THE EFFECTS OF A COMPREHENSIVE SCHOOL PHYSICAL ACTIVITY PROGRAM (CSPAP) ON STUDENT UNSTRUCTURED PHYSICAL ACTIVITY

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Abstract

The purpose of this research study focused on whether a Comprehensive School Physical Activity Program (CSPAP) leads students to choose to be more active outside of school hours. The structure and qualitative methods within the study allowed information to be gathered to determine the impact CSPAP had on thoughts and feelings experienced by participants, as they made specific behavioral choices relating to physical activity. It was evident that through the interventions received and the way that information was shared on the questionnaires, journal entries, and interviews that participants increased their physical activity level based on health contributions. Continued analysis of the data shared that as participants receiving intervention progressed through the program, certain students became more knowledgeable on ways to engage in physical activity at home, while others chose to participate in physical activity more frequently or in different ways than when they first started.

*Keyword:* Comprehensive School Physical Activity Program
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This journey would never have been possible without the strength and support of my Lord and Savior, Jesus Christ. I give Him all the glory and praise for allowing me to complete such a degree.

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Dedication

I dedicate this study to my wife and three boys, Elizabeth, Mikel, Braylan and Ashton. May the desire, discipline, and determination that it took to complete this, be an example of what guides you towards your aspirations in life. I love you boys.
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CHAPTER 1: PURPOSE AND ORGANIZATION

Physical activity is an essential component to the growth and development of each child. Statistics show that there is a significant rise in the number of children living a sedentary lifestyle. As a result, one in three children are considered to be overweight or obese in the United States (Kriemler et al., 2010). With the absence of daily active play, there becomes a growing concern for the health of each child and the risk of developing health-related issues at an earlier age due to increased weight. A sedentary lifestyle is known to be connected with health related issues such as cardiovascular disease, type 2 diabetes, high blood pressure and high cholesterol levels (Simons-Morton, Parcel, Baranowski, Forthofer, & O’Hara, 1991). Unfortunately, there has been a shift in focus of concern for the public health in dealing with infectious diseases to chronic diseases as a result of the low numbers choosing to be physically active (Kimm, & Obarzanek, 2002).

In the past, the physical education program has typically been seen as the main means to improving and promoting the choice to live a physically active life (Datar, & Sturm, 2004). Due to various changes within education and the increased demands on academic performance, physical education programs have seemed to take the backseat in importance, which has resulted in their time being limited each week in some instances (Centers for Disease, 2013). This issue leads to fewer students attending physical education classes and limiting its influence in teaching on the positive lifestyle choices such as being active each day.

Due to the current 21st Century living environment and emphasis on technology, additional factors for limited physical activities have emerged. In the advancement of technology, this era has allowed electronic and screen based entertainment to be more accessible, which has naturally led to the increase in what is consuming more of a child’s leisure time.
(Dollman, Norton, Norton, & Cleland, 2005). Due to the growth of urban development, space is limited for some to be physically active. This also draws concern to a child’s safety because it potentially minimizes or does away with opportunities to ride a bike or play active games.

**Research Problem**

Reports are showing a negative trend in students choosing to be physically active throughout the early stages of life (Centers for Disease, 2013). This shares with us that as the age progresses, the results of living an active life tends to decrease. Naturally, this leads to more children being diagnosed at an earlier age with health related issues stemming from a sedentary lifestyle. While physical education in school is primarily the means for promoting and improving a healthy active lifestyle, very few take physical education when it is an option. Physical education can also be limited at times due to the increased attention on academic performance in the classroom. This study sought to determine the impact that a comprehensive school-wide intervention plan would have on students choosing to be active outside of school. The study dealt with a multi-component approach that considered the entire school day’s operation and immersed selected students in an environment that collectively promoted physical activity and allowed students to be more physically active at school.

**Purpose of the Study**

With obesity and chronic health related issues on the rise amongst children, this study investigated a possible solution to the decrease in children choosing to be active outside school hours. Further, the study examined the way that the school can play a significant role in getting students to take initiative in becoming more active on their own at home. This study specifically targeted the impact that a multi-component intervention program had on students and the way they perceived physical activity, before and after the study.
Research Question

What are the effects of a Comprehensive School Physical Activity Program (CSPAP) on student choice in physical activity outside school hours?

Rationale for the Study

Bodies of research share that by learning to habitually move at a young age, individuals experience increased health benefits then and into adulthood (Zahner et al., 2006; Timmons, Naylor, & Pfeiffer, 2007). Regardless of the increased number of young children being inactive, data indicates that physical activity is a major enjoyment despite the rise in numbers not moving enough (Dollman et al., 2005). Thus, the defining element needed in changing current unhealthy trends could be the better promotion of health. The school naturally plays a key role to the impact and change since students spend a considerable amount of time each day there (Zahner et al., 2006). Physical education programs continue to remain as an important part to the process in building physically literate students due to its curriculum (Datar, & Sturm, 2004). Even though a majority of elementary aged students participate in physical education, more is needed in efforts to increase physical activity outside of school (Sallis et al., 1997). By adding a multi-component intervention program to the process of a normal school day, students hear consistent messages and partake in various types of physical activity throughout the school environment which encourage and reinforce what happens outside of school (Kriemler et al., 2010). As a result, there is an opportunity for health-related behavior to be influenced in a positive way and to improve the amount of time students are spending being active outside of school.

Researcher Positionality Statement

The researcher has spent the last twelve years in the field of health and physical education teaching students at various age groups on the importance of living a healthy, active
lifestyle. Currently he serves as an elementary physical education teacher and the district’s Professional Learning Specialist for K-12 PE, Health and Wellness. In these positions, he has seen the change first-hand in children’s choice to be physically active and the increase in health related concerns due to the results of state-mandated screenings conducted at school. To compound the issue, rigorous academic demands have also begun to detract from the potential that physical education has to offer in combating these concerns due to it being limited or taken away from for more classroom time. The researcher is very supportive of a child’s entire educational process but passionately promotes and teaches the importance on living a healthy, active lifestyle in order to enjoy life to its fullest.

**Definition of Terms**

*Comprehensive School Physical Activity Program:* A multicomponent approach by which schools use all available opportunities for students to be physically active, meet the national recommendation of 60 minutes of MVPA per day, and develop the knowledge, skills, and confidence to be physically active for a lifetime (Burns, Brusseau, & Hannon, 2015).

**Organization of the Study**

This qualitative study is divided into five chapters. Chapter One introduces the need in addressing the increase in children choosing to live an inactive life outside school hours. Awareness in the development of health concerns that progresses into adulthood drives the purpose for the study. It proposes the use of a multi-component comprehension school-wide intervention plan that addresses the research question stated within the chapter. Chapter Two reviews previous research and professional literature that provides a more comprehensive understanding with the on-going concern and implications of children choosing to live an inactive lifestyle. It further explores the utilization of school and physical education being the
catalyst for change. The theoretical framework is presented and summarizes the social cognitive theory approach to better understand how behavior and the environment influence one another in a continuous manner. Chapter Three provides specific description regarding the population used for the study and the qualitative and interpretive technique and approaches used to perform the study. It outlines the interpretive phenomenological analysis of data to gain a deeper understanding with each phenomenon identified through the categories and themes. Chapter Four presents the results of the study and the analyzation of data. Chapter Five outlines the interpretation of the data as a result of the study. It also includes implications of the study along with suggestions for further research.

Summary

Physical activity plays an important part to the well-being of school-aged children. With the significant rise in children not being as physically active, there is increasing concern in health related issues. Physical education programs have served as the catalyst in promoting a healthy, active lifestyle for years. However, with increased numbers in screen time due to the advancement of technology, fewer and fewer are choosing to be active outside school hours. This study examined an intervention that continued to view the school as a pivotal tool in working to change this unhealthy choice with physical activity throughout the school environment.
CHAPER 2: REVIEW OF LITERATURE

There is a growing concern today in the rising number of overweight and obese children within the United States. Since the 1970s, this percentage of children has more than doubled, going from 15 percent to 30 percent (Paxson, Donahue, Orleans, Griss, 2006). Serious health consequences are at stake due to so many children dealing with obesity at such a young age.

What was previously regarded as an issue more commonly diagnosed in adulthood, is now being addressed with children as a result of the increasing numbers. Children today are developing issues such as the hardening of arteries, sleeping problems, heart disease, Type 2 diabetes, asthma, orthopedic issues, metabolic syndrome, mental health and high cholesterol. As a direct result of increasing concern regarding these current issues, policymakers have been leveraged to become more involved in combating the concern by working to create laws and programs to help in reducing these numbers. A multitude of reasons for why there has been an increase in the percentage could easily be connected with factors such as the advancement in technology. This in particular has led to an increase in the use of video games and television instead of being more physically active.

The food industry has grown at such a tremendous rate offering quick service meals with limited nutritional value. While policymakers have changed much of the food choices offered in school, students today still have a significant access to unhealthy foods. In addition, some schools across the nation have seen a reduction in physical education classes and recess as a result of increased academic time (Perera, Frei, Frei, & Bobe, 2015). Parents are less inclined to prepare healthy meals or advocate for active play outside due to their work schedule absorbing their time and energy (Champion et al, 2012). A growth in the housing development limits safe play outdoors. There is little doubt that these several factors have contributed to the increase in percentage of obesity amongst our children and is a main reason for the increase in health related
issues at an earlier age. In an effort to effectively combat the rising numbers with childhood obesity, action must be taken.

**Theoretical Framework**

Physical activity in addition to a balanced nutritious diet, it is an effective method in combating health-related issues (Elmesmari, Reilly, Martin, & Paton, 2017). America and many countries across the world have seen that poor fitness, obesity, heart disease, and diabetes are among the many health concerns on the rise due to more children and adolescents choosing to be inactive. Physical education programs are being considered as a comprehensive part of the educational school systems across the world due to it providing the opportunity for physical educator’s to teach on the knowledge and skills needed to promote the importance of living a physically active life for a lifetime (Dauenhauer, Keating, Lambdin, & Knipe III, 2017).

However, with consideration to the diversity of students and their needs along with the very limited amount of time each week at school, quality physical education programs are in the need of a multi-component intervention programs to truly combat this prevalent issue. Physical education programs are naturally limited in instructional time during the week due to factors such as increased academic time, budget or for over-crowding. Adult health problems stem from the habits and choices made at an early age. This emphasizes the importance of teaching students the knowledge, skills, and dispositions necessary to live a healthy lifestyle and make health choices. To better understand the magnitude in which physical educator’s face in teaching students the importance of living a physically active life, one would need to be knowledgeable on the factors that enables the sedentary lifestyle of children today. The principle of reciprocal determinism helps build the foundation to understanding physical activity as a health behavior and why one would choose to live physically active or not (Sparling, Owen, Lambert, & Haskell,
This social cognitive theory approach refers to the way that behavior and environment interact and influence one another in a continuous manner. According to predictions of behavior change in this theory, an individual will make a behavioral choice based on certain desirable outcomes or the belief in one’s ability to perform a behavior knowing the results will lead to a specific outcome. These two basic cognitions are identified as outcome expectancy and self-efficacy. The modern life today presents a multitude of determinants to physical activity or lack thereof and through this type of framework, it is easier to understand interactions among personal attributes and environmental factors as it relates to the choice of being physically active.

