	85	45

Figure 17.

*Eight LEAs WellSAT: 2.0 Total Assessment and Section Four Assessment Scores for  
Comprehensiveness*

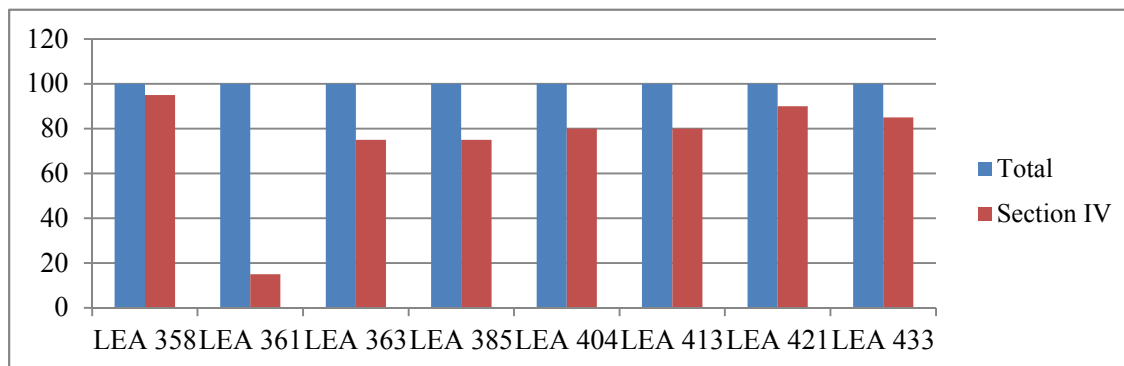
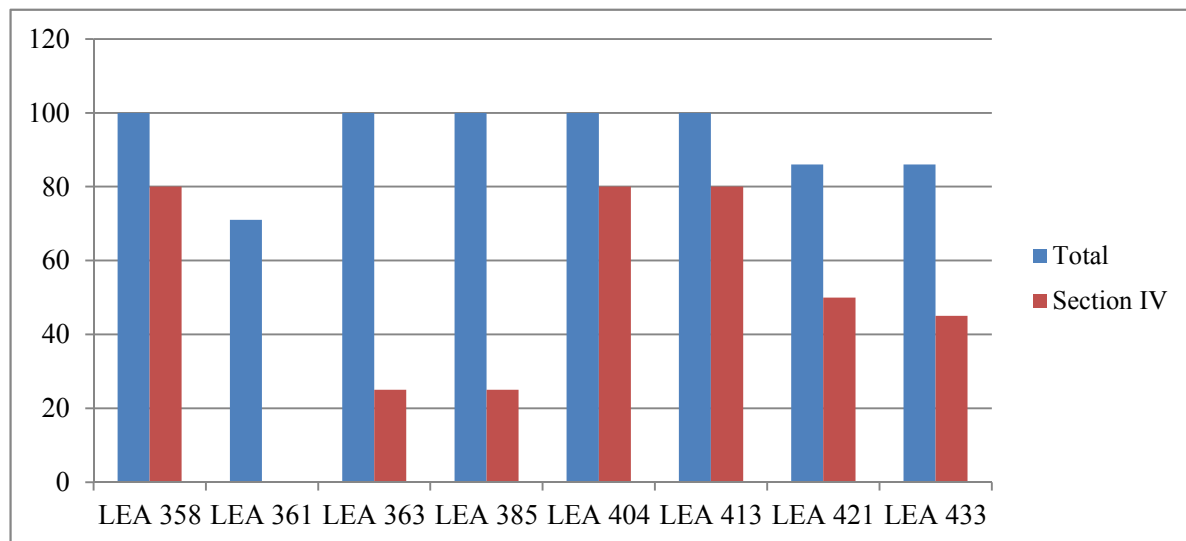


Figure 18.

*Eight LEAs WellSAT: 2.0 Section Four Assessment Scores for Strength*

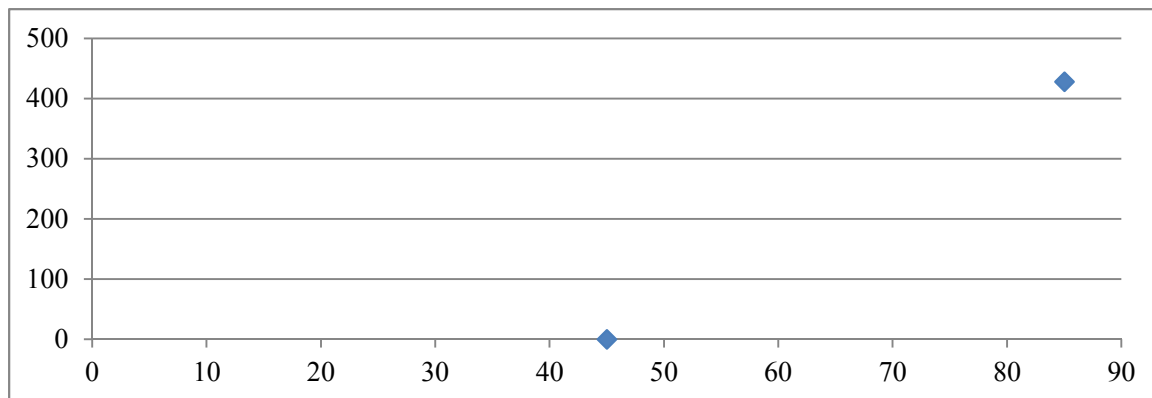


*Correlation Coefficient.* This research seeks to discover if a relationship exists between independent variable (X-axis), local school wellness policy WellSAT: 2.0 assessment scores for section 4: Physical education and physical activity comprehensiveness and strength and the dependent variable (Y- axis), responses from the parent survey section one questions pertaining to physical education and physical activity.

The correlation coefficient was not calculated due to the limited data available for physical education. The scatter gram displays a positive linear relationship between the LEA's LSWP WellSAT: 2.0 section 4: Physical education and physical activity assessment scores and the parent survey responses to physical activity section one, questions eight, nine, ten and eleven. Figure 19 displays the scatter gram of LEA 433E/S parent survey response to student physical activity and the LSWP assessment scores for section four, physical activity.

Figure 19.

*WellSAT: 2.0 Section 4: Physical Education and Physical Activity Assessment Scores and Parent Survey Responses to Physical Activity*



#### 4.9 Research Hypothesis Two Data Analysis

Hypothesis two states that elementary schools will have a high score in comprehensiveness and strength in section four of the LSWP WellSAT: 2.0 assessments.

The researcher used the Delaware State University graduate program grading system to establish high scores for this research. Grades from 100 – 90 = A. Grades from 80 – 80 = B. LSWP assessment scores from 100 to 80 are high scores.

Local educational agencies with local school wellness policies that had WellSAT: 2.0 total comprehensiveness and strength ranging from 100 to 80 were identified as high. Table 4 displays the percentage and number of LEAs with LSWP having high WellSAT: 2.0 high scores for total assessment, section four.

*Null or Alternative Hypotheses.* No data was available from the eight LEAs concerning amount of time students engage in physical education and physical activity during the school day or if there is opportunity for students to engage in physical activity before or after school. The

hypothesis has to be considered null because this research did not provide data to support the positive liner relationship displayed in the scatter gram displayed in figure 19.

Table 4.

*Eight LEAs with LSWP WellSAT: 2.0 Section Four High Scores*

WellSAT: 2.0 Section 4: Physical Education and Physical Activity	Percent	Total Numbers
WellSAT: 2.0 Total Assessment Score	25%	2 of 8
Section 4: Physical Education and Physical Activity Score	38%	3 of 8

#### **4.10 Discussion**

*Nutrition Education.* Section one of the WellSAT: 2.0 is nutrition education. The first question asked if the LEA has a standards-based nutrition education and health curriculum or another curriculum that includes nutrition health education. The following six questions asked if the curriculum addresses skills that will improve nutrition and health behaviors and if the nutrition and health education is sequential and comprehensive. The eight LEAs received a score of 100 for comprehensiveness and strength because the LSWP states nutrition and health education is incorporated into core curriculum subjects.

LEA 433 WellSAT: 2.0 nutrition education comprehensiveness score is 100 and 86 for strength (figure 8). More than 50% of the Parent/Guardian surveys returned indicated they agree and are aware of the nutrition education programs available for students and their family.

*Communication of Nutrition, Health, Wellness Marketing and Promotion.* Section five of the WellSAT: 2.0 assess how well the LSWP promotes nutrition awareness and positive health behaviors. LEA 433 WellSAT: 2.0 score for comprehensiveness is 60 and strength score is 47.

The responses to the principal survey questions indicate barriers in preventing full implementation of LSWP. The major barrier is nutrition education must compete with other academic subjects, testing and teaching behaviors not enforced in the classroom or at home.

*Physical Education and Physical Activity.* Section four of the WellSAT: 2.0 assess the LEAs physical education curriculum and access to physical activity throughout the school day and especially recess in elementary schools. Many states align their physical education and physical activity standards with the National Shape America physical education and physical activity standards.

Local educational agency 433 WellSAT: 2.0 LSWP scores for section four comprehensiveness are 85 and strength is 45. The high score for comprehensiveness is because their physical education curriculum and physical activity standards are aligned with their state's standards. The state implemented the National Shape America for their standards. The LSWP also indicated that LEA 433 has developed and maintained the development of a comprehensive school physical activity program.

*Leadership.* The researcher received six surveys completed by elementary school principals (first question of the survey). The principal surveys were vetted for consistency and completeness. All surveys were complete, so no surveys were discarded. Principals provided responses to their knowledge of their school's LSWP, implementation, and barriers to implementing the LSWP. They also responded to how actively involved they were as members of their school's wellness committee. Principals could provide multiple responses to several survey questions.

*Data Analysis.* Sixty-seven percent (4 of 6) of the principals indicated they had below

average knowledge of the school's LSWP; 25% (2 of 6) stated they had average knowledge. The success of implementing the LSWP was on a scale of one to five, one unsuccessful and five successful. Two of the six (33%) principals rated their implementation process at three, and one (17%) rated their LSWP implementation process as one. All principals stated they were not a member of the school wellness committee.

The survey listed sixteen critical barriers for implementing a school's LSWP; the principals indicated nine critical barriers prevented the implementation of the LSWP. Difficulty breaking habits and focus on other academic subjects and testing were identified as the most critical (83%, 5 of 6). The most critical barrier was focusing on other academic subjects and testing. The table 5 displays the principal responses to the critical barriers for implementing the LSWP.

The survey listed ten challenges for implementing nutrition education in their school curriculum. The principals identified the competition with other core learning requirements as the major challenge to implementing nutrition education into their school's education curriculum. The additional three challenges principals identified as challenges for implementing nutrition education into the school education curriculum is listed in table 6.

Table 5.

*LEA 433 Principal Survey Responses to Critical Barriers to Implementing LSWP*

Survey Questions	Percent	Number of Responses
A focus on other academic subjects & testing	83	5 of 6
Difficulty in breaking parent, teacher & student habits	83	5 of 6
Student resistance to menu change & preference for competitive foods	50	3 of 6
Lack of communication & coordination	33	2 of 6
Staff shortage & lack of staff development	33	2 of 6
Wellness not prioritized in curriculum	33	2 of 6
Lack of shared vision & commitment	17	1 of 6
Wellness not cited as a value by staff, parents, students & community	17	1 of 6
Funding	17	1 of 6

Table 6.

LEA 433 Principal Survey Responses to Challenges to Implementing Nutrition Education Curriculum

Survey Questions	Percent	Number of Responses
Competition with other core learning requirements/not being the main focus	100	6 of 6
Difficulty teaching against learned behaviors in the home	67	4 of 6
Not knowing if children are receiving (nutrition & health) messages	50	3 of 6
Finding time in the school day schedule	33	2 of 6



## **CHAPTER V: DISCUSSION**

### **5.1 Introduction**

A summary of the research is presented in this chapter. The summary includes the purpose of conducting this research and how data that were collected addressed the research questions. Findings that were revealed in Chapter Four discussed in relation to findings from previous research. The conclusion of this chapter includes possible implications for actions and future research.

### **5.2 Summary of the Research**

Childhood obesity continues to be a national concern. Childhood obesity affects children of all ethnicities, religious beliefs, socioeconomic status and geological locations. According to the National Center for Health Statistics (NCHS) in 2008, 17 percent of students enrolled in the K-12 school environment are identified as obese (Ogden and Flegal, 2010).

Obese children have been diagnosed with cardiovascular diseases, diabetes, hypertension, chronic medical conditions that have long-term effects on the overall health of our Nation's youth. Obesity also has negative effects on students' emotional health, self-esteem and student's academic achievement (Daniels, Jacobson, McCrindle, Eckel, McHugh Sanner, 2009).

Elementary school students with high absenteeism rates fail to thrive academically, have lower test grades and fail to keep pace with their classmates (Henderson, Hill, and Norton, 2014). Students that fail to keep pace with their peers are affected emotionally and socially. Emotional and social health is as important as physical health for student academic achievement.