**Physical Activity Report**

The 2016 US Report Card on Physical Activity for Children and Youth reported that only 21.6% of children and adolescents from the ages of 6 to 19, attain the daily recommended 60 minutes or more of moderate-to-vigorous physical activity on at least 5 days each week (Centers for Disease, 2017). Statistics also show that only 27.1% of high school aged students engage in physical activity for at least 60 minutes in the seven-day week. For the purpose of this study, physical activity is defined as increased energy expenditure as a result of bodily movement from the contraction of skeletal muscles (Kohl, & Hobbs, 1998). With this information, it is very clear that most children and adolescents are failing to engage in the daily recommended requirements for vigorous-or moderate-intensity physical activity. This naturally leads to a greater prevalence of obesity, lack of fitness and increased risk for disease (Kohl III, & Cook, 2013). The Centers for Disease Control and Prevention (CDC) has reported that of the children from ages 6-11, an estimated 19% of them, are considered to be overweight (Baker, Olsen, & Sørensen, 2007). This is a natural result of an increase in energy intake and a reduced amount of energy expenditure. With the progression of childhood obesity, many health issues are on the rise as a result of the
increased weight. These childhood health concerns are being connected with adulthood health problems due to the lack of preventative and healthy decisions made at a younger age. This coincides with a rise in adult obesity as a result of the rise in numbers with obesity amongst children (Anderson, & Butcher, 2006). Anderson and Butcher state that children who are obese between the ages of three and six deal with obesity at the age of 25. The data indicated that as age increases, so does obesity. Many individuals such as health care professionals, policy-makers, parents and children’s advocates are desperately working to determine the reason for this increase. As increased research becomes available on this particular concern, there isn’t necessarily one particular reason; it is a culmination of factors.

**Causes for Sedentary Behavior**

The basis behind the physiological change with the body due to the increase in weight is easily understood as more energy being consumed than expended (Anderson, & Butcher, 2006). There is, however, a small percentage of individuals who are impacted through weight gain as a result of endocrinological or neurological syndromes. This may include but not be limited to Praeder Willi, Frohlich’s, Klinefelter’s, Lawrence Mood Biedl, Mauriac and Klein-Levin syndromes (2006). For the majority, causes of obesity are not as clear. In addition to energy intake and energy expenditure, genetics has significantly correlated with obesity. In a study examining obesity and genetics, results indicated that about 25 to 40 percent of an individual’s body weight is heritable. In conclusion, certain individuals have a higher risk to weight gain due to genetics, however, it does not necessarily connect with the significant rise in obesity amongst children. External factors present more of purposeful focus to the main concern due to the connection with energy in and energy out needed for maintaining a healthy weight (Pandita et al., 2016).
The growth of the fast food market and accessibility to densely nutritious food and beverages has been a growing concern, especially when trends in consumption began to significantly rise in the 90s (Anderson, & Butcher, 2006). There is an alarming amount of fast food options on every corner in town and the low cost and convenience of getting a quick bite to eat factor in to the equation as to why this is possibly a contributing factor in childhood obesity. Information from various studies has proven that with many fast-food options, an individual will consume a high amount of energy that has little nutritional value compared to those eating elsewhere. In many cases, most individuals would naturally presume, based on this study, that anyone who consumes fast food would then gain weight. However, other studies have demonstrated that regardless of the high amount of calorie intake with a fast-food meal, lean individuals tend to compensate while overweight individuals do not. During the time that childhood obesity began to increase, a study on the consumption of sugar-related beverages showed a significant rise as well. A group of children from the ages of nine to fourteen were followed for a three-year study and showed a small weight increase as result of the consumption of sugar-added beverages. In much the same way, studies analyzing the impact of sweet beverages, such as sodas and juices, show that there is an overall higher energy consumption with little to no nutritional value. Though snack foods tend to be filled with a considerable amount of energy, little evidence has linked this to child obesity. One particular cross-sectional study comparing obese and non-obese children concluded that obese children ate the same amount of snacks as a non-obese child. The link of sugar as being a major culprit in the rise of obesity has become more of a regular conversation especially with the marketing approach that many of the food industries have taken in making children a focus. Part of reason for the rise in consumption of fast food and decrease in cooked meals is the rate increase with those involved in
labor force participation (Cawley, 2006). Mothers, 15 percent in particular, have begun to take part in the work force leading to an increase above 47 percent over the last three decades. The increase in work time may be part of the significant rise of food consumed away from home or home cooked meals being considered prepackaged meals. Prepackaged convenience meals consist of processed ingredients and preservatives so that they can be stored for long periods of time. Research indicates that tremendous weight gain is seen in individuals who consume processed foods in this manner. In addition, countries with greater accessibility to processed food displayed the highest number in obesity rate compared to other countries who did not. Through the technological advancements in food preparation for the masses, the price for healthy items such as fruits and vegetables has risen. More in-depth research has concluded that from January of 1989 to January of 2005, the price of vegetables and fruits had risen nearly 75 percent while the energy-dense food dealing with fats and oils dropped 26 percent and sugars and sweets fell 33 percent (2006).

In looking further at energy balance in relationship with weight gain, physical activity tends to be the focus for the other side of the equation. The results of studies focused on dietary thermogenesis and basal metabolic rate have presented little to no findings in connection with reasons for weight gain in children (Son’Kin, & Tambovtseva, 2012; Anderson, & Butcher, 2006). As related to energy metabolism, dietary thermogenesis deals with the energy needed to digest meals while basal metabolic rate deals with the energy needed to help maintain the resting body’s functions. Studies indicate that in addition to these facts, energy metabolism through basal metabolic reduces as children age. However, functional expenditure increases with age due to developmental reasoning with muscular growth. In regards to energy metabolism, this is more commonly known as muscle energy expenditure which can naturally grow as a result of age due
to lifestyle habits. Unfortunately, sedentary behavior continues to limit muscle energy expenditure among children today resulting in less time spent being physically active (Saliba, 2015). In most cases, physical activity amongst children is more commonly connected with chores at home, playing with friends or participating in an organized sport or exercise. By definition, physical activity is considered the movement of the body through the contraction of skeletal muscles that increases energy expenditure above the basal level (Goran, Reynolds, & Lindquist, 1999). When children participate in activities that require energy expenditure, there is an increase of the metabolic rate which, in turn, works to eliminate positive energy balance that contributes to weight gain. With deeper analysis of the reasons for the decrease in children being physical active, factors associated with physiological, psychological, sociocultural and environmental determinants have been examined. As a result, these particular factors help characterize the influence they have in deterring children from being physically active.

The body structure and physical development of children during their younger years varies, especially amongst girls and boys. From a physiological understanding, this naturally impacts the ways in which children may interact physically due to developmental strengths and weaknesses. These stages of development are commonly referred to as early childhood, middle childhood, and adolescence. It is without question that longer levers and increased muscle tissue are the result of children growing up (Manna, 2014). Prior to puberty, the process and development of many different motor skills primarily remains similar. In regards to the comparison between boys and girls, it is more commonly known that boys typically develop and demonstrate greater strength physiologically which translates into better performance with mechanical skills connected with physical activity. During the middle childhood period, boys and girls tend to work at improving gross motor skills learned during the earlier years such as
running, skipping, throwing and walking. This particular phase in development tends to lead to improved control and coordination since their physiologically development lends towards increase in flexibility, balance and agility. For girls and boys, this change plays a key role in allowing synchronization of various body parts for the purpose of smoother and more coordinated whole-boy movements that are needed in various physical activities. On the focus of strength, development is very similar between girls and boys during the early years. A connection to motor power rise amongst children tends to be more closely connected with the increase in body mass (Pahkala et al, 2013). An increase in body mass is primarily a result in a child going through puberty which varies between individuals and genders. Prior to puberty, much of the strength demonstrated by children is nerve activated which proves to be appropriate for much of the physical activity tasks that are learned and acquired. However, with age, the importance of increasing strength in order to perform various fitness activities for health purposes becomes more of a priority. It is apparent that the growth and development of elastic energy release in relation to excitation-contraction coupling as it is transferred to the different bone levers impacts the strength transmission needed in such activities (Pahkala et al, 2013; Manna, 2014). Boys have a tendency to grow in strength more rapidly than girls due to higher testosterone levels. Ultimately this leads boys to performing at a higher degree physically in things during adolescent years. Increased weight among females as a result of puberty tends to be a factor in decline of physical capabilities after the general age of 13 (Manna, 2014). Studies show that as boys continue to age and develop throughout childhood into adolescence, their strength and ability to perform physically only improves for most. Girls, however, show very little growth in strength after puberty which leads to a natural decrease in ability to perform physically in comparison to boys.
Aerobic power demonstrates much of the same results as strength development throughout ages of childhood amongst boys and girls. It is not until after puberty that a significant difference in physiological development may be seen, in terms of lessening the gap between genders and aerobic activity. Ultimately several concerns towards the lack of physical activity as a result of the physiological development of a child must be understood in order to better understand the process. For some children, even in the comparison to their gender, weight gain and lack of motor skill development as a result of their physiological development can lead to a compromise of their involvement in physical activity. A growing body of research indicates that overweight children do not participate in physical activity as much as their counterparts with normal body weights (Pahakala et al., 2013). This is specifically connected with the childhood stage through adolescence. These findings relate to the fact that overweight children do not find certain physical activities enjoyable because of discomfort and their inability to physically perform like others. With significant weight gain, there is a definite increase in stress on the muscles and joints used to perform different physical activities which interferes with the performance of the activity (McWhorter, Wallmann, & Alpert, 2003). These factors compound the issue of obesity combined with the lack of development of age appropriate motor skills that are necessary for continued growth with physical activity as children age and develop physiologically.

In terms of motivation, a deeper examination is needed for psychological determinants dealing with self-efficacy and a child’s sense of control (Goran, Reynold, & Lindquist, 1999). It is evident that children of different builds and size are not particularly motivated in the same manner. Research shows that in addition to physiological differences between overweight and normal weight children, there is also significant emotional differences (McWhorter, Wallmann,
& Alpert, 2003). These emotional differences are impacting the desire to develop and improve important fundamental physical activity skills in noncompetitive and nonthreatening settings. This lack of motivation combined with learned helplessness is negatively impacting the child’s perception on choosing to be physically active. The deficiencies connected to the lack of motivation from learned helplessness result in issues such as low self-esteem, sadness and lack of willingness to take initiative and being persistent with exercise or physical activity. Overweight children tend to be more passive and nonassertive which connects with being less competitive. This makes the child feel a lack of control of their outcome which naturally deters them from participation.