Maslow's (1943) theory applied to the educational setting demonstrates the importance of students being a part of a social group.

Maslow's (1943) theory states the needs of the lower level must be met before a person is motivated to progress to the next higher level. The third level is love, belongingness, and acceptance, being able to identify with a group help students develop emotional growth and lean group social skills, both needed to be successful academically. Once the third level needs are met, students can move to the fourth level, which is where students' self-esteem is developing. Students are able to focus on their academic achievement.

*Overview of the Research Problem.* Childhood obesity rates have been escalating for the past 20 years due to interactions between children and their environments (Coffield, Metos, Utz and Waitzman, 2011). Obesity is the result of continuous consumption of food, more food than the body can burn off. Wieting (2008) states that educational, family, physical and social environments have had negative impacts on students' health, thus increasing the incidences of students identified as overweight and/or obese.

Tiefert (2008) wrote in her article, "Underprivileged and Overweight" that the continued consumption of foods with minimal nutritional value and decreased physical activity contributes to children being identified as malnourished, overweight or obese.

Elementary schools can play a vital role in preventing childhood obesity. The elementary school environment can provide students with opportunities to engage in physical activity, physical education, learn and share information about nutrition awareness and education with family members. Legislators developed and passed the Healthy, Hunger-Free Kids Act of 2010

(HHFKA-2010) which required schools to engage in activities that will address childhood obesity in the school and in the school's community.

The HHFKA-2010 requires all schools that participate in the National School Lunch Program to develop local school wellness policy (LSWP) and a committee with representation from school professionals, instructional and support staff and school community members. The LSWP must be an all-inclusive document addressing nutrition education, physical education, physical activity, health, and wellness to students, their family members and community.

*Research Purpose Statement.* The purpose of this study was to investigate if a relationship existed between elementary schools' local school wellness policy WellSAT: 2.0 assessment scores and an elementary school's student attendance, and communication of nutrition, health and wellness education, awareness of school meal standards to parents and amount of time students have for physical education and physical activity. The researcher used the University of Connecticut Rudd Center Wellness School Assessment Tool 2.0 (WellSAT: 2.0) to measure the LSWP's comprehensiveness and strength. There are six sections of the WellSAT: 2.0, four of which address nutrition education, health and wellness promotion and marketing, physical education and physical activity, and the implementation, evaluation and communication of the LSWP.

*Research Questions.*

The data collected for this research were used to investigate the following research questions:

- **RQ1:** Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and an elementary school's student attendance, and communication of nutrition, health, and wellness education, and awareness of school meal standards to parents?
- **RQ2:** Is there a relationship between an elementary school's LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength for section four and time students have for physical education and physical activity during the school day?

### 5.3 Review of Methodology

*Sample Population.* The researcher used an Eastern Seaboard (ESB) state Department of Education public website to access secondary data identifying elementary schools that had 70 percent of enrolled students eligible to receive free and reduced price school meals during school years (SYs) 2009 and 2013. Twenty-eight elementary schools under the jurisdiction of seven local educational agencies (LEAs) met the research criteria. One LEA volunteered to provide additional data for this study.

The total sample population was eight LEAs with 29 elementary schools. The LEA that volunteered to participate in this study also volunteered an elementary school to provide additional secondary and primary data. The elementary school is identified as local educational agency 433 elementary school (LEA 433E/S).

*Data.* The researcher used the Mixed Methods research design. The primary data used in this research were from the WellSAT: 2.0 scores for comprehensiveness and strength and responses from LEA 433 elementary school principal survey and LEA 433E/S parent/guardian

surveys. The secondary data were from the ESB State Department of Education public website concerning elementary schools with 70 percent or more students eligible for free or reduced price school meals.

Primary and secondary data which have no identifiable children according to FERPA and the identity of local educational agencies (LEAs), elementary schools, LEA administrators, and elementary school principals was not disclosed in this research. All data were secured according to the Delaware State University Institution Review Board (IRB) research policies.

#### **5.4 Research Question One**

This research utilized secondary and primary data to investigate if relationships exist between LEAs LSWP WellSAT: 2.0 assessment scores for comprehensiveness and strength and LEA 433E/S student attendance, nutrition education, communication of health, wellness, and awareness of school meal standards to parents.

*Student Attendance.* Obesity is not a cause for academic failure but can be an indicator for decreased student achievement. Chronic medical conditions such as cardiovascular diseases, glucose intolerance, depression, Type 2 diabetes, and orthopedic diseases, once rarely diagnosed in children, are increasingly being diagnosed in children identified as obese. Although research has not linked childhood obesity directly to poor student academic performance, chronic health conditions associated with childhood obesity have been documented to have negative effects on student overall health and attendance (Rappaport, Daskalakis, and Andrel, 2011; Geir, Foster, Womble, McLaughlin, Borradaile, Nachmani, Sherman, Kumanyika and Shults, 2007). Elementary school students that are excessively absent from school become academically at-risk which has negative effects on a student's overall formal education.

The correlation coefficient value of 1 and the scatter graph for LEA 433/ES elementary school student attendance for school years 2009 and 2013 and the LEA LSWP WellSAT: 2.0 total assessment score for comprehensiveness and strength indicated a strong linear relationship.

The linear relationship is not conclusive, as an outside variable(s) not identified in this research may have also had an effect on LEA 433E/S student attendance. In order for students to be academically successful, they must not only be physically present in school but also be healthy and motivated to learn (Chang and Romero, 2008).

*Nutrition Education.* The HHFKA-2010 requires the LSWP to address how nutrition education will be provided to students enrolled in schools under the LEAs' jurisdiction. The regulation also mandates that the committee that develops the LSWP be diverse.

Committee members are to be diverse and not just from the educational environment, but include representation from student parents/guardians, community members and age appropriate students. A meta-analysis of nutrition education practices that included students, parents, and community social networks concluded eating behaviors of children and their families improved due to family involvement (Jara, Weintraub, Clifton-Hawkins, and Martinez, 2012). The above statement supports the importance of parental and community involvement in not just the development but also the implementation of a quality LSWP.

The LSWP should be written and implemented to ensure that nutrition education is incorporated into the framework of the school curriculum. The policy language will ensure that nutrition education is more than posters in the hallway, nutrition messages in the cafeteria, and school meals with healthy food choices.

Nutrition education not only teaches students about reducing the amount of sugar, fat,

and portion sizes of foods; nutrition education introduces students to new foods and new ways to eat food. Local school wellness policies that are comprehensive and written with strong language and are fully implemented in elementary schools can give students the life-long healthy habits they can share with family members. Nutrition education has to go beyond the classroom. It has to extend out to the students' families and community members.

The LSWP with strong language will state nutrition education is taught within core curriculum subjects. Elementary schools that have a LSWP committee with building leadership involvement and commitment can develop a LSWP that will provide not just the support students needed to develop life-long healthy habits but will ensure the message is communicated and involve families and community members.

Surveys were distributed and completed by parents/guardians of students enrolled in LEA 433E/S. The surveys were used to inquire as to parents/guardians' knowledge of nutrition education their children received in school. More than 50 percent (155) of the survey responses indicated that parents/guardians knew their children received nutrition education in school. Less than 10 percent (16) of survey responses indicated they were not aware their children were receiving nutrition education in school. The survey responses support the LEA 433 LSWP WellSAT: 2.0 assessment scores for section one nutrition education, 100 for comprehensiveness and 86 for strength.

A review of LEA 433's school nutrition department website demonstrated that the school menus provide nutrition education and there are joint programs with individual school communities that promote nutrition education events and provide resources. Links to non-profit

and government agencies that provide additional nutrition education resources for students, parent/guardians and community members.

*School Meal Standards.* WellSAT: 2.0 Section two addresses how well the LEA has implemented the new nutritional standards for all school meals offered in schools administering school nutrition programs as mandated by HHFKA-2010. The school meal standards also include foods offered as a part of the a la carte foods and/or snacks sold, preventing foods of minimal nutritional value being offered to students on the school campus during the school day.

The revised nutritional standards require that schools provide additional servings of fruits, vegetables and dry beans, lentils, chick peas and other pulse crop foods (111<sup>th</sup> Congress Senate Report, 2010; USDA Economic Research, 2017).

School nutrition departments administered by the eight LEAs in this study utilized menus and newsletters to communicate their compliance with ensuring all school meals met the revised nutritional standards. Some school menus that were available on the LEA/school website were interactive and contained links to other school nutrition department, USDA, and CDC websites.

Parents/guardians' survey responses indicated that 67 percent (109) knew LEA 433E/S school meals met the new USDA school meal standards and 70 percent (99) respondents agreed that the school meals were healthy.

*Communication of Nutrition, Health, Wellness Marketing and Promotion, and Software Companies.* A major finding was that four LEAs' school nutrition department websites are powered by government approved software companies that assist with designing their interactive websites that include online menus, messages containing nutrition education, physical fitness, and health and wellness messages. One LEA used the USDA Team Nutrition website that



provides access to individual State agency developed school and child nutrition program products to assist with the development, implementing, and assessment of LSWPs. The website also has information for the development of menus, nutrition education, and health and wellness messages.

Many of the LEAs' websites contained links to childhood obesity information and prevention programs, some of which are sponsored by the Center for Disease Control and Prevention (CDC), U.S. Department of Agriculture Team Nutrition, and Nemours Health and Wellness.

The LEA 433 that volunteered to participate in this study did not use a software company to develop their LSWP, menus, or deliver their nutrition department messages. However, the LEA is very visible and active within their schools' communities.

The LEA administration, school nutrition department, and the individual schools partner with local community organizations for planning and hosting events that provide nutrition education, opportunities for families to engage in physical activities and allow the individual schools to host community events.

A correlation coefficient of -0.62 indicates that LEA 433E/S LSWP assessment score and parent/guardian survey responses have a moderate relationship. This is supported by the flyers, newsletters and website information that the Supervisor of School Nutrition Programs for LEA 433 provided the researcher reaches the students' families and community members.

The LEA LSWP WellSAT: 2.0 scores for section five, communication, and marketing were 60 for comprehensiveness and 47 for strength. The scores do not reflect the amount of engagement the LEA has with communicating and providing resources to students, family and

community members about healthy school meals, eating habits, and establishing healthy lifestyles.

## **5.5 Research Question Two**

This study investigated if a relationship existed between an elementary school's LSWP WellSAT: 2.0 section four, physical education and physical activity, comprehensiveness and strength assessment scores and time students have for physical education and physical activity during the school day.

Research has documented elementary schools that incorporate physical education in their school curriculum and physical activity during the school day report improved school climate, student behavior, and standardized test scores (Trost, 2007; American Cancer Association, American Diabetes Association, and American Heart Association, 2008).

Physical education helps to develop the human musculoskeletal frame in elementary school students. Physical education also provides students the opportunity to learn and control increased motor skills that can be applied later to life-long physical activities and sports (Carlson, Fulton, Lee, Maynard, Brown, Kohl, and Dietz, 2008). Student access to physical education and time for physical activity helps to reduce and or prevent additional children to be identified as obese.

*Physical Education.* The ESB State department of education physical education policy requires schools with grade configurations of kindergarten to the eighth grades have a physical education program. The ESB State DOE states that the physical education program's content standard must align with the approved National Association for Sport and Physical Education standards, (National Association of State Boards of Education, 2014).

Information and/or data pertaining to the amount of time elementary school students are required to participate in physical education was not available from the sample population. Fifty percent (four of the eight) of the LEAs in this study had high LSWPs WellSAT: 2.0 section four, physical education and physical activity assessment scores for comprehensiveness and strength.

*Physical Activity.* In elementary schools, recess should be one of the most important components of the school day. Recess not only provides students with time to be physically active, but also gives them the time to use other parts of their brain that involve imagination, socialization and rest from cognitive tasks (Murray and Ramstetter, 2013). Recess also allows students to reenact games and/or physical activities learned during physical education classes.

Recess not only helps with students' academic achievement, students having daily time for recess increases their cardiorespiratory fitness, decreases fat levels in the blood stream and improves the body's use of glucose as well as strengthens bone and improves muscle tone (Chin and Ludwig, 2013).

The ESB state does not have regulations, standards, or policy requiring a set amount of time for students to engage in physical activity during the school day, or requiring schools to provide time for recess. Local educational agencies determine if recess and/or physical activity breaks are incorporated in the school curriculum or the school day.

If physical activity, including recess, is a part of the school schedule, teachers cannot prevent or deny students recess and/or physical activity breaks. The ESB State DOE policy does forbid physical activity to be used as punishment for inappropriate behavior.

LEA 433 does allow community members to utilize individual schools for physical activity events. Students have access to school playgrounds before and after school, and during

recess. The LEA leadership provides families and community members opportunities to use school exercise equipment.

## **5.6 Findings Related to the Literature Review**

*Research Theoretical Framework: Maslow's Hierarchy of Needs Theory.* Maslow's Theory (1943) is based on the observation that people must have the specific needs met in order to be motivated to achieve success. Maslow's (1943) theory is displayed in a shape of a pyramid with five levels. The first level of students' needs is having access to nutritionally sound school meals, smart snacks, adequate time to eat their meals in a comfortable environment to meet their physiological needs. School buildings that are secure and where students feel safe, have the second level of needs met allowing students to be motivated to achieve the third level of Maslow's pyramid, which is where students begin to build support, achieve acceptance and identify with select groups.