Sociocultural determinants such as the characteristics of parents and families along with role models and sociodemographic factors connected with age, gender and ethnicity contribute to the overall level of physical activity in children (Goran, Reynold, & Lindquist, 1999). Children spend an exceeding amount of time in the presence of their parents and family, especially during the early part of life. Research indicates that parental behavior impacts a child’s choice to be physically active through the avenue of being a role model along with demonstrating and sharing personal desires to be active and encouraging these behaviors (Zecevic, Tremblay, Lovsin, & Michel, 2010). Encouragement may stem from natural positive words of motivation to participating in a physical activity with their child. Parent involvement has shown to also be a means of providing the resources for the child to be active. Further research has concluded that children between the ages of four and seven are six times more likely to participate in physical activity when both parents are involved. Additionally, children who had the support and involvement of parents at a young age maintain the choice of being physically active during adolescence, especially girls. With involved parents, regulation and governing of time spent
watching television or using a computer can be better controlled. The advancements in technology and access to devices that contributes to excessive leisure time have contributed to the increase in children being less active (Saliba, 2015). Findings associated with television viewing and increased weight have correlate to the increase in consumption of fatty foods as an additional issue of concern in this sedentary pursuit (Salmon, Campbell, & Crawford, 2006). Children who tend to watch television for more than two hours a day are at a high risk of being less active along with eating a poorly balanced diet that ultimately leads to gaining weight. It is found that a normal child in the United States watches around 20 hours of television each week (Devina, Bhagyapreet, & R.K., 2014). Devina, Bhagyapreet, & R. K. continue in describing how one particular study shows that during the viewing of television, food is eaten at a faster rate, especially when dealing with high density, palatable foods. This led to a significant increase with caloric intake of approximately 71% while viewing television. While watching television, children are being exposed to various types of advertisements that are influential on the consumption of food. Certain advertisements specifically target children’s channels with high fat, high sugar, and low fiber foods. On average, it is reported that a child views around 20,000 commercials each year and that 34% of that covers nutritionally deficient food items. This naturally leads to poor nutritional items being purchased at the supermarket. Research documents the fact that children’s food choices are typically influenced by what their friends and others around them enjoy eating, what they hear or see through the marketing industry, and what their family culture tends to be.

Due to the growth of technology during this digital era, there is a growing body of research that targets the relationship of technology to childhood obesity. Certain cross-sectional studies on the topic have presented mixed findings on the impacts. One particular study looking
at the use of computer and the impact it has on the activity level of children found little to none (Anderson, & Butcher, 2006). Another cross sectional study on 5000 children between the ages of nine and eleven concluded that the increase in screen time created a decrease in physical activity along with eating a less nutritional diet (Kardefelt-Winther, 2017). In a cross-national study of 2000 adolescents between the ages of 11 and 15, data indicate that there is a difference of results depending on age, gender, and nationality. As a result, general computer use had no impact on physical activity but gaming and television directly impacted the amount of physical activity that an adolescent participated in. In conclusion, it could be considered that children who have access to computers are also being instructed to participate in physical activity. Further, there may be little impact on obesity with screen time (excluding television) due to the connection it may have with individuals that are typically already less active. Parents and families serve in a unique role to help mediate the time being spent participating in sedentary activities (Tremblay, & Lariviere, 2010). More importantly, parental ability to demonstrate their own personal value and enjoyment of physical activity could directly influence a child choosing to be physically active rather than just providing them with the words of encouragement to be active.

Environmental factors serve as a final area of concern in regard to the reasons for the growing body of evidence in more children being less active today. Strengths and barriers exist in a variety of environmental settings and factors such as access to facilities, physical safety and climate are things to consider (Goran, Reynolds, & Lindquist, 1999; Findhold, Michael, Davis, & Brogoitti, 2010). Daily living, due to the vast developments in technology, has changed considerably. Literature provides evidence that urban sprawl and the means to travel is not like it once was. Physical activity tended to be a natural part of the everyday life due to the amount of
walking someone had to do in order to move from one place to another (Anderson, & Butcher, 2006). Today, vehicular transportation has replaced much of the walking and biking to places like school or a friend’s house. A national study in 2002 indicated that 53 percent of parents shared that they drove their child to school instead of allowing them to walk or bike. Many reasons for this decision connect specifically with physical safety and lack thereof. As development has continued to increase, access to sidewalks and avoidance of heavy traffic areas tend to be a common issue. Outside of the convenience factor for walking and biking comes the consideration of which area of town or neighborhood a child might be walking or biking through in order to reach their destination. Crime and other forms of safety precautions have contributed to the significant decrease of physical activity as a part of everyday life. To further the issue, continued dense development is also making it difficult for there to be a proper route or accessibility to an area for children to play (Findhold, Michael, Davis, & Brogoitti, 2010).

Playgrounds are a specific location, when given the opportunity, for children to exert a tremendous amount of energy as they move. In a comparison study of neighborhoods that were designed around the access and availability to a playground and ones which were not, research found a 13.5 percent improvement on street connection to the playground (Active Living Research, 2011). Due to this, there was a 7% decrease in traffic along with crime being 9.6% lower. Students living in this type of situation where physical activity is considered a priority in the development of an area were five time more likely to have a healthy weight in comparison to others. Based on recent national studies, socioeconomic and racial/ethnic disparities limit the opportunity for children to have access to other areas such as a gyms or YMCAs, especially children of color. In many ways, urban sprawl can be considered as a contributing factor to obesity as a result of the development being focused on transportation means (Sandy, Tchernes,
Wilson, Liu, Zhou, 2013). Additional review of studies in regard to the characteristics of the impact of development on childhood obesity found that the mother’s perception on the physical safety of the child tended to have more of a significant impact on body mass index than the accessibility to a playground. Apartment complexes within the urban setting tend to have little to no area for children to safely play without it being considered an area used by cars as well. This naturally leads to children being limited on the type of activities in which they are involved along with physical safety being much a bigger concern for the parents. In a CDC study, researchers found that even with access to community facilities, neighborhood safety was a significant concern that impacted the utilization of the resources available to those within the community. This leads to an understanding that insecurity within a neighborhood is a significant factor impacting whether or not children are active.

In having access to recreational infrastructures that are specifically designed to promote physical activity, climate also becomes a factor in how active children are going to be. Multiple studies have found significant correlation between weather and physical activity positively impacting children’s physical activity (Oliveira, Abreu, Moreira, & Santos, 2014). Certain studies have resulted in mixed results which must also consider the region in which the studies have taken place. In general, during summer months when the weather is the warmest, physical activity tends to be at its highest. However, in regions where the summer temperatures are significantly hotter and pose a threat to the health of the child, the numbers are less (Davison, & Lawson, 2006). One particular study reviewed by Davison and Lawson (2006) found that boys from the ages of 11-12 years old were less active in months where the temperature was hotter. On the other end of the thermometer, results from studies examining how physically active children are during the winter months indicated no difference from an extremely hot time of the
year in regions impacted by this climate (Oliveira, Abreu, Moreira, & Santos, 2014). Children are less active when the weather temperature outside is colder. During months when the rainfall was found to be higher, various studies along with ones conducting self-reports, concluded that children were less likely to be active, especially girls (Oliveira, Abreu, Moreira, & Santos, 2014; Davison, & Lawson, 2006). Based on the results of information collected as it pertains to the impact that weather has on a child’s level of physical activity, poor conditions were associated with negative impacts on the level of physical activity seen with children.

Examining the content dealing with the balance of energy brings awareness to possible factors and motives to help explain the increase in child obesity. It is quite alarming to realize that an estimated 10-billion-dollar budget for companies is specifically utilized for the process of marketing food products to children annually (Nestle, 2006). As a result of successful advertisements persuading children to eat certain foods, it is apparent that there is a lack of balance in the funding for promotion of healthy choices. Technological advancements in combination with lack of proper recreational infrastructures conducive for physical activity shows a connection as to part of the reason why there is an imbalance. As a result, obesity amongst children, adolescents and young adults is at an all-time high due to sedentary behaviors. While there is a significant concern in the drastic change in obesity rate, it goes without cause. Decisions to participate in this type of lifestyle is adversely compounding the number of health related illnesses in adulthood such as obesity in itself along with high blood pressure, cancer and diabetes (Silba, 2015). As research continues to evolve, the more prevalent interventions become and the need for them being implemented at a younger age. Health concerns that were once mostly limited to adulthood, are now being seen in children due to obesity (Goran, Reynolds, & Lindquist, 1999).
Health Consequences

In the analysis of secular trends, research has shown that there is an increasingly number of children impacted in the United States by obesity (Goran, Reynolds, & Lindquist, 1999). Statistically, over 25 percent of children are impacted and between the periods of 1973 and 1994, the weight increase had more than doubled. Trends in studies demonstrate that obesity beginning early in life is continued into adulthood and naturally leads to the increase of early death resulting from health complications related to obesity. Goran, Reynolds, & Lindquist describe how one particular study in Alabama found that at the age of 10 years old, prevalence of obesity among Caucasian boys and girls was 21 percent, African American boys was 26 percent and African American 38 percent. In adulthood, African American women are two-four times more likely to die from cardiovascular disease in comparison to Caucasian women. These results present a positive correlation in the idea that health related issues due to childhood obesity continues into adulthood and negatively complicates their health as an adult. Deeper research shows that in addition to the physical health complications experienced as a result of poor health choices at a young age, the social, emotional well-being, and self-esteem are impacted as well (Sahoo et al, 2015).

Cardiovascular disease is considered the number one leading cause of death globally due to a lack of physical activity and increased body fat (Ruiz, & Ortega, 2009). Poor nutrition with an unbalanced diet has resulted in an increase of energy consumption that is not being expended equally. Risk factors in adulthood such as insulin resistance, blood lipids, lipoproteins, central adiposity, blood pressure, cardiorespiratory fitness, and inflammatory proteins can be a result of cardiovascular disease. Due to the vast amount of research on heart disease, the development of this health issue has become more specifically known as atherosclerotic cardiovascular disease.
The identification of atherosclerotic allows for the categorization of cardiovascular disease to be associated with a heart attack or stroke (American Heart, 2018). Atherosclerosis is identified as the condition that develops from a build-up of plaque along the walls of an individual’s arteries. Over the course of time, as the plaque continues to build-up, it eventually leads to a clogged artery that limits or cuts off the blood. As a result, a heart attack or stroke may occur depending whether it is the heart or the brain that is not receiving the proper amount oxygen that it should in order to function normally. Additional risk factors that have been associated with atherosclerotic cardiovascular disease include age, male gender, family history, diabetes and obesity (Daniels, Pratt, & Hayman, 2011). A series of pathology studies known as the Bogalusa Heart Study and the Pathobiological Determinants of Atherosclerosis in Youth (2011), examined adolescent and young adult’s aorta and coronary arteries. This study dealt specifically with adolescents and young adults who had passed away due to accidental causes. The investigation included that the existence of advanced levels of atherosclerosis along with fibrous plaques. This made the connection in that greater plaque build-up and advanced atherosclerotic lesions were positively correlated with increased body mass index. On the flip side, evidence shows that a high level of physical activity significantly reduces chances of these types of risk factors with the reduction in central body fat (Ruiz, & Ortega, 2009). In a 46-year study, the height and weight measurements of 276,835 children were examined consistently throughout the years (Baker, Olsen, & Sørensen, 2007). The premise of the study was to see the impact a child’s body mass index had in relation to cardiovascular disease. Children who were less active produced a higher body mass index than those that were active. From ages seven to 13, impacts were greater for boys with the risk for cardiovascular
disease in adulthood with high numbers for body mass index values. As age increased, so did the risk of cardiovascular disease as a result of high body mass index measurements.