Having time to engage in physical education and physical activity not only helps improve student health, but also helps students to build social skills needed to build self-confidence, as well as learn to share. School climate improves when students have the opportunity to engage in physical activity during the school day.

A LSWP that utilizes Maslow's (1943) theory in its framework can address student motivation for academic success because the school responds to student needs. Resources for emotional, medical, mental, and social services contact information was provided in several LEAs' LSWP to assist the students and their family members.

*Local School Wellness Policy.* The LSWP is to be written to address the childhood obesity epidemic and improve student academic achievement by using the schools as change

agents. However, the LSWP is not just to address childhood obesity, but students' overall health.

Children identified as obese are also diagnosed with asthma, cardiovascular conditions, diabetes, hypertension, and sleep apnea. The LSWP also addresses the health concerns of students not identified as obese, but who may not be healthy because of their limited access to quality foods, lack of physical activity and increased incidences of asthma. Children that are not healthy, are hungry, cannot concentrate, and ultimately, cannot learn. Elementary schools are the unique places where children can learn life-long healthy habits. Well-written LSWPs that have leadership support can give elementary school students the basic tools needed to begin healthy lifestyles.

*Leadership.* Leadership is not only engaging; it is a commitment to be consistently evolving. Ensuring that a school policy manual is updated is not successfully implementing school policy. Principals are the leaders in their buildings, and it is important to have their input and for them to be actively involved in policy development if it is to be successfully implemented in their buildings.

The eight LEAs received a comprehensiveness score of 100 for section one, nutrition education of the WellSAT: 2.0. Findings from the principals' survey indicated that a major barrier for providing nutrition education was that more time is allocated for core subject matter, and having to alter student, family, and teacher habits. The principal survey also indicated that they only had average or below average knowledge of the LSWP and neither they nor their designee were active members of the LSWP committee.

Principals know the type of culture and climate they want for their school buildings. School culture that addresses students' basic needs, provides a safe environment to learn in,

support from school staff, and the well-managed classrooms allows the students to feel comfortable to learn.

Principals and/or their designees can provide information that is unique to their student enrollment, the students' families, and the community that the school resides in. Local school wellness policies should be reflective of the needs of the student enrollment. Principals should be active members of the LSWP committee and be involved in the development of the LSWP. This would ensure the policy addresses the needs of the student population and the community membership.

Principals are only as successful as their students are; students that are healthy, come to school, are attentive, and strive for academic success help to ensure the principals' success.

## **5.7 Conclusions**

Local educational agencies that have high WellSAT: 2.0 assessment scores for their LSWP do not ensure adequate implementation of the LSWP. A good LSWP starts including and ensuring principals (or their designees) are active members of the committee that develops the LSWP. Without the involvement and support of the principal, successful implementation and sustainability of the LSWP is not certain.

Elementary school is the foundation of a child's academic experience and the school has to be able to respond to the unique needs of this new population. Schools are designed to provide children with the academics needed to be successful students. Students are academically successful when they are healthy, in school, not hungry, and have time to engage in physical activity, which allows them to concentrate on schoolwork throughout the school day.

Local educational agencies should have separate LSWP committees that consist of

principals from elementary schools as well as representation from students' families, the community, physical education, and health staff, as per HHFKA-2010. The LEAs should also have to have a physical education curriculum for elementary schools, and be required to schedule students to engage in physical education at a minimum of two days per school week.

Elementary school students have limited movement around the school building. Elementary schools should be required to ensure students have a minimum of 60 minutes of physical activity during the school day. The physical activity would include scheduled time for physical activity breaks during the morning and afternoons and scheduled recess either before or after lunch.

### **5.8 Implications for Action**

Authors Rooney, Mathiason, and Schauburger (2010) state in their article Predictor of Obesity in Childhood, Adolescence, and Adulthood in a Birth Cohort, state childhood obesity is a predictor for adulthood obesity. The Center for Disease Control and Prevention and the National Health and Nutrition Examination Survey documents in 2009-2010 19.9% children in America between the ages of six and 11 were identified as obese (Center for Disease Control and Prevention, 2015).

### **5.9 Recommendations for Further Research**

It is important that students learn life-long healthy habits to reduce the number of children identified as obese. Well-written and properly implemented LSWPs in elementary schools can help reduce the childhood obesity epidemic.

This research was limited to eight LEAs; seven LEAs that met the research criteria and

one LEA that volunteered and included an elementary school that provided primary data responses from parent/guardian and principal surveys.

Local educational agencies should sponsor additional research that includes the last revision and the current LSWP. This would provide insight to good practices that is shared as well as ensure the public has access to the changes made to the LSWP.

Due to the unique educational settings, elementary schools have, a pilot study could include the ESB State LEAs that have elementary schools develop and implement a physical education curriculum that incorporates the NASPE and SHAPE America physical education and physical activity standards. This study would also include each elementary school principal forming a diverse LSWP committee to develop a LSWP unique to the community it serves.

#### **5.10 Concluding Remarks**

Our governments develop and implement public policies to alter societal discomfort and resolve problems that negatively affect the gross domestic product and the Nation's resources (Dye, 2002).

Children are the most important national resource for all countries. Children identified as obese are most likely to remain obese as adolescents and as adults, thus reducing their lifespans (Pulgaron, 2012; Rooney, Mathiason and Schauburger, 2010). The chronic diseases associated with childhood obesity will continue to have negative effects on the health of the child as they develop through their life stages from children through adolescence and into adulthood. Obesity and the chronic diseases associated with obesity affect children's academic achievement. Children that are not healthy are not motivated to learn.



Three past Surgeons General have provided counsel about the negative effects childhood obesity would have on children, education, and society. Their counsel also included recommendations that are a part of HHFKA-2010.

- Dr. Joycelyn Elders (1993-1994): Unhealthy students cannot learn and students will not be healthy unless schools help to teach them how to be healthy (Kelly, 1996).
- Dr. David Satcher (1998-2002): Student attendance, better test scores, improved classroom environment when physical activity is routinely part of the school day. American families are healthier when schools share space with communities for family members to engage in lifelong physical activities (Satcher, 2005).
- Dr. Richard Carmona (2002-2006): Children, family and community members that have limited knowledge of healthy lifestyles that incorporate physical activity, healthy eating habits, and other health-related information contributes to childhood and adult obesity (Carmona, 2003).
- First Lady Michelle Obama (2008-2016): Her initiative was to not just to reduce the number of children identified as obese by engaging in physical activity but also learning how to eat healthy. "Reducing childhood obesity is both "a moral obligation to our children" and "a patriotic obligation to our country...." (Obama, 2013).

## REFERENCES

- 79<sup>th</sup> US Congress. (1946, June 4). Public Law 396 (60 Stat. 230) Agriculture, School Lunch Programs. Retrieve from: [Library.clerk.house.gov/reference-files/House\\_Calendar\\_79<sup>th</sup>\\_Congress.pdf](http://Library.clerk.house.gov/reference-files/House_Calendar_79th_Congress.pdf)
- 89<sup>th</sup> Congress. (1966, October 11). Public Law 89-642 (80 Statute. Sec 2) <https://www.gpo.gov/fdsys/pkg/STATUTE-80/pdf/STATUTE-80-Pg885.pdf>
- 95<sup>th</sup> US Congress. (1977, November 10). Public Law 95-166 An Act. Retrieve From US Government Publishing Office: Accessed: January 29, 2015: <http://www.gpo.gov/fdsys/pkg/STATUTE-91/PDF/statute-91-pG1325.pdf>
- 108<sup>th</sup> US Congress. (2004, June 30). Public Law 108-265-Child Nutrition and WIC Reauthorization Act 2004. Retrieved from Food Nutrition Service U.S. Department of Agriculture child nutrition programs governance: [www.fns.usda.gov/cnd/governance/legislation/historical/pl\\_108-265.pdf](http://www.fns.usda.gov/cnd/governance/legislation/historical/pl_108-265.pdf)
- 111<sup>th</sup> US Congress. (2010, December 13). Food Nutrition Service Child Nutrition Act. Retrieved from US Department of Agriculture: [http://www.fns.usda.gov/sites/default/files/CNA\\_1966\\_12-13-10.pdf](http://www.fns.usda.gov/sites/default/files/CNA_1966_12-13-10.pdf)
- Action for Healthy Kids. (2004). The learning connection: The value of improving Nutrition and physical activity in our schools. Chicago: Action for Healthy Kids.
- Albright, M. (2013, September 15). A fuller stomach nets sharper focus in class. Sunday News Journal Education. Wilmington, Delaware; USA: Gannett Company.
- Alliance For A Healthier Generation. (2012). State reports: Delaware 2012. American Heart Association.

American Academy of Child and Adolescent Psychiatry. (2011, March). Obesity in Children and Teens. Retrieved from Facts for Families No. 79:

[http://www.aacap.org/AACAP/Families\\_and\\_Youth/facts\\_for\\_Families/Facts\\_for\\_Families\\_Pages/Obesity\\_In\\_Children\\_And\\_Teens\\_79.aspx](http://www.aacap.org/AACAP/Families_and_Youth/facts_for_Families/Facts_for_Families_Pages/Obesity_In_Children_And_Teens_79.aspx).

American Cancer Society, American Diabetes Association and American Heart Association. (2008). Physical education in schools-Both quality and quantity are important. Retrieved from:

[www.cancer.org/acs/groups/content/@nho/documents/document/peinschoolsstatementpdf.pdf](http://www.cancer.org/acs/groups/content/@nho/documents/document/peinschoolsstatementpdf.pdf).

Anderson, M. D., (n.d). Maslow's motivation theory and its application to education. State University of New York at Cortland. Retrieved from:

<http://web.cortland.edu/andersmd/MASLOW/HOMEPAGE.HTML>.

Association of State and Territorial Health Officials (2012). Healthy, Hunger-Free Kids Act of 2010: The role of state health agencies in ensuring access to healthy food, Arlington. Retrieved from:

<http://www.astho.org/Programs/Prevention/Obesity-and-Wellness/Here-you-can-access-the-Healthy,-Hunger-Free-Kids-Act-Issue-Brief/>

Bass, B. M. and Bass, R. (2008). The Bass handbook of leadership, theory, research, & managerial applications, Free Press, New York.

Barat, S. (2011). Maslow's theory of hierarchy of needs. Retrieved from:

[http://www.slideshare.net/sidbarat?utm\\_campaign=profiletracking&utm\\_medium=sssite&utm\\_source=ssslideview](http://www.slideshare.net/sidbarat?utm_campaign=profiletracking&utm_medium=sssite&utm_source=ssslideview).

- Bartuska, T. (1994). The built environment: Definition and scope. In T. J. Bartuska, G. L. Young (Eds.), *The built environment: Creative inquiry into design and planning* (1-380). University of Michigan: Crisp Publications.
- Bash, C. E. (2011). Healthier students are better learners: A missing link in school Reforms to close the achievement gap. *Journal of School Health*, 81, 593-598. Retrieved from: <http://www.rmc.org/wpdev/wp-content/uploads/2012/12/A-Missing-Link-in-School-Reforms-to-Close-the-Achievement-Gap1.pdf>.
- Bellows, L., & Roach, J. (2009, May). Childhood overweight. *Food and Nutrition Series HEALTH*. Colorado, USA: Colorado State University-Extension.
- Better Policies for a Healthier America. (2014). Childhood Obesity Rates and Trends. Retrieved from Delaware: <http://stateofobesity.org/rates/>.
- Bisceglie, R. & Krause (2008). Combating childhood obesity: School leadership makes a difference, *Principal*, September/October 2008, p 36. Ron Krause, principal interviewed for this article, Retrieved From: [https://www.naesp.org/resources/1/Principal/2008/S-O\\_p34.pdf](https://www.naesp.org/resources/1/Principal/2008/S-O_p34.pdf).
- Boeree, C. G. (accessed 2013, March 27). Abraham Maslow. Retrieved from Personality Theories: <http://webspace.ship.edu.cgboer/maslow.html>.

Boyce, A. B., & Mitchell, M. (2002). Retrieved 2012, May 2. Physical Education, pg1.

Retrieved from:

[Physical Education - OVERVIEW, PREPARATION OF TEACHERS](http://education.stateuniversity.com/pages/2324/Physical-Education.html) Encyclopedia of Education, 2<sup>nd</sup> Edition:  
<http://www.encyclopedia.com/1G2-3403200490.html>.

Boyse, K., & Clark, K. (2011, August). Obesity and Overweight. Retrieved from  
University Of Michigan Health System Your Child Development & Behavior Resources:  
<http://www.med.umich.edu/yourchild/topics/obesity.html>.

Brener, N., Chiqui, J. F., O'Toole, T. P., Schwartz, M. B., & McManus, T. (2011).  
Establishing a baseline measure of school wellness-related policies  
implemented in a nationally representative sample of school districts,  
Journal of the American Dietetic Association, 894-901.