Type 2 diabetes has been on the rise in the United States in recent years and has been closely paralleled with the increase in obesity amongst children. Statistically, one in every 15 children with normal body weight deals with type 2 diabetes whereas type 2 diabetes is found in almost every case dealing with an obese child (Daniels, 2006). With this condition, the body either makes too little insulin to allow it to function properly or cannot use what the body naturally produces which leads to elevated blood glucose. Type 2 diabetes has been seen in obese children as early as eight years old and often deals with insulin resistance. As a result of this condition, there is an abundant amount of insulin secretion produced by the pancreas which leads to an increase in circulation levels of insulin throughout the body. In this situation, the blood sugar level will remain at the appropriate range, however, other issues may begin to occur. For obese children, typical cases result in decreased insulin sensitivity with the increase of insulin circulating around the body. Studies reveal that this issue continues into young adulthood causing to additional health problems such as high blood pressure and cholesterol levels. From a racial perspective, evidence has shown that African-American children from the ages of seven to 11 have a significantly higher risk for type 2 diabetes due to the production of higher levels of insulin in comparison to Caucasian children the same age (Reinehr, 2013). However, the highest concentration of type 2 diabetes among youth in the United States is North American Indians between the ages of 15 and 19 (Pulgaron, & Delamater, 2014). Since the late 1990’s, the rate of type 2 diabetes diagnosis has increased 25-45 percent in cases dealing with obese children. Factors for the etiology of type 2 diabetes in addition to lifestyle-related obesity include genetics, food consumption and physical activity being replaced with sedentary behaviors. Further
implications with type 2 diabetes include cardiovascular diseases early in life along with other possible issues dealing with fatty liver disease, limb amputations, hypertension or loss of visual acuity (Reinehr, 2013; Pulgaron, & Delamater, 2014).

Nonalcoholic fatty liver disease in children has become an exceedingly important health concern due to the rapid growth of cases in the United States. These numbers have been closely connected with the lack of physical activity contributing to the increase in childhood obesity (Dahshan, Chalmers, & Tolia, 2009). With this particular disease, an individual is diagnosed with an excessive growth of fat in the liver. This is very similar to the results of alcoholic hepatitis except it is not caused by the abuse of alcohol. Lab results in children dealing with this disorder show increased aminotransferase levels without inflammatory changes in response to the fat accumulation. From the review of various national studies on school-aged children, Dahshan, Chalmers, & Tolia describe how the results concluded with boys being identified as six times more likely to show signs of elevated alanine aminotransferase levels than girls. A higher percentage of Hispanic adolescent boys in particular, were diagnosed with the most cases dealing with nonalcoholic fatty liver disease in comparison to other demographic and ethnic groups. In a 10-year study on the autopsies of children in San Diego County, the prevalence of fatty liver in children led to the conclusion that there was an increase as children aged and that a more excessive amount of fatty liver was found in children who were obese. While 13 percent of the general population evaluated showed the existence of fatty liver, 0.7 percent was seen in children from the ages of 2-4. This percentage grew as the age range increased, ending at 17.3 percent for ages 15-19 years. The difference in race and ethnicity found fatty liver to be prevalent in 1.5 percent of African Americans, 8.6 percent in Caucasians, 10.2 percent in Asians and 11.8 percent in Hispanics. These results provide context as to where the issue of battling nonalcoholic fatty
liver disease in adults may begin. It is very clear that this particular disease can progress from childhood to adulthood, eventually leading to end-stage liver disease requiring in a liver transplant (Mitsinikos, & Kohli, 2018). In the course of better understanding the development of nonalcoholic fatty liver disease, obesity and insulin resistance have shown a positive relationship in its growth. It is becoming a more common pediatric practice for obese children with a body mass index greater than 85 to be screened due to the increased risk they have of developing the disease.

Research indicates that 30 percent of children dealing with obese measurements based on the basis of body mass index scores are found to develop metabolic syndrome (Cruz, & Goran, 2004). This condition leads to risk factors such as a larger waist size, increase in plasma glucose, reduction in HDL-cholesterol concentrations, elevated blood pressure and triglycerides (Daniels, 2006). In many ways, metabolic syndrome accelerates and compound issues in regards to cardiovascular disease as its progression from adolescence into adulthood. Etiologic factors for metabolic syndrome with adolescents have been identified through supported studies as obesity and insulin resistance. With insulin resistance, there is a natural association in regards to the development of type 2 diabetes and is more commonly developed with overweight Hispanic adolescents who have a family history for type 2 diabetes (Cruz, & Goran, 2004). This was concluded in a longitudinal study on metabolic syndrome that was characterized of eight to 13 year-old Hispanic children who had family members diagnosed with type 2 diabetes. Cruz, & Goran (2004) explain how the Solar Diabetes Project, worked to further explore the prevalence of metabolic syndrome in conjunction with the natural history of type 2 diabetes in childhood. Results concluded the existence of at least one feature of metabolic syndrome in 30 percent of overweight Hispanic children that had a connection to a family member with type 2 diabetes. In
order to better understand the risk of development for metabolic syndrome and the etiological factor of obesity and insulin resistance, researchers formed the Bogalusa Heart Study (2004). This particular study researched the impact that specific metabolic syndrome factors had on a bi-ethnic group of 718 children ranging from the ages of 8 to 17 over a 12-year period. The four main metabolic syndrome factors included body mass index, fasting insulin, blood pressure, and triglyceride/HDL ratio (2004). The study found positive correlation with body mass index, insulin quartiles and clustering being followed into adulthood. Upon examination, body mass index tended to be a more influential factor on the development of metabolic syndrome in adulthood versus insulin resistance. While these factors help provide a stronger understanding of the pathophysiology for metabolic syndrome, they have also brought awareness from additional studies on the increased risk for the offspring of a parent diagnosed with metabolic syndrome (Wu, Zhang, & Zhen, 2016).

Of growing concern is the number of children impacted by asthma as a result of energy imbalance and childhood obesity (Musaad et al, 2013). From 2001 to 2009, the increase in children being diagnosed with childhood asthma went from 8.7 percent to 9.6 percent. Much of this growth was in conjunction with the increase of obesity being seen in the United States. Researchers found that asthma and obesity hold a strong relationship together and children who are overweight or obese have an increased risk of asthma or sever respiratory issues (Chen et al, 2017). From a causation theory perspective, obesity affects the physiological function of the lungs. Breathing disorders stemmed from excessive fat interfere with the movement of air through the airways. Body fat essentially works to compress the lungs leading to difficulties in breathing (Rance, O’Laughlen, 2011). Growing evidence demonstrates that decreased pulmonary volumes are prevalent among obese children in addition to having more bronchial hyper-
responsiveness. With this condition, there is a significant increase for the development of asthma, especially in comparison with non-obese children. In the development of asthma, quality of life diminishes due to the various complications that occur with the progression of this disease. Asthma is mainly understood to be a chronic inflammation of the airways that complicates the airflow along with developing bronchial hyper-reactivity (Amundson, Seda, & Massoud, 2011). The body’s reaction to recurring symptoms causes the bronchial smooth muscles to contract resulting in a narrower airway that has a more exaggerated constrictive response. In the continued progression of the disease, the airways become more inflamed as edema and mucous hypersecretion begins to develop, leading to mucous build-up that compounds the issue with airflow and limiting it even more (2011). Further complications from the development of asthma can include constant fatigue along with psychological issues such as stress, anxiety and depression. More serious adverse effects are connected with respiratory problems dealing with the increased risk for infection of the lungs, possible collapse of lungs, respiratory failure due to low blood oxygen levels or carbon dioxide levels becoming increasingly high. While each case is considered life-threatening, a severe situation would include status asthmaticus which involves an asthma attack that does not respond to medication (Papiris, Kotanidou, Malagari, & Roussos, 2002). In the event that asthma goes untreated for an extended period of time, the disorder becomes irreversible due to restructuring of the airways. This occurs as a result of the “thickening of the subbasement membrane, subepithelial fibrosis, airway smooth muscle hypertrophy and hyperplasia, blood vessel proliferation and dilation, and mucus gland hyperplasia and hypersecretion” (Amundson, Seda, & Daheshia, 2011, p. 1162). It is important to note that while sedentary behaviors and lack of physical activity heavily contribute to the development of asthma, research confirms that these lifestyle patterns are
become more prevalent in the event that child is officially diagnosed with asthma (Rance, O’Laughlen, 2011).

The Centers for Disease Control and Prevention (2016) identifies additional childhood health concerns related to psychological disorders as a result of obesity. Anxiety and depression have become leading concern due to the stigmatization that tends to follow children dealing with obesity (Anderson, Cohen, Naumova, Jacques, & Must, 2007). Poor body image leads to hardships such as bullying from others or social marginalization as a result in being physically different than others. In addition to Sahoo et al. (2015) describing the National Health and Nutrition Examination Survey findings in that youth obesity increased from 5 percent to 17 percent, Reeves, Postolache and Snitker (2008) presented that 2 percent of children are impacted by depression disorder along with 4-8 percent of adolescents. Other consequences such as low self-esteem and a view on the quality of life being lower, tend to be factors that stem from the anxiety and depression children deal with (Centers for Disease, 2016; Anderson, Cohen, Naumova, Jacques, & Must, 2007). Limited cross-sectional studies have been conducted in order to better understand the relationship with psychological disorders, psychosocial correlates, and weight status (Anderson, Cohen, Naumova, Jacques, & Must, 2007). Results of these studies lead to the question of whether obesity is a result of, reason for, or is compatible with psychological disorders. Anderson, Cohen, Naumova, Jacques and Must specifically investigated the psychological consequences of adolescent obesity over a period of two decades. The study concluded that for adolescent girls, there is a positive association for an increased risk in development of depression and anxiety disorders. In comparison with non-overweight girl, obese girls are four times more likely to struggle with the disorders. The results for adolescent boys demonstrated minimal association for the increased risk of development of either disorder. While
further cross-sectional and clinical studies may be needed to further strengthen the understanding on the correlation between obesity and the development of psychological disorders, much of the current evidence supports the fact that majority of obese adolescents, especially girls, value the way others feel about them. In this state of mind Anderson, Cohen, Naumova, Jacques and Must (2007) strengthen their conclusion that obesity leads to a higher risk of being teased and develops the lack of self-esteem and self-confidence that contributes to the development of depression and other psychological disorders.