Brescoll, V. L., Kersh, R. & Brownell, K. D. (2008). Assessing the feasibility and  
impact of federal childhood obesity policies. The Annals of the American  
Academy of Political and Social Science, 178-194.

Briggs, M., Safaii, S., Beall, D. L. (2003). Position of the American Dietetic  
Association, Society for Nutrition Education and American School Food  
Service Association: Nutrition Services: An essential component of  
comprehensive school health programs. The American Dietetic Association, 103, 505-  
514. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/12669016>.

- Brissette, I., Wales, K., & O'Connell, M. (2013). Evaluating the wellness school Assessment tool for use in public health practice to improve school Nutrition and physical education policies in New York, *Journal of School Health*, 757-762.
- Bruner, C., Discher, A., & Chang, H. (2011, November). Chronic elementary absenteeism: A problem hidden in plain sight. Retrieved from: [http://www.attendanceworks.org/wordpress/wp-content/uploads/2010/04/Attendanceworks\\_brochure\\_2pager.pdf](http://www.attendanceworks.org/wordpress/wp-content/uploads/2010/04/Attendanceworks_brochure_2pager.pdf).
- Bryan, M. De G., & Zabriskie, A. M. (1943). *The school cafeteria*, F. S. Crofts & Company, NY
- Burns, J., M. (1978). Technical details: Burns transformational leadership theory. Retrieved from: <http://leadership-central.com/burns-transformational-leadership-theory.html#axzz462cXNE1x>
- Bureau of Agricultural Economics. (1941, October). State Legislation and Programs. Retrieved from National School Lunch Program: [http://www.fns.usda.gov/cnd/lunch/AboutLunch/ProgramHistory\\_3.htm](http://www.fns.usda.gov/cnd/lunch/AboutLunch/ProgramHistory_3.htm).
- California Department of Education (2014). School attendance improvement Strategies. Retrieved from Child Welfare & Attendance: <http://www.cde.ca.gov/Is/ai/cw/attendstrategy.asp?>
- Campbell, D. E. (2014). The work of Abraham Maslow. Retrieved from Education.Com. <http://www.education.com/reference/article/work-Abraham-Maslow/>.

- Cama, S., Emerson, B., Parker, L., Levin, M., & FitzSimmons, C. (2006). School Wellness Policy and Practice: Meeting the Needs of Low-Income Students. Washington, DC: FRAC Publications.
- Carlson, S. A., Fulton, J. E., Lee, S. M., Maynard, L. M., Brown, D. R., Kohl, H. W., & Dietz, W. H. (2008). Physical education and academic achievement in elementary school: Data from the early childhood longitudinal study, American Journal of Public Health, 98(4) 721-727. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2377002>.
- Carmona, R. H. (2003, July 16). "The Obesity Crisis in America" Testimony Before the US House of Representatives. Remarks as prepared; not a transcript, (para. 46). Retrieved from: <http://www.surgeongeneral.gov/news/testimony/obesity07162003.html>.
- Center for Disease Control and Prevention, Division of Nutrition, Physical Activity, & Obesity (2015) Defining childhood obesity. Retrieved from: <https://www.cdc.gov/obesity/childhood/defining.html>.
- Center for Disease Control and Prevention (2011-2012). Obesity and overweight Data are for the U.S. Retrieved from: <http://www.cdc.gov/nchs/fastats/obesity-overweight.html>
- Center for Disease Control and Prevention and National Association for Sports and Physical Education. (2010). The association between school based physical activity, including physical education and academic performance. Atlanta: US Department of Health and Human Services.

Center for Disease Control and Prevention. (2012). School health index: A self-assessment and planning guide. Elementary school version. Atlanta: Center for Disease Control and Prevention.

Center for Disease Control and Prevention. (2012). Local school wellness policy. Adolescent and School Health, Division of Nutrition, Physical Activity, and Obesity. Accessed from: [www.cdc.gov/healthyyouth/napao/wellness.htm](http://www.cdc.gov/healthyyouth/napao/wellness.htm)

Center for Disease Control and Prevention. (2014) Prevalence of Childhood Obesity in the United States. 2011-2012. Atlanta: Center for Disease Control and Prevention.

Center for Disease Control and Prevention & Bridging the Gap Research Program. (2014, May). Local school wellness policies: Where do they Stand and what can you do? Atlanta: US Department of Health and Human Services.

Center for Disease Control and Prevention, Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion (2015, August). Childhood obesity facts. Atlanta: Center for Disease Control and Prevention, Retrieved from: <http://www.cdc.gov/obesity/data/childhood.html>.

Chang, H. N., & Romero, M. (2008). Present, engaged, and accounted for: The Critical importance of addressing chronic absence in the early grades. National Center for Children in Poverty. Retrieved from: [http://nccp.org/publications/pub\\_837.html](http://nccp.org/publications/pub_837.html).



- Chin, J. J. and Ludwig, D. (2013). Increasing children's physical activity during school recess periods. *American Journal of Public Health*, 103, 1229-1234.
- Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/23678902>.
- Chriqui, J. F. (2011). Nutrition and physical activity policy surveillance and measurement: What do we know, what do we need to know, and what challenges should we consider? Presentation for IOM Committee to Accelerate Progress in Obesity Prevention Measurement Workshop. University of Illinois at Chicago.
- Chriqui, J. F., Resnick, E. A., Schneider, L., Schermbeck, R., Adcock, T., Carrion, V., & Chaloupka, F. J. (2013). Bridging the Gap-Brief report school district wellness policies: Evaluating progress and potential for improving children's health five years after the federal mandate. Vol.3. University of Illinois at Chicago.
- Chriqui, J. F., Schneider, L., Chaloupka, F. J., Gourdet, C., Bruursema, A., Ide, K., & Pugach, O. (2010). School district wellness policies: Evaluating progress and potential for improving children's health three years after The federal mandate, Volume 2. Chicago: University of Illinois at Chicago.
- Chriqui, J. F. (2009). Local Wellness Policies: Assessing School Districts Strategies for Improving Children's Health. University of Illinois at Chicago.
- Coffield, J. E., Metos, J. M., Utz, R. L., & Waitzman, N.J. (2011). A multivariate Analysis of federally mandated school wellness policies on adolescent Obesity. *Journal of Adolescent Health*, 363-370.

- Cook, J., Jeng, K. (2009). Child food insecurity: The economic impact on our nation, Feeding America Illinois.
- Creswell, J. W. (2009), Research design qualitative, quantitative and mixed methods approaches. Thousand Oakes: Sage Publication, Inc.
- Daniels, S. R., Jacobson, M. S., McCrindle, B. W., Eckel, R. H., & Sanner, B. H. (2009). American Heart Association Childhood Obesity Research Summit: Executive Summary, American Heart Association, Dallas.
- Datar, A., Strum, R., & Magnabosco, J. L. (2004). Childhood overweight and academic performance: National Study of kindergartners and first-graders. *Obesity Research*, 58-68.
- Davis, A. M., James, R. L., Curtis, M., Felts, S., & Daley, C. M. (2008). Pediatric obesity attitudes, services and information among rural parents: A qualitative study. *Obesity*, 2133-2140.
- Davis, S. (2012). Delaware policy should ensure physical activity in elementary Schools. Nemours Health and Prevention Services Newsletter, 1-3.
- Davis, S. (2013). An evaluation of King County school district's wellness policies (Unpublished master's thesis). Researchworks Archive, University of Washington, Bothell, WA.
- Dietz, W. H. (2008). Physical education and academic achievement in elementary school: Data from the early childhood longitudinal study, *American Journal of Public Health*, 98(4) 721-727. Retrieved from: <http://www.ncbi.nlm.gov/pmc/articles/PMC2377002>.

Dye, T. R. (2002). Understanding public policy. Upper Saddle River: Prentice Hall.

Desautels, L. (2014). Addressing our needs: Maslow comes to life for

Educators and students. Retrieved from: <http://www.edutopia.org/blog/addressing-our-needs-maslow-hierarchy-lori-desautels>.

Dreamstime. (Accessed 2015, April 8). Maslow's Hierarchy of Needs. Retrieved

from Dreamstime Maslow's Hierarchy of Needs Royalty Free:

[https://www.google.com/search?q=Dreamstime+Maslow%27s+hierarchy+of+needs&rlz=1C1ARAB\\_enUS487US523&espv=2&biw=1013&bih=559&tbm=isch&tbo=u&source=univ&sa=X&ei=a75nVZnsF6S\\_sQTyn4HYCQ&ved=0CB0QsAQ&dpr=1.5#imgsrc=M-TeNMwrm4C7eM%253A%3BMtDRuVwrv6YB5M%3Bhttp%253A%252F%252Fthumb.bs.dreamstime.com%252Fz%252Fmaslow-s-hierarchy-needs-23569104.jpg%3Bhttp%253A%252F%252Fwww.dreamstime.com%252Froyalty-free-stock-images-maslow-s-hierarchy-needs-multicolored-layered-pyramid-white-background-image31976699%3B1300%3B1230](https://www.google.com/search?q=Dreamstime+Maslow%27s+hierarchy+of+needs&rlz=1C1ARAB_enUS487US523&espv=2&biw=1013&bih=559&tbm=isch&tbo=u&source=univ&sa=X&ei=a75nVZnsF6S_sQTyn4HYCQ&ved=0CB0QsAQ&dpr=1.5#imgsrc=M-TeNMwrm4C7eM%253A%3BMtDRuVwrv6YB5M%3Bhttp%253A%252F%252Fthumb.bs.dreamstime.com%252Fz%252Fmaslow-s-hierarchy-needs-23569104.jpg%3Bhttp%253A%252F%252Fwww.dreamstime.com%252Froyalty-free-stock-images-maslow-s-hierarchy-needs-multicolored-layered-pyramid-white-background-image31976699%3B1300%3B1230).

Emrich, M. (n.d). Abraham Maslow (1908-1970). Muskingum College

Department of Psychology. Accessed 2016, Retrieved from:

<http://muskingum.edu/-psych/psycweb/history/maslow.htm>

Esposito, L., Fisher, J. O., Mennella, J. A., Hoelscher, D. M., & Huang, T. T.

(2009). Developmental perspectives on nutrition and obesity from

Gestation to adolescence, Preventing Chronic Disease Public Health

Research, Practice and Policy. Retrieved from:

[http://www.cdc.gov/pcd/issues/2009/jul/09\\_0014.htm](http://www.cdc.gov/pcd/issues/2009/jul/09_0014.htm).

Falter, R. A., Pignotti-Dumas, K., Popish, S. J., Petrelli, H. M. W., Best, M. A., & Wilkinson, J. J. (2011). A service learning program in providing nutrition education to children. *American Journal of Pharmaceutical Education*, 75-85.

Federal Register, Vo. 79, No. 38. (2014) Local School Wellness Policy:

“Implementation Under the Healthy, Hunger-Free Kids Act of 2010.

Alexandria: USDA.

Federal Register, Vo. 64, No. 248 (1999) National School Lunch, Special Milk, and School Breakfast Programs; National Average Payments/Maximum

Reimbursement Rates. <https://www.federalregister.gov/articles/2000/10/11/00-25817/national-school-lunch-program-child-and-adult-care-food-program-state-administrative-expense-funds>

Fontenot, E. M., Carr, D. H., & Hubbard, S. R. (2007). School principals are the key to implementing a local wellness policy. *National Food Service Management Institute*, Item No. R-13307, pg. 5.

Food and Nutrition Service. (2010). *Nutrition Education and Promotion: The Role of FNS in Helping Low-Income Families Make Healthier Eating and Lifestyle Choices*. Alexandria: Office of Research and Analysis.

Food and Nutrition Service USDA. (2014). *National School Lunch Program: Total Lunches Served*. Alexandria: USDA.

Food Research and Action Center (2006). School wellness policy and practice:

Meeting the needs of low-income students. Food research and action center, Washington, D.C.

Geier, A. B., Foster, G. D., Womble, L. G., McLaughlin, J., Borradaile, K. E.,

Nachmani, J., Sherman, S., Kumanyika, S., & Shults, J. (2007). The relationship between relative weight and school attendance among elementary schoolchildren. *Obesity*, 15, 2157-2161. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/17712135>.

Georgia Department of Education (2010, June 18). Bright From the Start.

Retrieved from Georgia Department of Early Care and Learning:

<http://admin.doe.k12.ga.us/gadoe/SLA/titleiconf.nsf>.

Georgia Department of Education (2010). Georgia Department of Education

2010 Title 1 Conference: Summary of Hierarchy of Needs. Retrieved from Georgia Department of Education Bright from the Start:

<http://admin.doe.k12.ga.us/gadoe/SLA/titleiconf.nsf/2010SummaryofHierarchyofneeds>.

Gershoff, S. N. (2001). Biographical Article Jean Mayer 1920-1993. *Journal of*

*Nutrition*, 1651-1654.

Gordon, G. W. (2014, June 17). National School Lunch Act. Food & Nutrition Service,

USDA, History 5: Retrieved from: [http://fns.usda.gov/nslp/history\\_5](http://fns.usda.gov/nslp/history_5). (pg. 3).

Gordon-Larsen, P., Nelson, M. C., Page, P., & Popkin, B. M. (2006). Inequality in the built

environment underlies key health disparities in physical activity and obesity. *Pediatrics*, 417-425.

- Gottfried, M.A. (2009). Excused versus unexcused: How student absences in elementary school affect academic achievement. *American Educational Research Association*, 31, 392-415. Retrieved from:  
<http://journals.sagepub.com/doi/pdf/10.3102/0162373709342467>
- Gottfried, M. A. (2010). Evaluating the relationship between student attendance and academic achievement in urban elementary and middle schools: An instrumental variables approach. *American Educational Research Journal*, 47, 434-465. Retrieved from:  
<http://journals.sagepub.com/doi/full/10.3102/0002831209350494>
- Green, D. D. (2000). A theory of human motivation. *Psychological Review*, 50, 370-396. Retrieved from  
<http://psychclassics.yorku.ca/Maslow/motivation.htm>.
- Guderson, G. W. (1971). The national school lunch program background and Development. Food and Nutrition Services, US Department of Agriculture.
- Guderson, G. W. (1971) pg. 14, The national school lunch program background and Development. Food and Nutrition Services, US Department of Agriculture.
- Guderson, G. W., USDA Food & Nutrition Service, USDA (2012). The National School Lunch Program Background and Development. Alexandria, VA.
- Gurley-Calvez, T. & Higginbotham, A. (2010). Childhood obesity, academic achievement, and school expenditures. *Public Finance Review*, 619-646.
- Handy, S.L., Boarnet, M. G., Ewing, R., & Killingworth, R. E. (2002). How the

- built environment affects physical activity views from urban planning. *American Journal of Preventive Medicine*, 64-73.
- Haupt, A. (2013). Michelle Obama speaks out against childhood obesity. *Health at U.S. News*. Retrieved from: U.S. News Health: <http://health.usnews.com/health-news/health-wellness/articles/2013/03/11/michelle-obama-speaks-out-against-childhood-obesity>.
- Hayes, D. (2005). Retrieved from School Nutrition Organization <http://www.schoolnutrition.org/content.aspx?id=1378&terms=obesity>.
- Henderson, T., Hill, C., & Norton, K. (2014). The connection between missing School and health: A review of chronic absenteeism and student health in Oregon. Retrieved from: [www.attendanceworks.org/wordpress/wp-content/uploads/2014/10/chronic-absnece-and-health-review-10.8.14-FINAL-REVISED.pdf](http://www.attendanceworks.org/wordpress/wp-content/uploads/2014/10/chronic-absnece-and-health-review-10.8.14-FINAL-REVISED.pdf).
- Holecko, C. (2016). First Lady Michelle Obama: Child health and obesity quotes, Let's Move launch announcement, February 9, 2010. Retrieved from: <https://www.verywell.com/michelle-obama>
- Hoxie-Setterstrom, G., & Hoglund, B. (2011). School wellness policies: Opportunities for change. *The Journal of School Nursing*, 330-339.
- Hoyle, J. R., Bjork, L. G., Collier, V., & Glass, T. (2005). *The superintendent as CEO*. Thousand Oaks: Corwin Press.
- Huitt, W. (2007). Maslow's hierarchy of needs, *Educational Psychology Interactive*. Valdosta State University, Valdosta, GA: Retrieved (11/21/2015) from: <http://www.edpsycinteractive.org/topics/regsys/maslow.html>

Hunter, R. (1904). *Poverty*. The Macmillan Company, NY; 1970 reprint by Garrett Press, Inc., NY.

Illinois Evanston/Skokie School District 65 Wellness Council. (2014) Wellness Implementation, Awareness, Assessment Parent Survey. Retrieved from: [http://www.district65.net/community/WellnessSurveys/Documents/parent\\_Wellness\\_Survey\\_English.pdf](http://www.district65.net/community/WellnessSurveys/Documents/parent_Wellness_Survey_English.pdf).

Institute of Medicine. (2008). *Nutrition standards and meal requirements for national school lunch and breakfast programs: Phase I. Proposed approach for recommending revisions*. Washington, D.C.: The National Academies Press.

Jara, E. D., Weintraub, M. R., Clifton-Hawkins, N., & Martinez, N. (2012). *Effects Of a promotor training on local school wellness advocacy capacity*, Sage Journals. Retrieved from: <http://hnp.sagepub.com/content/early/2012/11/20/1524389912465877.full>.

Johnson, L. B. (1966, October 11). Lyndon B. Johnson Remarks at Signing of the Child Nutrition Act of 1966. Retrieved from: The American Presidency Project: <http://presidency.ucsb.edu/ws/?pid=27913>.

Joshi, A., Azuma, A., & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. *Journal of Hunger & Environmental Nutrition*, 229-246.

Karnik, S. & Kanekar, A. (2012). Childhood obesity: A global public health crisis. *International Journal of Preventive Medicine*, 1-7.

Kelly, K. (1994, January). An interview with Joycelyn Elders, Surgeon General:



- Surgeon General's Warning: Guns are Hazardous to your Health. Mother Jones, p. 55. Retrieved from Mother Jones July/August 1996 Issue:  
<http://motherjones.com/politics/1994/01/surgeon-generals-warning>.
- Kibbe, D., Offner, R. (2003). Childhood obesity – Advancing effective prevention and treatment: An overview for health professionals. National Institute for Health Care Management Foundation Forum, Washington, DC.
- Kids Failed Fitness. (Accessed 2015, May 1). Failed Fitness History. Retrieved from Kids Failed Fitness Organization, The Health Threat of the 21<sup>st</sup> Century. <http://www.kidsfailedfitness.org/index.php/failed-fitness-history>.
- Kids Health.org. (2013). Survey: Parents and teachers want mandatory health and PE classes. Nemours.
- Laerd Statistics Guide.Com (2016). Assessed From:  
<https://statistics.laerd.com/statistical-guides/pearson-correlation-coefficient-statistical-guide.php>
- Learning-Theories.com (2013). Maslow's Hierarchy of Needs. Accessed from:  
<http://learning-theories.com/maslows-hierarchy-of-needs.html>.
- Liberty Zone.com (2016). Abraham Maslow-Instant success solutions. Retrieved from: <http://www.libertyzone.com/Abraham-Maslow.html>.
- Long, C. (2011). Healthy, Hunger-Free Kids Act Update. School Nutrition Association Annual National Conference. Food and Nutrition Service, USDA.

- Long, C. (2013, August 21). Questions and Answers Related to 6 cents Certification during School Year Certification during School Year 2013-2014. Retrieved from Food & Nutrition Service Child Nutrition Division: <http://www.fns.usda.gov/sites/Defaults/files/SP55-2013os.pdf>.
- Marks, H. M., & Printy, S. M. (2003). Principal leadership and school performance: An integration of transformational and instructional leadership: *Education Administration Quarterly*, 370-397.
- Maslow, A. H. (Posted August 2000). York University, Toronto, Ontario. Retrieved from: <http://psychclassics.yorku.ca/Maslow/motivation.htm>.
- Masse, L. C., Frosh, M. M., Chiqui, J. F., Yaroch, A. L., Agurs-Collins, T., Blanck, H. M., Atienza, A. A., McKenna, M. L., & Igoe, J. F. (2007). Development of school nutrition environment state policy classification System, *American Journal of Preventive Medicine*, Vol. 33, No. 4S.
- May, A., L., Freedman, D., Sherry, B., & Blanck, H. M. (2013). Obesity – United States, 1999 – 2010: Retrieved from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/su620320.htm>.
- McMillan, J. H. (2000). Educational research fundamentals for the consumer, Addison Wesley Longman, NY.
- Metos, J., & Nanny, M. S. (2007). The strength of school wellness policies: One state's experience. *Journal School Health*
- Miller, J., Rosenbloom, A. & Silverstein, J. (2004). Childhood obesity. *Journal of Clinical Endocrinology and Metabolism*, 4211-4218.

Minton, B. (2008). Maslow's hierarchy of needs explains why some children fail.

Natural News. Retrieved from:

[http://www.naturalnews.com/024190\\_child\\_children\\_WHO.html#ixzz3zyn62Wua](http://www.naturalnews.com/024190_child_children_WHO.html#ixzz3zyn62Wua)

Mitchell, M. (2003, May 2). Physical Education Preparation of Teachers. In J. W.

Guthrie. Encyclopedia of Education. (pp. 1890-1894). Macmillian Reference, USDA.

Retrieved from Physical Education-Overview, Preparation of Teachers-National Health Programs, and Sport.

Molaison, E. F., Howie, S., Kolbo, J., Rushing, K., Zhang, L., & Hanes, M. (2011).

Comparison of local wellness policy implementation between 2006 and

2008, Journal of Child Nutrition and Management, Retrieved from:

<https://schoolnutrition.org/5-News-and-publications/4-the-journal-of-child-nutrition-and-management/spring-2011/volume-35>.

Mosher, K. D., & Keough, D. (1996). Historical Perspective of Physical

Education. Retrieved from Welcome to TOAST P.E. <http://toastpedanzy.weekly.com/pe-history.html>.

Murry, R. and Ramstetter, C. (2013). The crucial role of recess in school.

American Academy of Pediatrics, 131, 183-188. Retrieved from:

<http://pediatrics.aappublications.org/content/pediatrics/131/1/183.full.pdf>.

Must, A. (1996). Morbidity and mortality associated with elevated body weight

in children and adolescents. American Journal Clinical Nutrition,

(445S-447S).

National Association of State Boards of Education, (2014). Healthy Schools

Curriculum and Instruction. Retrieved from:

[http://www.nasbe.org/healthy\\_schools/hs/state](http://www.nasbe.org/healthy_schools/hs/state).

National Conference of State Legislatures (2013). Childhood obesity legislation-

2013 update policy options report: Retrieved from:

<http://www.ncl.org/research/health/childhood-obesity-trends-state-rates.aspx>.

National Foodservice Management Institute & Food and Nutrition Service.

(2011, December 15). History of Child Nutrition Programs Participant's

Workbook. Retrieved from National Food Service Management Institute

Orientation to School Nutrition Seminar: <http://www.nfsmi.org/document>

[libraryfiles/pdf/2011215034856.pdf](http://www.nfsmi.org/documentlibraryfiles/pdf/2011215034856.pdf).

National Initiative for Children's Healthcare Quality (2009). Data Resource Center

for Child & Adolescent Health, Retrieved from:

<https://www.childhealthdata.org/docs/nsch-docs/delaware-pdf.pdf?sfvrsn=0>

National Survey of Children's Health. (2007). Retrieved from Child Health Data:

[www.childhealthdata.org/search?K=obesity](http://www.childhealthdata.org/search?K=obesity)

Nemours. Health & Prevention Services, Data Brief #12013. (2013). Retrieved

from: <http://www.nemours.org/content/dem/nemours/www2/filebox/about/delaware/-survey-for-children's-health.pdf>

- Nixon Library. (1969, December 2). White House Conference on Food, Nutrition and Health. Retrieved from President Richard Nixon Library for Researchers: <http://www.nixonlibrary.gov/forresearchers/find/textual/central/smof/whconfh.php#series1>.
- Northouse, P. G. (2013). Leadership: Theory and practice. Sage Publications, Inc. Thousand Oaks.
- Novello, A. C., Degraw, C., & Kleinman, D. V. (1992). Public Health Report. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articlesPMC1403595>.
- O'Dea, J. A. (2006). Self-concept, self-esteem and body weight in adolescent Females: A three-year longitudinal study. Journal of Health Psychology University of Sydney, NSW Australia.
- Ogden, C. L., & Flegal, K. M. (2010). Changes in terminology for childhood overweight and obesity. National Health Statistics Report. Center for Disease Control and Prevention, 1-8.
- Oliver, M., (1993, January 3). Jean Mayer, Tufts Chancellor, Advisor on U.S. Nutrition. *Los Angeles Times*, Article Collections. Retrieved from Los Angeles Times: <http://articles.latimes.com>
- Ori, J. (2012). The hierarchy of needs for employees. Retrieved from: <http://smallbusiness.chron.com/hierarchy-needs-employees-2012.html>.
- Pannell-Martin, D. (1999). School foodservice management: TEAM Associates, VA
- Payne, R. K. (2005). A framework for understanding poverty. Highlands: aha! Process, Inc.