Growing evidence indicates that there is a strong relationship between obesity and development of many high-risk diseases that begin at an early age (Pandita et al., 2016). Results have also demonstrated how these health-related issues developed at an early age progress into adulthood if the same health behaviors continue. The development of medication and procedures in treating obesity has advanced with the growth in technology, however, the costs and additional complications in overcoming the various health issues raises concern as to whether it is the most practical and effective method. According to Padiata et al. (2016), preventative measures are key to dealing with obesity in children and is categorized in three levels:

1. Primordial prevention: deals with keeping a healthy weight and a normal body mass index throughout childhood and into teens.

2. Primary prevention: aims to prevent overweight children from becoming obese.

3. Secondary prevention: directed toward the treatment of obesity so as to reduce the comorbidities and reverse overweight and obesity if possible (p. 84).

At the heart of each level of prevention is the use of physical activity to monitor or improve the child’s situation in dealing with obesity and minimizing the risk of developing additional health issues (Hills, Andersen, & Byrne, 2011).
Impact of Physical Activity

Regular participation in physical activity is part of the catalyst to living a healthy lifestyle. Through the form of physical movement, causes for the development of many chronic diseases and early death may be prevented or delayed. Scientific studies focused on physical activity have concluded significant health benefits based on the frequency and duration that someone is active, the intensity of the activity, and what type of physical activity in which they are participating (Alricsson, 2013). Physical activity is known to have a multifactorial effect on the different systems throughout the body, positively influencing the physical and mental health of an individual. As far as physical activity being considered a multidimensional behavior, it can be defined as “the behavior that involves human movement, resulting in physiological attributes including increase energy expenditure and improved physical fitness” (2013, p. 1). Physical fitness leads to the improvement of specific components identified as muscular strength, muscular endurance, cardiovascular endurance, flexibility and body composition. Each component focuses on a particular physiological area in regards to health maintenance. In order to maintain and live a healthy lifestyle as an adolescent, the national guidelines require 60 minutes or more of physical activity each day. The structure of the activity should be characterized by moderate to vigorous intensity and is considered to be aerobic-type activities that strengthens muscles and bones (2013). At minimum, an adolescent should spend no less than three days a week being physically active in order to see certain health benefits, however, higher amounts of physical activity yield greater results.

In regard to cardiovascular disease being the number one leading cause of death in America, there is a significant research as to the reason that the health of children and adolescents is being examined and potentially connected with the development of the disease.
Eisenmann (2004) shares that while cardiovascular disease risk factors are more evident in the lack of living a healthy, active lifestyle as an adult, this is not so much the case for children and adolescents. Eisenmann refers to is the *Trois-Rivieres Growth and Development Study*, which examines the daily physical education class to examine certain students exposed to biological and psychosocial variables. Twenty years later, the same individuals were re-examined and the results concluded no changes in levels dealing with aerobic fitness, blood lipids, and body composition. While the association between physical activity and cardiovascular disease in children and adolescents is rather weak to non-existent, other correlations suggest that there is an indirect relationship between the two due to childhood obesity being tracked into adulthood and the scientific risk factors for cardiovascular disease that stem from it (Hills, Andersen, & Byrne, 2011). As mentioned earlier in the chapter, obesity management is a priority in helping to significantly reduce the risk in developing cardiovascular disease issues (Ruiz, & Ortega, 2009).

Research has significantly proven that physical activity and a balanced diet are key to maintaining a normal body weight, and reduce the risk of developing type 2 diabetes (Leung, Kamla, Lee, & Mak, 2007). Physical activity assists the body with regulation of blood glucose levels with acute and chronic improvements dealing with insulin action, which in turn, leads to the prevention or delay in the onset of type 2 diabetes. Research has shown that in high-risk cases, the risk of developing type 2 diabetes is reduced 58 percent with the use of consistent aerobic and resistance training (Colberg et al., 2010). In one particular longitudinal study consisting of over 3,000 high-risk nondiabetic children, Colberg et al. describes how 58 to 31 percent of individuals who performed at least 150 minutes of moderate-intensity aerobic exercise, were less likely to develop type 2 diabetes as a result of improved insulin sensitivity.
Obesity has a strong correlation to the development of type 2 diabetes and maintenance of the body with physical activity provides an avenue to avoid or reduces the risk for this complication.

Beyond the health outcomes for major health concerns, studies on routine physical activity demonstrate positive impact on bone health, mental health and well-being, and improvements cognitively (National Physical, 2014). This reinforces the idea that physical activity must be a part of an individual’s life and understanding this at an early age is a priority. Physical education plays an essential role in this process and collectively helps contribute in reducing the onset of many types of health complications. Physical education includes physical activity but extends the impact and benefits of a healthy lifestyle through the learning and application of health-related concepts dealing with influential behaviors for eating a balanced diet, understanding social responsibility, and the importance behind choosing to live an active lifestyle (SPARK, 2012). In the late 17th and 18th century, physical education began to take a pedagogical approach to help prevent disease. During this particular time, researchers began to see the need for not only knowing how to develop and preserve strength, but to intellectually understand the importance in why there was a need to take care of the body (Guedes, 2007). Through the work of many early pioneers, a strong desire to educate the body for a healthy mind stemming from physical education began to take shape. Utilization of play and movement exploration were used in a way to build physical knowledge and skills to better understand fitness and the benefits of physical training. Today, physical education is viewed as a contributing factor to the physical well-being of individuals and their social, emotional and intellectual development (Turner, Johnson, Slater, & Chaloupka, 2015).
Historical Context of Physical Education

Physical education has been in existence since the early BC years due to the nature of living in a wild landscape and the need of being equipped with physical survival skills for the harsh environment (Le Corre, 2014). People during this time faced natural and human obstacles that required for them to climb, lift, walk, throw, jump, catch, and fight. These skills were developed through a daily regime that consisted of various movement forms due to the manipulation of natural objects, tools and defense requirements. The evolution of obligatory physical activity took different forms as the need for movement changed with the demands and desires with each era (Harmandar Demirel, & Yildiran, 2013). The agricultural revolution required a great deal of physical activity as a result of the daily labor that went into taking care of cattle and growing crops. History shares that the ancient times brought on a period of great battles that were prepared for with intense physical training (Le Corre, 2014). This was to acclimate the warrior for movements in the battle that required physical strength and conditioning for things such as running, lifting, throwing, unarmed fighting and use of various weapons. Over time, this preparation led to the development of the sport culture which required a physically fit individual to perform in the different games (Harmandar Demirel, & Yildiran, 2013). These games are still carried out today, with the Olympics happening every four years.

The Greeks and Romans during this period began to celebrate the beauty and strength of the body and recognize it as meaningful part of the education one would receive (Le Corre, 2014). Herodicus, Hippocrates and Galen were medical practitioners who helped in a considerable manner for the growth in fitness during this time period (Dalleck, & Kravitz, 2002). It was during this time that physical activity began to take a significant part in education where a healthy active lifestyle and the physical well-being of an individual was emphasized (MacAuley,
This gave way to the idea of physical activity being a means to treat disease and disability. Gymnastics took shape within education at Plato and Aristotle’s gymnasiuums and eventually became a part of the Olympics. During this period, the Roman Empire only found enjoyment in being a spectator of the Olympics and viewed physical fitness in a more general context that played an important role in military preparation. This physical conditioning led to a reign during the Roman Civilization Era that conquered and expanded the Roman Empire across much of the Western World during 500 BC-476 AD (Dalleck, & Kravitz, 2002). This society of strong, fit individuals began to deteriorate as their wealth became greater due to the victories from battle. The lavish lifestyle paid more attention to the entertainment rather than spending time working on fitness in efforts to be prepared for battle.

In the Roman Empire, choosing to live a sedentary lifestyle allowed a more physically fit group of barbarians from a Northern European tribe to conquer them. This created two periods in time called the Dark Ages and Middle Ages from 476 AD-1400 AD. Physical activities were more or less replaced with faith as the church began to emerge as the educator and Puritanism became the way of life (Harmandar Demirel, & Yildiran, 2013; Dalleck, & Kravitz, 2002). It was unacceptable to participate in anything that required an individual to put the body through the harsh demands as seen in the earlier times. It was not until individuals such as Martin Luther and John Locke began to push the theory that physical activity, which cultivates high levels of fitness, leads to the improvement of intellectual learning (Dalleck, & Kravitz, 2002). This did not occur until the Renaissance period from 1400-1600 AD which allowed physical education to reemerge in schools throughout Europe. By the 1700s, physical education programs had expanded greatly across many nations. Gymnastics gained immense popularity especially in Germany, Sweden, Denmark and Great Britain. A man by the name of Johann Gut Muths, who
was considered the grandfather of German gymnastics, created a number of programs that incorporated exercise with the use of certain equipment. This advancement required the building of multiple facilities across Germany in order to house the different apparatuses used for the various exercises with his created gymnastic routines.

As word spread regarding the popularity of these activities, Per Henrik Ling began to develop exercise programs that would help promote those teaching physical education to be more knowledgeable about physiological effects with exercise. As immigrants transcended into the United States in the early 1800s, many of the immigrants brought a heritage that embraced gymnastics along with them. Unfortunately, the popularity of these various programs did not develop and being a fit individual was not a priority during this time. Both President Benjamin Franklin and President Thomas Jefferson recommended physical activity as a means for health purposes and connected it with the thought that a weak body created a weak mind (Dalleck, & Kravitz, 2002). It was not until the Industrial Revolution that the lack of importance for physical activity began to negatively impact the health of many. New machinery began to replace labor-intensive jobs due to the advancement in technology at that time. Diseases such as cancer and diabetes became more prevalent and began to reignite the need for physical education programs and improving the fitness and health within the United States.

In working to improve the overall health of the nation, the school system saw fit that gymnastics, hygiene and taking care of the body should be a part of the curriculum (SPARK, 2015). Round Hill School in Northampton, Massachusetts became the first school in the nation to implement it with their educational program. By 1855, an entire school system in Cincinnati, Ohio made it a part of their schooling. California followed suite by passing a state law that required students to receive physical education twice a day in public schools (2015). A pioneer
for physical education during this time was a man by the name of Luther Halsey Gulick who advocated physical fitness for youth by making gymnastics and physical education be a part of their everyday life (Guedes, 2007). Gulick edited the *American Physical Education Review* (APER) journal which provided an opportunity for professional knowledge about physical education to be shared across the nation. This journal later became known as what it is today, the *Journal of Health and Physical Education* (JOPERD), and the *Research Quarterly for Exercise and Sport*. Through Luther’s efforts, various activities such as basketball, began to develop within the physical education programs and allowed the opportunity to learn a wide-range of different activities that moved the body.