- Perez-Rodrigo, C., & Aranceta, J. (2001) School-based nutrition education: Lessons learned and new perspectives. *Public Health Nutrition*, 131-139.
- Peters, G., & Wolley, J. T. (1969). Richard Nixon: Remarks at the White House Conference on Food, Nutrition and Health, Location of documents-Box Ten . *White House Conference on Food, Nutrition and Health Final Report*. The American Presidency Project.
- Peterson, K. E., & Fox, M. K. (2007) Addressing the epidemic of childhood obesity through school-based interventions: What has been done and where do we go from here? *Journal of Law, Medicine & Ethics*, 113 – 130, National Institutes of Health, PMID: 17341220.
- Pikoff, A. S. (2009, November). Updating the CNA-A chance to create a healthier lifestyle. *University of Huston Law Center - Health Law & Policy Institute*. Retrieved from Health Law Perspectives: <http://www.law.uh.edu/healthlaw/perspectives/homepage.asp>
- Porter, K. J., Koch, P. A., Peralta, R., & Contento, I. R. (2014). Bringing Nutrition Education Programs from Outside Sources into the Classroom. The Experience of New York City Public Elementary School, NYC: Teachers College, Columbia University.
- President's Council on Fitness, Sports and Nutrition. (Accessed 2015, May 4). Our History-President's Council on Fitness, Sports & Nutrition. Retrieved From President's Council on Fitness, Sports, and Nutrition: <http://www.fitness.gov/about/pcfns/our-history/>.
- Pulgaron, E. R. (2012) Childhood obesity: A review of increased risk for physical and psychological comorbidities. *Clinical Therapeutics/Elsevier HS Journal*. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/23328273>.
- RANDOM.Org (2016). Random integer generator. Retrieved from: <https://www.random.org>.

- Ray, N. L. (1992). Motivation in education (Accessed 2015, August 19). SUNY Cortland Library. Eric Document Reproduction Service No. ED349298: [Files.eric.ed.gov/fulltext/ED349298.pdf](http://files.eric.ed.gov/fulltext/ED349298.pdf).
- Rapport, E. B., Daskalakis, C., Andrel, J. (2011). Obesity and other predictors of Absenteeism in Philadelphia school children, *Journal of School Health*, 81, 341-344. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/21592129>.
- Reigeluth, C. M., & Beatty, B. J. (2003). Why children are left behind and what we can do about it, *Educational Technology Magazine*, 24 – 32.
- Rooney, B. L., Mathiason, M. A., & Schauburger, C. W. (2010). Predictors of obesity in childhood, adolescence, and adulthood in a birth cohort, *Maternal & Child Health Journal*, 15, 1166-1175. Retrieved from: [https://www.researchgate.net/publication/47358409\\_Predictors\\_of\\_Obesity\\_in\\_Childhood\\_Adolescence\\_and\\_Adulthood\\_in\\_a\\_Birth\\_Cohort](https://www.researchgate.net/publication/47358409_Predictors_of_Obesity_in_Childhood_Adolescence_and_Adulthood_in_a_Birth_Cohort).
- Rudd Center for Food Policy and Obesity. (2013). WellSAT Home Page, pg. 1. Retrieved from Wellness School Assessment Tool: <http://wellsat.org>.
- Russell-Mayhew, S., McVey, G., Bardick, A., & Ireland, A. (2012) Review Article: Mental health, wellness, and childhood obesity. *Journal of Obesity*, 1-9. Retrieved from: <file:///C:/Huida%20H%20Russell/Downloads/281801.pdf>.
- Sahoo, K., Sahoo, B., & Choudhury, A. K., Sofi, N. Y., Kumar, R., & Bhadoria, A.S. (2015). Childhood obesity: causes and consequences, *Journal of Family Medicine and Primary Care*. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4408699/?report=printable>. P. 192

- Salkind, N. J. (2011). Statistics for people who (*Think They*) hate statistics, 4 Edition, Sage Publications, Inc., California.
- Sallis, J. F., & Glanz, K. (2006). The role of built environments in physical activity, eating, and obesity in childhood. *Future of Children*, 89-108. Retrieved from: [www.futureofchildren.org](http://www.futureofchildren.org).
- Satcher, D. (2005, September). Healthy and ready to learn. *Educational Leadership: The Whole Child*, 26-30. Retrieved from: ASCD The Whole Child Educational Leadership.
- Satcher, D. (2004). The learning connection: The value of improving nutrition and physical activity in our schools, Action for Healthy Kids. Retrieved from: Education Policy Studies Laboratory: <http://www.asu.edu/educ/epsl/CERU-0410-238-OWI.pdf>.
- Schafft, K. A., Jensen, E. B., & Hinrichs, C. C. (2009). Food deserts and Overweight school children: Evidence from Pennsylvania. *Rural Sociology*, 153-177.
- Schenk, R. (2011, January 2015). Economic catastrophe: Great Depression. Retrieved from Cyber Economics: <http://ingrimaye.com/econ/EconomicsCaastrophe/GreatDepression.html>.
- School Nutrition Association. (Accessed 2015, May 13). Understanding the U.S. Budget and Appropriations Process. Retrieved from School Nutrition Association Legislation and Policy: [https://schoolnutrition.org/uploadedFiles/Legislation\\_and\\_Policy/SNA\\_Policy\\_Resources/BudgetandAppropriationsProcess.pdf](https://schoolnutrition.org/uploadedFiles/Legislation_and_Policy/SNA_Policy_Resources/BudgetandAppropriationsProcess.pdf).



Schwartz, M. B. (2013 October 17). School Wellness Policy Evaluation Tool.

Retrieved from Yale University Rudd Center: <http://yaleruddcenter.org/resources/upload/docs/what/communities/schoolwellnesspolicyevaluation.pdf>.

Schwartz, M. B., Henderson, K. E., Falbe, J., Novak, S. A., Warton, C., Long, M.,

O'Connell, M. L., & Fiore, S. S. (2012). Strength and comprehensiveness of district school wellness policies predict policy implementation at school level, *Journal of School Health*, 82-86.

Schwartz, M. B., Lund, A. E., Grow, H. M., McDonnell, E., Probart, C.,

Samuelson, A., & Lytle, L. (2009). A comprehensive coding system to measure the quality of school wellness policies. *Journal American Dietetic Association*, 1256-1262.

Schwimmer, J. B., Burwinkle, T. M., & Varni, J. W. (2003). Health-related quality of life of severely obese children and adolescents. *Journal American Medical Association*, 289, 1813-1819. Retrieved from:

<http://jamanetwork.com/pdfaccess.ashx?url=/data/journals/jama/4875/on>.

Sharkey, J., Yetter, G., Felix, E., & Furlong, M. J. (2006). Fighting an epidemic:

The role of schools in reducing childhood obesity. *Psychology in the Schools*, 361-376. Wiley Periodicals, Inc.

Sharma, A. J., Grummer-Strawn, L. M., Dalenius, K., Galuska, D., Anandappa,

M., Borland, E., Mackintosh, H., & Smith, R. (2009). Obesity prevalence among low-income, preschool-aged children-United States, 1998-2008. *Journal Morbidity and Mortality Weekly Report* 2009/58(28), 769-773.

- Shillings, B. (2011). Legislating health state and federal laws are mandating “healthy” reforms in school meals, but are these laws helping or harming the cause? Food Service Director, 60-66.
- Shore, S. M., Sachs, M. L., Lidicker, J. R., Brett, S. N., Wright, A. R., & Libonati, J.R. (2008). Decreased scholastic achievement in overweight middle School students, Obesity, Vol. 16 No.7. doi: 10.1038/oby2008.254.
- Sibley, B. A., & Etnier, J. L. (2003). The relationship between physical activity and cognition in children: A meta-analysis. *Pediatric Exercise Science*, 243-256.
- Siegle, D. (2009). Statistical significance. Is there a relationship (difference) or isn't there a relationship (difference)? Retrieved from:  
<http://delsiegle.education.uconn.edu/del@uconn.edu>.
- Simon, M. (2011). Dissertation and scholarly research: Recipes for success. Assumptions, limitations, and delimitations, Seattle, WA. Retrieved from:  
[www.dissertationrecipes.com](http://www.dissertationrecipes.com)
- Simon, M. K. & Goes, J. (2013). Scope, limitations, and delimitations. Seattle, WA, USA. Retrieved from: <http://dissertationrecipes.com/wp-content/uploads/2011/04/limitationscopeddelimitation1.pdf>.
- Sinnott, C. (2011). The impact of childhood obesity, poor nutrition and inactivity On public school systems. Lerner Center for Public Health Promotion, Syracuse University, (1-43).

- Smith, N. J., & Lounsbery, M. (2009). Promoting physical education: The link to academic achievement. Retrieved from:  
<http://www.frmschools.org/webpages/twinleeki/files/Promoting%20Physical%20Education.%20the%20Link%20to%20Academic%20Achievement.pdf>
- Stallings, V., & Yaktine, A. L. (Eds.) (2007). *Nutrition standards for foods in schools*. Washington, D.C.: The National Academies Press.
- Story, M., (2006). The role of schools in obesity prevention,( Power Point presentation at Princeton University Event). Accessed:  
<http://www.princeton.edu/futureofchildren/events/events-033106-1.pdf>.
- Story, M., Kaphingst, K. M., & French, S. (2006). The role of schools in obesity prevention. *The Future of Children*, 16, 109-142. Princeton University.
- Story, M., Nannery, M. S., & Schwartz, M. B. (2009). Schools and obesity prevention: Creating school environments and policies to promote healthy eating and physical activity. *The Millbank Quarterly*, 71-100.
- Study.com. (2016). Maslow's Hierarchy of Needs graphic image. Retrieved from:  
<http://study.com/academy/lesson/maslows-safety-needs-examples-definition-quiz.html>  
Graphic image retrieved from:  
<http://study.com/cimages/multimages/16/maslows-hierarchy-of-needs.jpg>
- Tanofsky-Kraff, M., Sbrocco, T., Theim, K. R., Cohen, L. A., Mackey, E. R., Stice, E., Henderson, J. L., McCreight, S. J., Bryant, E. J., & Stephens, M. B. (2013). Obesity and the US military family, National Institutes of Health. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4010088/>.

- Taras, H., & Potts-Datema, W. (2005). Obesity and student performance at school, *Journal of School Health*, 291-295.
- The Bureau of Agriculture Economics. (1941, October). State Legislation and Programs. Retrieved from National School Lunch Program: [http://fns.usda.gov/cnd/lunch/AboutLunchProgramHistory\\_3.html](http://fns.usda.gov/cnd/lunch/AboutLunchProgramHistory_3.html).
- Tiefert, R. (2008). Underprivileged and overweight. Is poverty making kids fat? *School Foodservice and Nutrition*. Retrieved from: <http://www.schoolnutrition.org/content.aspx?id=1860&terms=obesity>.
- Trochim, W. M., (2006) The research methods knowledge base, 2<sup>nd</sup> Edition. Internet WWW page, at URL: <http://www.socialresearchmethods.net/kb/unobtrus.php> (version current as of October 20, 2006).
- Trost, S. G. (2007). *Active Education Research: Physical Education, Physical Activity and Academic Performance*, San Diego State University: Active Living Research.
- Trust for America's Health & Robert Wood Johnson Foundation. (2014). *The State of Obesity in Delaware*. Retrieved from The State of Obesity: Accessed September 2014 <http://stateofobesity.org/adult-obesity/>
- Tufts University of Nutrition Center on Hunger, Poverty, and Nutrition Policy. (1994). *The link between nutrition and cognitive development in children*. Medford: Tufts University. Pg. 5.

Unger, R., Kreeger, L., & Christoffel, K. K. (1990). Childhood obesity: Medical and familial correlates and age of onset. *Clinical Pediatrics*, 368-373.

University of Connecticut Rudd Center for Food Policy and Obesity (2013). WellSAT Home Page, Pg. 1. Retrieved from Wellness School Assessment Tool: <http://wellsat.org>

University of Illinois at Chicago and University of Michigan. (1997). About Bridging the Gap. Princeton: Robert Wood Foundation.

USDA Food Nutrition Services, (2014, March). Local school wellness policy Implementation under the Healthy, Hunger-Free Kids Act of 2010: Summary of the Proposed Rule: [www.fns.usda.gov/sites/default/LWP/proposedrulessummary.pdf](http://www.fns.usda.gov/sites/default/LWP/proposedrulessummary.pdf).

USDA Food Nutrition Service. (2013, July 26). Local school wellness policy requirements. Retrieved from Team Nutrition: <http://teamnutrition.usda.gov/wellnesspolicy.html>.

USDA Food and Nutrition Service (2011). Local school wellness policies: Overview and action steps, comparison chart of the 2004 and 2010 requirements for local school wellness policies (LWP).

USDA Food and Nutrition Service. (1998). FNS-303. A menu planner for healthy school meals. Washington, DC: U. S. Department of Agriculture.

Uyeda, K., Bogart, L. M., Hawes-Dawson, J., & Schuster, M. A. (2009). Development and implementation of a school-based obesity prevention

- intervention: Lessons learned from community-based participatory research. National Institutes of Health, 249-255.
- Villani, S. (2005). Mentoring and induction programs that support new principals. Thousand Oaks: Corwin Press.
- Vilsack, T. J., & Duncan, A. (2013, October 29). Letter to educators regarding a healthy nutrition environment in schools. Retrieved from Education Government: <http://www2.ed.gov/print/policy/elsec/guid/secletter/131029.html>.
- Vockell, E. (2008). *Motivating Students to Learn: Needs and Motivation*. Retrieved from: Educational Psychology Book: [http://education.purduecal.edu/Vockell/EdPsyBook/Edpsy5/Edpsy5\\_needs.htm](http://education.purduecal.edu/Vockell/EdPsyBook/Edpsy5/Edpsy5_needs.htm)
- Wang, F., & Veugelers, P. J. (2008). Self-esteem and cognitive development in the era of the childhood obesity epidemic. *International Association for the Study of Obesity. Obesity Reviews*, 615-623.
- Wargo, J. D. (2007, March). A history of the President's Council on Physical Fitness and Sports Research Digest. Retrieved from President's Challenge: <http://www.presidentschallenge.org/informed/digest/docs/200703digest.pdf>.
- Washington, R. L. (2011). Childhood obesity: Issues of weight bias, Preventing Chronic Disease. Retrieved from: [http://www.cdc.gov/pcd/issues/2011/sept/10\\_0281.html](http://www.cdc.gov/pcd/issues/2011/sept/10_0281.html).
- Weschesler, H., McKenna, M. L., Lee, S. M., & Dietz, W. H. (2004). The role of Schools in preventing childhood obesity. The State Education Standard, 4-12. Retrieved from: [http://cdc.gov/healthyyouth/physicalactivity/pdf/roleofschools\\_obesity.pdf](http://cdc.gov/healthyyouth/physicalactivity/pdf/roleofschools_obesity.pdf).

- Wieting, J. M. (2008). Cause and effect in childhood obesity: Solutions for a National epidemic: Journal of the American Osteopathic association, 545-552. Retrieved from: <http://jaoa.osteopathig.org/content/108/10/545.full.pdf+html>.
- Wellness School Assessment Tool, WellSAT: 2.0, (2013). How WellSAT scores are calculated, 1-2. [http://www.wellsat.org\\_calculations.aspx](http://www.wellsat.org_calculations.aspx).
- Wilensky, G., & Satcher, D. (2009). Don't forget about the social determinants of health. Health Affairs, w194-w198. doi: 10.1377/hlthaff.28.2.w194
- Williams, S. R. (1997). Nutrition and diet therapy. Chap. 7, Mosby, MO.
- Wistrich, L., Sanchez, M., Strobel, K., & Duong, N. (2012). Healthy Schools Initiative: Implementation study in four San Mateo County school districts. Sanford: John W. Gardner Center for Youth and Their Communities.
- Zeller, M. H., Reiter-Purtill, J., & Ramey, C. (2007). Negative peer perceptions of obese children in the classroom environment, Obesity, 16, 755-762.

## **APPENDICES**

- A. An adaptation of Georgia Department of Education Title 1 Conference handout of Maslow's Hierarchy of Needs with school and guardian participation.
- B. Wellness School Assessment Tool (WellSAT: 2.0) packet.
- C. Parent/Guardian survey information:
  - 1. Permission from Illinois Evanston/Skokie District 65 permission to use parent survey
  - 2. Copy of original parent survey
  - 3. Guardian/parent consent to participate and complete parent survey
  - 4. Revised parent survey
- D. Principal survey information:
  - 1. Permission from researcher Davis, S. to use Principal Survey Instrument
  - 2. Copy of original principal Survey
  - 3. Revised principal survey.
- E. Researcher's National Institutes of Health (NIH) Office of Extramural Research "Protecting Human Research Participants" Certificate of Completion, 2011.
- F. Letter for Informed Intent and Consent to Conduct Research
- G. Synopsis of Proposed Research
- H. Delaware State University Institutional Review Board-Human Subjects Protection Committee Approval Letter



## Appendix A

### Adaptation of Georgia DOE Title 1 Conference Handout



An adaptation of Georgia DOE Title 1 Conference handout of Maslow's Hierarchy of Needs displaying actions the local educational agency/school can do on the left side of the pyramid; right side of the pyramid displays actions that children's' guardian can do to promote academic achievement. The original slide was downloaded from Dreamstime Royalty Free Maslow's Hierarchy of Needs (Dreamstime, Accessed 2015)

## Appendix B

# WellSAT:

Wellness School Assessment Tool.

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[Contact](#)

[Who Should Use This Tool?](#)

[FAQ](#)

[How WellSAT Scores are Calculated](#)  
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Rudd Center for Food Policy & Obesity

Yale University

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Website Inquiries – WellSAT  
Rudd Center for Food Policy & Obesity  
Yale University  
PO Box 208369  
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*Appendix C-1*

**Permission from Illinois Evanston/Skokie District 65 Parent Survey**



---

**Wellness Parent Survey**

@district65.net>

Thu, Nov 6, 2014 at 11:31 AM

Ms. Harris,

I just spoke to regarding your request and you are more than welcome to use the survey; however you should note that no valid or measurable tool was used to substantiate the data generated by the survey.

Good luck,

School Board Recording Secretary  
Evanston/Skokie School District 65  
1500 McDaniel Avenue · Evanston, IL 60201  
p (847) 859-8111 | f (847) 866-7241

***Every Child, Every Day, Whatever it Takes.***

*Any communication sent or received by District 65 is a public record and may be subject to inspection or copying under the Illinois Freedom of Information Act.*

---

Thu, Nov 6, 2014 at 7:07  
PM

To:  
November 6, 2014

Thank you so much!! I am truly appreciative for being allowed to use the survey.

Respectfully,

Huida HarrisRussell

## *Appendix C-2*

### **Illinois Evanston/Skokie Original Parent Wellness Survey**

The District 65 Wellness Council is looking for ideas for programs and services, get feedback about quality, solicit volunteers, and identify barriers and motivators to change our wellness environments.

We appreciate your participation in this survey.

This survey will take approximately 10 minutes to complete.

**School(s) your children attend:** \_\_\_\_\_

#### **Do you agree with the following wellness environment information?**

	<b>YES</b>	<b>I am not sure</b>	<b>NO</b>
School meals are healthy.			
My child wants to eat school lunches.			
My child has enough time to eat lunch			
Snacks and beverages in the middle school cafeteria that students purchase are healthy.			
My child gets health information from his/her classroom science teacher.			
My child gets health information from his/her P.E. teacher.			
Playground equipment is age appropriate.			
School grounds are adequately supervised 10 min before and 10 minutes after school.			
School grounds are adequately supervised during lunch recess.			
Before and after school extra -curricular Programs include physical activity.			

**Were you aware of the following nutritional information?**

	<b>YES</b>	<b>I am not sure</b>	<b>NO</b>
School lunches meet the USDA National School Lunch Program requirements.			
Nutrition labels and nutritional analysis of elementary school meals are available on the District 65 website.			
Averaged over a week, less than <b>30%</b> - calories in school meals are from total fat, and less than 10% calories from saturated fat.			
Elementary students have the option of purchasing 1% strawberry, chocolate, white, and skim milk at lunch.			
Each middle school al a carter item contains less than 30% calories from total fat, less than 10% calories from saturated fat, 35 grams of sugar by weight and no more than 200 calories per serving.			
As a middle school parent you can restrict your child from purchasing a la carte items (i.e. can only purchase a full meal).			
District 65 serves breakfast at Chute, Dawes, Kingsley, Lincoln, Nichols, Oakton, Park, Walker and Washington Schools one-half hour before school begins, and it is open to everyone.			

**What opportunities for families would you be interested in participating in?**

	<b>Would love to!</b>	<b>Possibly</b>	<b>Not for me</b>
Learning about eating healthy through fun activities (ex: cooking classes)			
Family Fun Night with active games			
Health Fair with health screenings			
Family dinner/ night out			
Family dance night			

**Would you be willing to help make our schools healthier by:**

	<b>Would love to!</b>	<b>Possibly</b>	<b>Not for me</b>
Sending in healthy classroom snacks			
Volunteering at healthy event a school			
Participating on school wellness teams			
Participating on a panel to explore school lunch menu ideas			
Promoting healthy fundraising			
Sharing a wellness skill with students and staff			



### *Appendix C-3*

#### **Guardian Informed Consent and Survey**

Title of Project: Local School Wellness Policy Assessment and Nutrition Awareness in Elementary Schools.

Researcher: Huida HarrisRussell

1. Your child's class has been selected to participate in a fundamental study because schools have an important role in establishing lifelong healthy eating and physical activity habits that will help decrease the incidences of childhood and adult obesity.
2. Your willingness to participate in this research is indicated by returning a completed Survey to your child's class.
3. There will be absolutely **NO WAY** to identify your answers or connect your child or you to the completed surveys. Your responses will be kept **CONFIDENTIAL**.
4. The surveys will be shredded once the data are analyzed and a written report is completed by Mrs. HarrisRussell.
5. If you have any questions before or after completing the Survey concerning this impending research, please feel free to contact Mrs. HarrisRussell at the following email address:

*Appendix C-4*

**Local School Wellness Policy Parent Survey**

This survey will take approximately 10 minutes to complete. Please place an **X** in one of the three boxes that describes your response to each statement. Please return completed survey to your child's teacher. Thank you for participating in this research.

**School your child attends:** \_\_\_\_\_ **Current grade:** \_\_\_\_\_

**Do you agree with the following local school wellness policy environment information for your child/children school?**

	Yes	I'm not sure	No
School meals are healthy.			
My child wants to eat school lunches.			
My child has enough time to eat lunch.			
Snacks and beverages in my child's school cafeteria that students purchase are healthy.			
Snacks and drinks that parents provide for classroom parties are healthy.			
My child gets health information from his/her classroom or science teacher.			
My child gets health information from his/her Physical Education teacher.			
Playground equipment is age appropriate.			
School grounds are adequately supervised 10 minutes before and 10 minutes after school.			
School grounds are adequately supervised during lunch recess.			
Before and after school extra-curricular programs include physical activity.			

**Were you aware of the following local school wellness nutrition information?**

	Yes	I'm not sure	No
School lunches meet the USDA National School Lunch Program requirements.			
Nutrition labels and nutritional analysis of elementary school meals are available on the District's and/or school website.			
Averaged over a week, less than <b>30%</b> of calories come from total fat, and less than 10% of calories come from saturated fat in school meals.			
Students have the option of purchasing 1% chocolate, strawberry, white, and skim milk at lunch and breakfast.			
All school nutrition program a la carte items contain less than 30% of calories come from total fat and less than 10% of calories come from saturated fat, 35 grams of sugar by weight and no more than 200 calories per serving.			
As a guardian of an elementary school student you can restrict your child from purchasing a la carte items; (your child can only purchase a full meal).			
Your child's school serves breakfast before school and it is open to every child.			

**What opportunities for participating in family activities would you & your family be interested in?**

	Would love to!	Possibly	Not for me
Learning about eating healthy through fun activities (ex: cooking classes, nutrition education for the family).			
Family Fun Night with active games.			
Health Fair with health screenings.			
Family dinner / night out.			
Family dance night.			
If the above opportunities were offered closer to your home.			

**Would you be willing to help make your child's school healthier by:**

	<b>Would love to!</b>	<b>Possibly</b>	<b>Not for me</b>
Volunteering at healthy events at the school			
Participating on the school wellness team			
Participating on a panel to explore school lunch and school breakfast menu ideas			
Promoting healthy fundraising			
Sharing a wellness skill with students and/or staff			

**Thank you for completing this survey! Please return this to your child's teacher.**

Parent Survey adapted from Evanston/Skokie School District 65, Illinois:  
[http://district65.net/community/wellnessSurveys/documents/parent\\_Wellness\\_Survey\\_English.pdf](http://district65.net/community/wellnessSurveys/documents/parent_Wellness_Survey_English.pdf)

### *Appendix D-1*

Permission to use Davis, S. (2012) Principal Survey:



---

#### **Permission to use Survey Instrument**

5 messages

---

Wed, Sep 9, 2015 at 7:45 PM

To: @ccsww.org

Good Evening

My Name is Huida HarrisRussell, I am enrolled in Delaware State University's Educational Leadership Doctoral Program. I am requesting permission to use the Survey Instrument for Principals from "An Evaluation of King County School District's Wellness Policy" A capstone project presented in partial fulfilment of the requirements for the degree of Master of Arts in Policy Studies, Interdisciplinary Arts and Sciences.

#### **INSTRUMENT REVISIONS:**

Question 2 was omitted, the following highlighted questions verbiage was revised to meet the requirements of my research: Questions number: 1, 5j, 5n, 7, 8h, 8j, and 10. I have attached a copy of the revised survey instrument for you to review. Please feel free to use the following contact information if you should have any questions and/or concerns:

Respectfully,

Huida H. Russell

----

**Sept 9 2015 Request for Permission to use Survey Instrument for**

 **Principals.docx**

22K

Good Evening,

My Name is Huida HarrisRussell, I am enrolled in Delaware State University's Educational Leadership Doctoral Program. I am requesting permission to use the Survey Instrument for Principals from "An Evaluation of King County School District's Wellness Policy" A capstone project presented in partial fulfilment of the requirements for the degree of Master of Arts in Policy Studies, Interdisciplinary Arts and Sciences.