The 1900s began to produce more physical educators entering the profession from college. This allowed for better fitness instruction to take place through organized teaching methodologies within the school system (SPARK, 2015; Dalleck, & Kravitz, 2002). As the United States entered World War I, the nation became very aware of how unfit draftees were for combat even prior to training. This sparked another wave of attention and focus on physical education in school and the importance of improving the overall fitness in America. President Theodore Roosevelt used his power in office to support mandates made to address the concern on low fitness levels that dictated improvement in physical education programs (Dalleck, & Kravitz, 2002). The President encouraged U.S. citizens to live a physically active life and provided them with his own example due to his love for outdoor pursuits such as hiking and horseback riding. In addition, the President’s Council on Youth Fitness was formed in order to increase the level of standards within U.S. schools on the physical fitness with youth. A program called the Presidential Fitness Test Award was created to monitor the fitness level of youth across the nation and was supported by both President Eisenhower and President Kennedy.
(SPARK, 2015). This test consisted of students jumping, throwing, a shuttle run, and pull ups which were a component of military preparation. Those that finished in the 85th percentile based on national standards received an award for their physical accomplishments. Unfortunately, the 20th century economy faltered which caused a recession and led to many physical education programs being cut from the educational system to be replaced with other academic subjects or electives. However, concern with the rise in the obesity rate amongst youth today has re-sparked the focus at the national level and is viewing physical education as an important part of the educational system. Through this renewed sense of opportunity, additional interventions in support of physical education and the promotion of physical activity have emerged in order to help America get back on track with their physical and mental health.

**Physical Activity Promotion and Interventions**

Promotion of physical activity at the school level proves to be a pivotal setting due to the number of school-aged students and amount of time spent in that environment each week. Over 90 percent of students between the age of five and seventeen that attend school across the nation (Story, Kaphingst, & French, 2006). Physical education plays a leading role in that effort through the teaching of curriculum designed to grow an individual student’s knowledge on physical activity and assist in developing the necessary behavioral and motor skills needed for living out a healthy active lifestyle (Pate et al., 2006). However, the 21st century has shown, through the obesity epidemic, that improvements and growth for the promotion of physical activity is needed in order to help combat this ever-growing concern. The American Heart Association has been a key instrument in orchestrating the movement for change across the nation as a result of scientific statements they have brought awareness to in regards to childhood obesity. Through the Centers for Disease Control and Prevention, a gauge in participation of physical activity by
children and adolescents can be systematically monitored across the United States and what that promotion looks like at the school level. Recent issues have been raised by the fact that only 8 percent of elementary, 6.4 percent of middle and junior high schools, and 5.8 percent of senior high schools are meeting the national guidelines for physical education daily or weekly. It is becoming more evident that participation in physical education class in general, decreases as the students age (Story, Kaphingst, & French, 2006). In many cases, physical education is replaced by other alternatives such as vocational training or more classroom academic time to meet the rigorous standards being pushed. In an effort to better support the role in which schools play in fighting against obesity, the Centers for Disease Control and Prevention created a program called Coordinated School Health. This program was specifically designed to help monitor and influence change needed within schools in order to improve the practice of healthy behaviors and better promote the importance of lifelong physical activity and eating nutritiously (King et al, 2013). The structure to this program consists of leaders from within the school who form a team with individuals from within the school, parents, students and members from an organization in the community. Together, stakeholders would work to evaluate the current position of the school in regard to health policies and programs and create ways to improve each area as needed (Story, Kaphingst, & French, 2006). Modules within the coordinated school health guidelines provide direction for the team in working to strengthen key areas for the promotion in health improvement throughout the entire school and among team members. Physical education is comprised of instruction that ensures that content is high quality and contributes to an increased number of students participating in physical activity during the lesson. Additional areas included with the eight component model are: nutrition services, counseling, psychological and social services, staff health promotion and health education and services (Miller, & Bice, 2014). This
framework incorporates a variety of health education and community resources that has
demonstrated the ability to positively influence health behavior in a significant way. The
coordinated school health program model is recognized nationally, and in 2006, Tennessee
became the only state to mandate the health program and require each district to follow the
guidelines within each school (TNDOE, 2017). Following the statewide implementation, body
mass index results for students across the state of Tennessee improved from 41.2 percent in
2007-08 to 39.2 percent in 2016-17. Results also indicated that the 25 percent of students who
were physically active for 60 minutes at least five days a week in 2005 grew to 42.7 percent by
2015. Many other changes to the environment, availability and update of resources were a part of
what enabled the success with the implementation of the health initiative statewide. At the center
of this approach is the evidence that demonstrates the individual and organizational factors that
lead to interdependently influencing change with health behavior (King et al., 2013).

The HEROES Initiative (Healthy, Energetic, Ready, Outstanding, Enthusiastic, Schools)
is an obesity prevention intervention that utilizes part of the framework that structures
coordinated school health (King et al., 2013). Essentially, HEROES Initiative focuses primarily
on components that are more closely connected with having the greatest impact on preventing
childhood obesity. These components consist of health education, nutrition services, physical
education and health promotion and requires the involvement of staff, parents and community
liaisons. Much like coordinated school health, HEROES Initiative seeks to impact the individual
and organizational factors that contribute to the rising obesity issue amongst our children.
Through the work of each component and the supportive infrastructure, schools are provided
with financial funding and guided by local leaders. One additional unique factor for this initiative
is that each component addressed comes with specific strategies already created and ready to be
implemented. Schools can easily make adjustments to the accessible implementation strategies that best meet student needs. In contrast to many other initiatives, significant attention is given to the evaluation process and the results from the yearly assessment on the different areas within the program. This information is used to collectively make informative decisions for what is in the best interest of the students being impacted and the overall success of the intervention. In the spring of 2012, one particular school concluded the implementation of a 3-year study with this initiative. From a school environment perspective, the study demonstrated that effective changes were made in regards to the five different modules that guided the intervention. Certain challenges faced throughout the process included providing staff wellness functions, adjusting food related issues and initiating change to wellness policies. In regard to obesity, the data show that small changes in body mass index with students considered overweight within the first 18 months of the intervention. However, there was no changes seen among students considered to be obese. Behaviors related to the participation in vigorous physical activities generated a two percent increase the day before information was taken from the students. While this initiative presented positive findings among several factors related to being overweight, nothing changed with individuals dealing with the more extreme measure of weight.

Recently, SHAPE America and the Centers for Disease Control and Prevention, collaborated to produce a comprehensive intervention to support schools focused on impacting the lives of children through physical activity (Centers for Disease, 2013). This comprehensive guide serves as a tool create, apply and assess the work being done within the school and could easily be adopted with other programs already in existence. The Comprehensive School Physical Activity Program (CSPAP) is considered to be a multicomponent approach. Burns, Brusseau and Hannon (2015) conclude that the CSPAP has three primary objectives for improving the physical
activity level within children: 1) To provide more time throughout the school day for students to be physically active, 2) To place a heavy priority on physical education and increase the amount of time that students are able to participate in the class, and 3) Work to improve the number of students that are engaged in at least 60 minutes of daily physical activity. The structure to this multifaceted approach utilizes each and every opportunity with students while they are present at school and provide them with additional support in being active in the non-typical times of a school day. Much like other initiatives, this one also works to address the individual and organizational factors that contribute to obesity and the epidemic that is on the rise (King et al, 2013). With this intervention, students are provided the opportunity to participate in certain types of programs before school. Such programs provide students with the opportunity to be involved in a physical activity prior to the start of the school day. As the school day proceeds, physical activity is something that is within the core subjects, allowing students to move more while in the regular classroom setting. Trained teachers also provide students with brain breaks during appropriate times within the lesson in order to provide opportunities for movement (Centers for Disease, 2013). Brain breaks consist of activities such as walking around the room, jump jacks, running in place and jumping an invisible rope.

The physical education class serves as the main foundation to this multi-component approach in that it works to provide students with the opportunity to grow in knowledge and skills in order to maintain and establish the importance in living a healthy, active lifestyle from childhood, through adolescence and into adulthood (2013). Advisors from SHAPE America and Centers for Disease and Prevention specifically identified that quality physical education takes into consideration the learning needs of each student in order to structure the learning environment in fun and enjoyable way. Maximizing physical activity time during class and
helping students to better understand movement proficiency are the top priorities for a physical educator. Lessons are constructed around the idea of helping students learn the importance of self-management while becoming more knowledgeable and physically proficient with necessary skills for living physically active daily. Through their engagement within the lesson and the educational practices used by the physical educator, students should be provided with the enhanced understanding on why and how they should be physically active.

As students go to recess each day, time spent outside is more structured than the typical recess. Activity choices are provided for students in order to work at maximizing the physical activity time and minimize the sedentary behaviors. After-school programs that incorporate the opportunity for students to continue being physically active are also provided. These types of programs could consist of track, intramurals, walking, or biking. In students being provided with these types of physical activity environments before and after school, it becomes an opportunity for them to practice what they are learning in physical education and further building on the enjoyment of moving their body and benefiting from it (Centers for Disease, 2013; Beets, Beighle, Erwin, & Huberty, 2009). Staff involvement is a priority that sets the tone for the environment and becomes a reinforcing factor in the importance of living a healthy, active lifestyle. In this position, staff members serve as a role model for the students by demonstrating their choice to live an active life.

Family and community involvement serve as additional benefit due to the influence they have on youth choosing to be physically active (Centers for Disease, 2013; Zecevic, Tremblay, Lovsin, & Michel, 2010). Through this school-based physical activity approach, parents are provided with the opportunity to participate in functions at a school designed to allow the entire family to be engaged. By involving the community, more resources become available to help
support the promotion family-oriented opportunities. Burns, Brusseau and Hannon (2015), conducted the first study on the impact that CSPAP had on student’s physical activity level which was measured through a child’s step count each day at school. This particular study used 327 fourth and fifth grade students from across four elementary schools and was conducted over a 10-day period with pre and post intervention data collected. Results from the study indicated a positive correlation in the CSPAP and increasing the amount of steps taken during the week. However, fewer steps were recorded as the week continued. While there is very limited overall research completed on the impact that CSPAP has on increasing physical activity among children, this particular study provides evidence that CSPAP can influence physical activity behaviors. Improving these types of behaviors is key to changing the health cycle students are living in today.

It is without question that physical education and the school environments cannot be the only means in allowing students to meet their daily physical activity recommendations. Sallis et al. (1997) expanded the research environment for their study by collecting physical activity data from home in addition to what was collected at school. The study consisted of fourth grade students who participated in the experiment for two years. At the beginning and end of each year, self-reports and fitness measures were collected in order to better understand the impact that the implementation of a physical activity intervention program called SPARK (Sports, Play, and Active Recreation for Kids) had on their choice in being physical active at school and home. The SPARK program focused primarily on restructuring the content used and the approach to teaching physical education. The newly designed instruction worked to maximize physical activity time during the lesson, improve skill acquisition and promote enjoyment with physical activity. General results from the study concluded that the SPARK program led students to
increase their physical activity level during physical education classes, however, it did not
improve how physically active they were at home. In conclusion, this study supports the need for
the involvement of other programs such as extracurricular, family involvement, and the
community in order to more adequately meet the daily recommended levels for physical activity.