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Respectfully,

Huida H. Russell

--

**Sept 9 2015 Request for Permission to use Survey Instrument for Principals.docx**  
22K

---

@ccsww.org>  
To: Huida L Harris

Thu, Sep 10, 2015 at 12:07 PM

---

**Huida L Harris**  
To: @ccsww.org>

Thu, Sep 10, 2015 at 12:37 PM

September 10, 2015

Good Morning,

I am truly appreciative of you taking the time to respond to my request. My Dissertation topic is " How Local School Wellness Policy Assessment Impacts Nutrition Awareness in Elementary Schools".

The research will use the WellSAT instrument to assess LSWP of elementary schools agreeing to participate in the research. Since building administrators, ideally principals determine how school policy is implemented, the survey instrument you formulated have ideal questions. I was required to make some revisions meet the criteria of my research. I have attached a copy of the revised instrument to this email; the highlighted questions were revised and question 2 was omitted.

Once my research has been completed and accepted I would be more than willing to provide you a copy of the document, also feel free to continue to communicate with me. I am a semi-retired State Director of School Nutrition Programs in Delaware.

Thanking you in advance,

Huida Harris Russell

**Sept 9 2015 Request for Permission to use Survey Instrument for Principals.docx**  
22K

----- Forwarded message -----

From: Huida L Harris  
Date: Wed, Sep 9, 2015 at 7:45 PM  
Subject: Permission to use Survey Instrument

To: [@ccsww.org](mailto:@ccsww.org)<mailto:[@ccsww.org](mailto:@ccsww.org)>

Good Evening,

My Name is Huida HarrisRussell, I am enrolled in Delaware State University's Educational Leadership Doctoral Program. I am requesting permission to use the Survey Instrument for Principals from "An Evaluation of King County School District's Wellness Policy" A capstone project presented in partial fulfilment of the requirements for the degree of Master of Arts in Policy Studies, Interdisciplinary Arts and Sciences.

**INSTRUMENT REVISIONS:**

Question 2 was omitted, the following highlighted questions verbiage was revised to meet the requirements of my research: Questions number: 1, 5j, 5n, 7, 8h, 8j, and 10. I have attached a copy of the revised survey instrument for you to review. Please feel free to use the following contact information if you should have any questions and/or concerns:

Huida Harris Russell,



*Appendix D-2*  
*Original Principal Survey Questions*

Appendix A  
Survey Questions

1. Please mark the type of school
  - ☐ Elementary
  - ☐ Middle
  - ☐ High School
2. School Name [fill in the blank]
3. How would you rate your knowledge of your district's school wellness policy:
  - ☐ No knowledge,
  - ☐ Some, but below average knowledge,
  - ☐ Average knowledge,
  - ☐ Above average knowledge,
  - ☐ Very knowledgeable
4. Rate the success your school has had with implementing you school district's Wellness Policy: on a scale of 1-5, 1 being unsuccessful to 5 being successful
5. What do you consider critical barriers to implementing your school district's wellness policy: mark all that apply
  - a) Lack of communication and coordination
  - b) Staff shortages or lack of staff development
  - c) Lack of shared vision and commitment
  - d) A focus on other academic subjects and testing
  - e) Lack of space
  - f) Cultural barriers
  - g) Wellness not cited as a value by staff, parents, students and community
  - h) Wellness not prioritized in the curriculum
  - i) Time
  - j) Student preferences for competitive and/or off-campus foods and resistance to change
  - k) Funding
  - l) Lack of resources
  - m) Difficulty in breaking parent, teacher and student habits
  - n) Cost
  - o) Loss of revenue from competitive food sales, impacting clubs, athletics, PTA, etc.
  - p) Other: please list
6. Of the above barriers, which ONE barrier do you feel has impacted your school the most? (if you did not feel that there were any barriers, please write "None")
7. Are you or your school a member of an active school wellness or health advisory committee? Yes or No
8. What have been the main challenges in implementing a nutrition education curriculum in your school? Mark all that apply
  - a) Implemented nutritional education curriculum without a problem
  - b) Finding time in the school day schedule

- c) Funding for teaching materials or staff training
  - d) Competition with other core learning requirements/not being the main focus
  - e) Scheduling PE requirements in elementary school day schedule
  - f) Not having a standardized or proven curriculum
  - g) Accounting for culture and language differences
  - h) Not knowing if children are receiving [health] messages
  - i) Difficulty teaching against learned behaviors in the home
  - j) Other
9. Of the above challenges, which ONE challenge has impacted your school the most?
10. Please briefly describe any steps your school has taken to monitor or evaluate the wellness policies [fill in the blank]

### *Appendix D-3*

#### **REVISED** Principal Survey Questions: (S. Davis) pg. 1

Questions:

1. Are you the principal of this school? Yes or No If not please write your position here: \_\_\_\_\_
2. How would you rate your knowledge of your elementary school/district wellness policy?  
\_\_\_\_ No knowledge,  
\_\_\_\_ Some, but below average knowledge,  
\_\_\_\_ Average knowledge,  
\_\_\_\_ Above average knowledge,  
\_\_\_\_ Very knowledgeable
3. Rate the success your school has had with implementing your elementary school/district's Wellness Policy: on a scale of 1 – 5, 1 being unsuccessful to 5 being successful: 1 \_\_\_\_ 2 \_\_\_\_ 3 \_\_\_\_ 4 \_\_\_\_ 5 \_\_\_\_.
4. What do you consider critical barriers to implementing your elementary school/districts wellness policy: mark all that apply:  
\_\_\_\_ a. Lack of communication and coordination  
\_\_\_\_ b. Staff shortage or lack of staff development  
\_\_\_\_ c. Lack of shared vision and commitment  
\_\_\_\_ d. A focus on other academic subjects and testing  
\_\_\_\_ e. Lack of space  
\_\_\_\_ f. Cultural barriers  
\_\_\_\_ g. Wellness not cited as a value by staff, parents, students and community  
\_\_\_\_ h. Wellness not prioritized in curriculum  
\_\_\_\_ i. Time  
\_\_\_\_ j. Student resistance to menu change, & preference for competitive foods  
\_\_\_\_ k. Funding  
\_\_\_\_ l. Lack of resources  
\_\_\_\_ m. Difficulty in breaking parent, teacher and student habits  
\_\_\_\_ n. Cost to implement  
\_\_\_\_ o. Loss of revenue from competitive food sales, impacting PTA, athletics, School clubs, etc.  
\_\_\_\_ p. Other, please list: \_\_\_\_\_
5. Of the above barriers, which ONE barrier do you feel has influenced your school the most? (If you did not feel that there were any barriers please write "None" here: \_\_\_\_\_)
6. Are you or another school a member an active member of local school wellness advisory committee? YES \_\_\_\_ NO \_\_\_\_
7. What have been the main challenges in implementing a nutrition education curriculum in your school? Mark all that apply:  
\_\_\_\_ a. Implemented nutritional education curriculum without a problem

- \_\_\_ b. Finding time in the school day schedule
- \_\_\_ c. Funding for teaching materials or staff training
- \_\_\_ d. Competition with other core learning requirements/not being the main focus
- \_\_\_ e. Scheduling PE requirements in elementary school day schedule
- \_\_\_ f. Not having a standardized or proven curriculum
- \_\_\_ g. Accounting for culture and language differences
- \_\_\_ h. Not knowing if children are receiving (nutrition & health) messages
- \_\_\_ i. Difficulty teaching against learned behaviors in the home
- \_\_\_ j. Other, please list: \_\_\_\_\_

8. Of the above challenges, which ONE challenge has influenced implementing your school the most? \_\_\_\_

9. Briefly, describe any steps your local school wellness advisory committee has taken to monitor or evaluate your elementary school/district wellness policies?


(Davis, S., 2003) Seeking Permission to use with revisions, (Davis, S., 2013. University of Washington, Bothell).

## *Appendix E*

### **Certificate of Completion**



## *Appendix F*

### **Letter for Informed Intent and Consent to Conduct Research**

Huida Harris Russell

DATE

First Name, Last Name

Title

Address Line 1

Address Line 2

City, DE Zip

Re: Letter for Informed Intent and Consent to Conduct Research

Dear Administrator of Local Education Agency:

My name is Ms. Huida H Russell. I am a Doctoral Candidate at Delaware State University in the Educational Leadership Program under the supervision of Dr. Patricia Carlson and Dr. Nirmaljit Rathee. I am requesting your permission to conduct research on the comprehensiveness and strength of Local School Wellness Policies (LSWP) developed and implemented in your local educational agency (LEA) elementary schools that participate in the National School Lunch/School Breakfast Programs.

As you are aware childhood obesity has been identified as a national epidemic. Childhood obesity affects children of all ethnicities, geographic locations, religious beliefs, and/or socioeconomic status as well as student academic achievement. As a retired Education Associate, School Nutrition Programs I encouraged and still believe schools have a vital role in childhood obesity prevention programs. Students in elementary schools have the opportunity to learn healthy activities which can become lifelong healthy habits.

I am requesting access to secondary data that have no identifiable of children according to FERPA and the identity of your local educational agency (LEA), elementary schools, LEA administrators', and/or elementary school principals will not be disclosed in this study. These data will be used in an overreaching Mixed Methods study of Delaware elementary schools' local school wellness policies comprehensiveness and strength. This study will use University of Connecticut Rudd Center Wellness School Assessment Tool (WellSAT: 2) to conduct the analysis to the LSWP. All data will be secured according to Delaware State University research policies, and the guidelines of the Institutional Review Board. If you have any question or concern about your rights as a participant of this study, please feel free to contact Dr. Brian Friel, Chair of the IRB, Delaware State University (Phone: (302) 857-6637; E-mail: [bfriel@desu.edu](mailto:bfriel@desu.edu)).

Respectfully

/c/ Huida H Russell

**Please indicate your approval and intention to participate in the above research project as describe above by your signature:**

\_\_\_\_\_  
SIGNATURE OF **APPROVAL**  
DATE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE OF DISAPPROVAL

**NOTE: PARTICIPANTS CAN WITHDRAW THEIR APPROVAL AT ANYTIME WITHOUT PENALTY.**

## **Appendix G**

### **Synopsis of Research**

Childhood obesity has been identified as a national epidemic. Childhood obesity affects children of all ethnicities, geographic locations, religious beliefs, and/or socioeconomic status as well as student academic achievement.

Childhood obesity rates have been escalating for the past 20 years due to interactions between children and their environments (Coffield, Metros, Utz and Waitzman, 2011). Obesity is the result of continuous consumption of food, more food than the body can burn off. Wieting (2008) states that educational, family, physical and social environments have had negative impacts on students' health, thus increasing the incidences of students identified as overweight and/or obese.

Today many children living in low-income families do not have access to nutritious foods. Tiefert (2008) wrote in her article, "Underprivileged and Overweight" that the continued consumption of foods with minimal nutritional value and decreased physical activity contributes to children being identified as overweight or obese. Being malnourished does not mean low body weight; many overweight/obese children are also malnourished. Schools, especially elementary schools, can have a vital role in preventing childhood obesity especially elementary schools. While enrolled in elementary school students have the opportunity to engage in physical activity, physical education, learn and share information about nutrition awareness and education with family members.

Healthy, Hunger-Free Kids Act of 2010 requires all schools that participate in the

National School Lunch Program to develop local school wellness policy committee with representation from school professionals, instructional and support staff and school community members.

The researcher will request local school wellness policies from elementary schools that have 70 percent of students eligible to receive free and reduced price school meals and willing to participate in this research. The research will investigate if a relationship exists between the local school wellness policy assessment score and the amount of time students have to engage in physical activities, physical education, nutrition awareness and education, and student attendance. This study will use Connecticut University's Rudd Center Wellness School Assessment Tool (WellSAT: 2 to conduct the analysis to the elementary schools' LSWP.

Primary and Secondary data which has no identifiable of children according to FERPA and the identity of local educational agencies (LEAs), elementary schools, LEA administrators', and elementary school principals will not be disclosed in this research. The researcher will use the Mixed Methods research design. Directional research hypothesis will question Delaware's elementary schools local school wellness policies comprehensiveness and strength. All data will be secured according to Delaware State University research policies.



*Appendix H*



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**DELAWARE STATE UNIVERSITY**  
**Institutional Review Board – Human Subjects Protection Committee**

August 29, 2016

Ms. Huida Harris Russell  
Department of Education  
Educational Leadership Program  
Delaware State University  
Dover, Delaware 19901

Dear Ms. Harris Russell:

Delaware State University's Institutional Review Board (IRB) - Human Subjects Protection Committee has reviewed your project entitled "Investigation of the Relationships Between Childhood Obesity Prevention and Elementary Schools' Local School Wellness Policy WellSAT Assessment Score".

The Committee has approved this project and requires that an annual progress report be submitted before August 29, 2017. Please send this report to the Office of Sponsored Programs.

Institutional Review Board  
Office of Sponsored Programs  
Delaware State University  
1200 N. DuPont Highway  
Dover, DE 19901

Sincerely,  
Dr. Brian Friel  
Chairperson, Human Subjects Committee (IRB)

Rsj

N. DUPONT HWY. DOVER, DE • 19901-2277 (302) 857-6810 FAX: (302) 857-6810