Summary

Research is definitive that children’s health is declining as the number of obese children
continues to rise (Kriska et al, 2013). Contributing factors such as excessive use of technology
along with and the increased consumption of unhealthy food has supported the growth and
development of this epidemic (Anderson, & Butcher, 2006; Saliba, 2015). The lack in balancing
out the energy in with energy expenditure has led to a significant concern with children’s health
due to typical issues in adult health now being identified in youth. Many studies have discovered
certain diseases develop in childhood and progressively grow into adulthood as a result of no
change in their health behavior. A sedentary lifestyle has been well documented as a main reason
for the increase in obesity and contributing to children not meeting the daily recommended
physical activity levels. In conjunction with obesity, this chapter has also shown that the
development of additional health problems and concerns are being correlated with excessive
weight gain.

Physical activity serves as a main factor in preventing and overcoming obesity. Physical
education and the school setting is a key resource in providing the necessary support to combat
the issue. School-based interventions serve in a way to restructure the social and physical
environment of the school along with the learning environment in physical education. Research
has shown that these types of interventions are successful in promoting and increasing
participation in physical activity at the school level, but little success has been seen or
documented outside of school (Burns, Brusseau and Hannon, 2015). While health behavior change is being seen at the school level, it is also imperative for success to take place at home where more children spend less time playing outside and involved in sedentary activities (Oliveira, Moreira, Abreu, Mota, & Santos, 2014).

Interventions and the promotion of physical activity are key to helping change the unhealthy trends in children and adolescents. Finding an avenue in changing a child’s perception of choosing to be physically active at home, offers an opportunity in making a significant impact on their health in many ways. As this chapter has concluded, these changes provide the foundation for promoting CSPAP that increases health benefits now and for a lifetime.
CHAPTER 3: METHODOLOGY

Qualitative Research

This study focused on whether a Comprehensive School Physical Activity Program (CSPAP) leads students to choose to be more active outside of school hours. A basic qualitative and interpretive approach was taken to better understand the phenomenon based on the results of information collected from surveys, interviews, journals, and pedometer readings (Sutton, & Austin, 2015). Two fifth grade classes were purposely chosen through the willingness of the teacher and the similarity in diversity. Ten participants were chosen from each class who volunteered for the study during a three-week period. One group of participants were identified as group A and was considered to be the experimental group due to receiving specific treatments and intervention. The teacher for Group A restructured the learning environment and applied CSPAP standards as a requirement for the treatment and interventions received. The other set of participants were identified as Group B and was considered the control group since they received no treatment throughout the study. Both groups were closely matched in ethnicity and gender. Parents of the students chosen were also involved by completing a survey before and after the study. Pedometers were given to students in the control group to track their physical activity outside of school. An intervention program called CSPAP was implemented during the first week of the study for Group A. This particular program changed the daily schedule for each participant in Group A to include 30 minutes of physical activity within the context of this study both before and after school. During the school day, teachers provided physical activity breaks within each core subject for a total of 20 minutes. During recess, Group A participants were engaged in physical activity that was chosen from a list of options provided by the teacher. In PE class for the second and third week of the study, students’ learning focused on the importance of
physical activity and the relationship it has with fitness components. Journals and interviews allowed participants the opportunity to share the types of activities in which they participated, how physical activity impacted the individual’s feelings and the perception of the impact that CSPAP had on making the decision to be physically active after school (Austin, & Sutton, 2014). Interviews were audio-recorded while journals were logged in online through a program called Seesaw that was made available to them through the study.

**Specific Research Approach**

A phenomenological approach was utilized for this study to better understand behavioral changes as a result of the CSPAP. The structure and qualitative methods within the study allowed information to be gathered to determine the impact CSPAP had on thoughts and feelings experienced by Group A, as they made specific behavioral choices relating to physical activity (Sutton, & Austin, 2015). The qualitative components of the study relating to decisions that were made were analyzed in order to identify categories and themes. An interpretive phenomenological analysis was used to gain a deeper understanding with each phenomenon as it is interpreted within the context of the study.

**Study Participants and Setting**

The setting for the study was an elementary school within a district consisting of over 27,000 elementary aged students among all 50 schools. The elementary has a population of approximately 500 students. The student population is comprised of the following demographics: 48.4% White, 27.3% African American, 16.3% Hispanic, 5.4% Multiracial and 2.6% Asian (Niche, 2017). For this study, ten participants were selected from two diverse fifth grade classes. One set of participants were identified as Group A and was considered the experimental group due to receiving treatment and intervention. Group A was determined specifically due to the
teacher being willing to apply and restructure the learning environment according to CSPAP. The second set of participants was identified as Group B, and this was considered the control group since they did not receive any treatment or intervention. Ten students from each class were purposely chosen from a list of students who had been given permission to participate by their parents. Participants selected between both groups closely matched in ethnicity and gender. This study was voluntary and no compensation was provided for participation.

**Data Collection Procedures**

Surveys were delivered before and after the study for both Group A and Group B participants along with their parents. During the first week, participants from Group A and Group B completed an online survey. The survey consisted of basic questions that either allowed participants to select an answer from several options or fill in their own response. The questions helped describe the amount of time spent in various physical activities along with identifying the type of activities in which they participated after school. Questions for the parents reaffirmed the amount of time they were physically active after school. Group A and Group B participants were provided with a FITstep Pro pedometer on the first day of the study. Students were instructed to wear the pedometer throughout the evening and during the weekends but to take it off when preparing for bed. Participants were instructed to keep the pedometer off on weeknights and to return it to the researcher each morning or the Monday after a weekend for the data on the pedometer to be uploaded. At the end of each school day, the pedometers were returned to students before they returned home. Data from the pedometers displayed the level of physical activity in which the student participated during after school hours. In order to better understand what types of activities students completed and the duration, both Group A and Group B participants were asked to log information into an online journal. Students accessed pre-
formatted journal entries with the day and date on a program called Seesaw. Students began
journaling on the Tuesday of the first week of the study and continued to journal each weekday
until the Friday in the third week of the study. The Monday journal log reflected the weekends
activities. Components needing to be included in the online journal were shared with the
students. Each passage included choices of activities physically participated in after school the
previous day or over the weekend and the duration of the physical activity. Participants were
asked to describe how they felt about being physically active and the way they felt during
physical activity. A final section in the journal helped clarify participant understanding of the
importance of being physically active. Students were given 20 minutes at the end of each day to
journal before leaving school. This was also a tool to help better understand the impact CSPAP
had on Group A participants due to receiving treatments and intervention that Group B
participants were not receiving. Upon conclusion of the study, Group A and Group B participants
and parents were surveyed again with the format and questions being primarily the same but
focused on activities during the final three weeks. This information was used to reevaluate the
amount of time spent participating in various physical activities along with identifying the types
of after school activities. The information collected from the parent survey remained as a method
to reaffirm the amount of time the child spent being physically active after school over the three-
week period. Students in Group A were interviewed individually during the final days of the
study. Conducted interviews were audio-recorded and information collected was transcribed at a
later time. Questions in the interview pertained to better understanding the perceived impact that
CSPAP had on the choice of being physically active outside of school.
Ethical Considerations

Approval for the study was given by Carson-Newman University in the fall 2018 through the IRB process. Additional approval was granted by the appropriate district-level supervisor who was connected with each school. Participation in the study was voluntary, and the option to not participate had been made clear to them and to their parents. A consent form provided details of the study to both participants and parents. The consent form also identified expectations of the study for participants during the three-week duration. No personal information was collected for either the student or the parent. Strict confidentiality was instituted concerning all participant information gathered. Deep thought was given to the different collection methods within the study to maintain quality and integrity with the information received.

Data Analysis Procedures

For this study, it was important to examine the aspects of behavior to better understand particular behavior changes and patterns due to influential factors such as the environment and increased knowledge (Sutton, & Austin, 2015). A qualitative approach was taken with the primary source of in-depth information coming from surveys, journals and interviews. Parent surveys provided secondary data that supported triangulation. Open coding was implemented to help divide and chunk data into categories of information as related to aspects of behavior from the surveys, journals and interviews. Axial coding was utilized to categorize themes and relationships on feelings, school environment and current state of being as a result of the open code information. Selective coding was then used to examine the different categories and themes and determine the core variables from the data collected. This information presented a deeper insight on behavioral changes and the perception of each participant and the choice to be physically active after school. Raw data was collected from the pedometers to establish base
information. This information was analyzed for trends to support data with surveys, interviews, and journals. Closed coding provided a means to assign a numeric value from the data collected with the pedometers. This information provided a numeric value for time spent being physically active, and the type of intensity level of the activity in which the participant was engaged.

Descriptive statistics helped summarize the results into frequency of days an individual spent being physically active, the percentage of time spent being physically active in 30-minute blocks, and percentage of time spent with each level of physical intensity.

**Summary**

Understanding thoughts, experiences and feelings as ascribed to behavior is critical in a qualitative study. The use of basic qualitative and interpretive methods was utilized within the context of this phenomenological study. Data collected through a variety of techniques were used to maintain the participants’ views on physical activity. This information sought to better understand the impact that a CSPAP can have on students choosing to be physically active after school. Participant perceptions when choosing to be physically active with and without the multi-component intervention were analyzed and interpreted with a variety of disciplinary lenses. The results of the data collected provide the opportunity for informed decisions to be made that help reduce the number of children living a sedentary lifestyle.
CHAPTER 4: PRESENTATION OF FINDINGS

The purpose of this qualitative study was to examine the way that the school impacts a student’s initiative in becoming more active independently at home based on interventions received (Morton, Atkin, Corder, Suhrcke, & van Sluijs, 2015). This study specifically examined the impact that a Comprehensive School Physical Activity Program (CSPAP) had on elementary aged students and their perception of physical activity, before and after the study. Surveys, interviews, journaling and pedometer readings generated the necessary data to help better understand the impact of the multi-component intervention program on students’ unstructured physical activity. Ten random students from two different classes were selected to create both the experimental group and control group. Each group of ten students completed a pre- and post-

Physical Activity Questionnaire for Older Children (PAQ-C) that required students to recall the past seven days of physical activity (Appendix A). Parents for each student from both groups completed an additional pre- and post- survey that asked for their observations and knowledge of their child’s physical activity for the same seven-day recall period (Appendix B). From the beginning to the end of the study, students from both the experimental and control group journaled physical activity from the previous day on a program called Seesaw. This helped provide a better understanding of physical activity for each day, how it made students feel both physically and emotionally, and why physical activity was important to them. This also assisted in determining the meaning of the results from the daily pedometer reading in regards to the previous day’s physical activity level. At the end of the study, the ten students in the experimental group were interviewed in order to gain more insight on the specific impact of the CSPAP and their choice to be physically active. This consisted of ten open-ended questions and was conducted in a one-on-one interview format (Appendix C).
The previously mentioned methods for data collection provided insight centered around the following research question that guided the study:

1. What are the effects of a Comprehensive School Physical Activity Program (CSPAP) on student unstructured physical activity?

**Presentation of Descriptive Characteristics of Participants**

Participants for this study were randomly selected between two classes and included twenty students in fifth grade. Each student in the study, returned their signed permission form in order to participate (Appendix D). The experimental group, which was labeled as Group A, had a class size of seventeen students. Of these 17 students, 10 volunteered to participate in the study. Of the 10 study volunteers, five were male while the remaining five were female. When considering ethnicity, there were four African American, three Hispanic and three Caucasian participants. Table 4.1 provides specific demographic details about Group A members.
Table 4.1  
Demographics of Experimental Group Participants

<table>
<thead>
<tr>
<th>Assigned Number</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Female</td>
<td>Hispanic</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
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<tr>
<td>2</td>
<td>Male</td>
<td>Hispanic</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>3</td>
<td>Male</td>
<td>African American</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
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<td>4</td>
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<td>African American</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
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<td>Female</td>
<td>Caucasian</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>6</td>
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<td>Caucasian</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
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<td>Hispanic</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
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<td>African American</td>
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</tr>
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<td>African American</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
<tr>
<td>10</td>
<td>Male</td>
<td>Caucasian</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

The ten students randomly selected from the other class were labeled as Group B due to being considered the Control Group. This group consisted of five males and five females which matched the same gender number as Group A. There was a slight difference in ethnicity as Group B had one Arab, one Caucasian, four African Americans and four Hispanic participants. Table 4.2 provides a more detailed description on the demographics of Group B members.
<table>
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<th>Assigned Number</th>
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<th>Grade Level</th>
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<td>Caucasian</td>
<td>5&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**Data Collection Process**

Students in Group A and Group B were given a PAQ-C to complete prior to the start of the study. This questionnaire required students to recall the previous seven days of physical activity by answering 10 questions in relation to which multiple-choice options they were provided with for each question. The self-report questionnaire helps provide a better understanding of a student’s general physical activity level during the school year. Based on the information received from the questionnaire, a physical activity score was given to each student (Kowalski, Crocker, & Donen, 2004). To calculate this score, the researcher calculated the mean for the response given to each activity in question number one. Selecting “no” was worth one point, “1-2” was worth two points, “3-4” was worth three points, “5-6” was worth four, and “7
times or more” was worth five points. For questions two through eight, the value for each response was totaled at the end. Scoring structure for this set remained similar other than the lowest activity response was considered a one while the highest activity response would score a five. Scoring question nine required finding the mean for each daily response with “none” being scored as a one all the way to “very often” having a score value of five. Question number 10 is omitted from the scoring process due to the nature of the question. To finish, you find the mean of the nine questions by adding up the composite scores for each section and dividing it by nine. The final score identifies a physical activity level value with one be considered low and a five being high physical activity. Students from each group completed the PAQ-C at the end of the study as well and the same scoring process was used to identify their physical activity level based on the self-report. The data used from this collection was utilized to help determine the impact that CSPAP had on student’s physical activity level for those receiving intervention in comparison to ones that weren’t.

Parents for each student from both groups were given a 7-day recall survey over the same time periods for which the students used in completing their PAQ-C. Parents completed a survey prior to the beginning of the study and at the end just like their child. The information received from the completion of the survey was used to further examine and inspect the accuracy of their child’s questionnaire. In the parent survey, parents were able to identify their child’s participation in a number of different types of physical activities. They were also required to record the amount of time their child spent in the activity and how many times a week they did it.

Students from each group journaled their previous day’s activity on a program called Seesaw. After eating lunch, students would use an iPod from the gym and take time to reflect and journal about their previous day after school or over the weekend. Students would find their
daily journal assignment after logging in and would begin writing. Each day participants were asked to describe physical activity the previous day or over the weekend, how it made them feel physically and emotionally, and why physical activity is important to them. Once they were finished writing, students would submit the journal response to their individual portfolio within the program that could only be accessed by the researcher and the participant.

Pedometers were assigned to each student from both groups to wear after school in order to better gauge and track their activity level (Beighle, Morgan, & Pangazi, 2004). Students returned the pedometer each morning and the data would be recorded for how long they were active, how many steps they took and how long they moved in their moderate-vigorous level. Students took time to go through the setup process with the pedometer prior taking it home on the first day in order for the pedometer to better recognize that student’s moderate-vigorous level. Once information was collected from each student’s pedometer, they were reset in order for students to take them home again at the end of the school day. The information from the pedometer helped scrutinize information written in daily journal entries.

Students from Group A participated in interventions due to being a part of CSPAP. Group A members wore an active band that tracked the number of steps, mileage and calories burned while at school. They participated in a before and after-school program that allowed them to engage in physical activity and small lessons on the importance of physical activity. This program was in addition to the fitness unit that students participated in during their physical education class. During the school day, their classroom teacher provided physical activity breaks during core academics and provided students with a structured recess each day. In an observation between the class receiving intervention and the class considered to be the control group, teaching environments were structured differently. In addition to providing movement breaks
between lessons, Group A’s teacher was observed teaching a lesson that allowed students to move during the middle of the lesson. Students were instructed to create a short skit in regards to a history lesson that was purposely structured in this way. In comparison to Group B’s environment, the lesson observed demonstrated a typical classroom lesson structure, where students sat in desks while only the teacher circulated the room. Students were only up moving when they needed to take care of something personally, otherwise they remained seated.

At the end of the study, students from Group A participated in a one-on-one interview that focused on providing specific details that CSPAP had on their choice to be physically active. Students were asked ten questions that allowed them to openly describe how CSPAP influenced and shaped their perception and participation in physical activity. Certain questions allowed for more in-depth information to be understood on how the CSPAP influenced their knowledge and understanding of physical activity and the importance of it. The interviews also provided an additional method for evaluating responses within the journals and questionnaire.

Appropriate measures were taken throughout the process of data collection in order to maintain reliability (Heale, & Twycross, 2015). The technique of peer debriefing was utilized during and after the collection of data with a colleague who held an impartial view of the study. The peer debriefing investigation helped limit overemphasized or underemphasized points in regards to the data along with biases or assumptions made by the researcher. Engagement in conversation in regards to the data provided clarification to certain views that the researcher held. Member checks were used throughout the study in order to check for accuracy and bring clarification to certain sets of data collected from journals, surveys, pedometers, and interviews. Triangulation was used in the process by comparing results from the journals, surveys, and interviews to monitor the consistency across the different types of data sources. A detailed
description of context was the final method used to help maintain reliability with the data collection process. Information in regards to the data was shared in a manner that allows the reader to make necessary comparisons and spelling that are transferable to other programs that provide physical activity interventions.

**Study Findings**

At the conclusion of the study, the data collected was sorted through open, axial, and selective coding in order to better understand the impact that CSPAP had on student unstructured physical activity time. The analysis with this method assisted with visualization of the data in a comprehensible manner in order to produce the main variable that addresses the research question (Seidel, 1998). During the initial phase of open coding, labels were assigned to chunks of data that addressed the meaning that emerged from the data. Themes were identified in axial coding based on the relationship with the labels given to the data in open coding. As a result of the themes identified in axial coding, a core variable of the study was determined. Table 4.3 provides a detailed analysis of each level of coding and how the emerging themes support the conclusion of the main variable to the study.
Table 4.3

*Data Sorted in Levels of Coding*

<table>
<thead>
<tr>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>To not be lazy</td>
<td>Personal reasons to be physically active</td>
<td>CSPAP leads to an increased choice to be physically active based on meaningful health contributions</td>
</tr>
<tr>
<td>To be in shape</td>
<td>Physical feelings due to physical activity</td>
<td></td>
</tr>
<tr>
<td>Physical activity is fun</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To improve health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To be strong</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling exhausted/tired</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sore body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breathing hard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hot/Sweaty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart beating fast</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excited</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Happy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Run/Jog/Walk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of physical activities involved in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Main Variable

The data analysis of surveys, journal entries, and interviews created four themes that went on to answer the research question: What are the effects of a Comprehensive School Physical Activity Program (CSPAP) on student choice in physical activity outside school hours? Through this process, four themes were developed:

1. Personal reasons to be physically active
2. Types of physical activities
3. Physical feelings due to physical activity
4. Psychological feelings due to physical activity

Reasons for Being Physically Active

It was revealed through the analysis of data that CSPAP leads students to an increased choice to be physically active based on health contributions. One particular theme that supports this is the expressed reasons for why participants from both groups chose to be physically active. Through the open coding of journals and interviews, certain trends became more evident based on the way that students shared their personal thoughts on why physical activity was important to them. Both groups tended to connect physical activity with fun. In reference to playing, Student 17 from Group B states, “it was important to me because I had a lot of fun”. Similar comments were made by others when journaling such as Student 7 from Group A who stated, “physical activity is important to me because it is fun”.

Another common theme amongst both groups during open coding was the reference to getting stronger due to physical activity. In thoughts on what the continuation of being physically active on a daily basis could do for them as an adult, Student 9 from Group A stated in their journal, “This is going to help me in my future because I could be a strong person and play
sports—this might help me with my career.” Getting in shape is another emerging theme mentioned quite frequently between both groups and shares a close relationship with being or getting strong. Student 1 stated that, “It’s important to stay physically active to get strong and fit.” In their enjoyment of physical activity, Student 18 wrote that she likes it because “it could help you get in shape and be more active”. Apart of getting in shape, one member from each group specifically mentioned how physical activity contributes to improving stamina. In expressing the importance of physical activity, Student 17 from Group B stated that “It helps me keep stamina so when I’m running I can keep going.” Along with sharing that CSPAP has helped improve her endurance personally, Student 9 from Group A referred to the fact that being physically active doesn’t just benefit you while you are young, but as an adult as well. She wrote, “I know that if I do this every day as an adult when I’m even older I could still be fit.” During her interview in regards to the impact that CSPAP has had on her willingness to be physically active, she stated “It helps me know you can make the choice to be fit.”

Participants related the importance of choosing to be physically active because it helps you become healthy. This was a common general statement made by several Group A members and two members from Group B. Student 15, who shared multiple times in their journal surrounding this general statement stated, “It’s important to move for your health.” Student 9 shared in journal entry not only how being physically active impacts your health now, but in the future. She stated, “I felt like this is helping me for in the future; I can be more healthy and live longer.” However, one theme from this particular analysis that stood out was deeper connections made by Group A members towards the improvement of health as result of choosing to be physically active. Student 2 remarked “It is important to me because I don’t want to get very sick or have a heart attack but I want to be a healthy person.” Due to the structure of CSPAP and the
interventions received, students were able to participate in lessons and conversations geared towards understanding and connecting with the importance of choosing to be physically active for deeper health related reasons. It was noticeable that as the program progressed, the expressions by Group A as to why physical activity was important to them or why they were choosing to be active became more associated with deeper health related reasons in comparison to Group B’s generalized statements. Student 10 shared during the interview that because of CSPAP, they became more aware of the negative impacts that could occur with your health due to not being physically active. The participant stated, “I didn’t know that if you didn’t move that it could cause you disease.” In a similar way, but more specific to a health related issue, Student 5 stated in the interview, “I use to not know that if I didn’t exercise enough I could get a heart disease.” In a journal entry prior to the interview, Student 5 reinforced knowledge on the positive impacts physical activity can have towards heart disease by writing, “If you don’t exercise you have a greater chance of getting a heart disease.” Student 15 from Group B, who referred to heart health states that he was physically active “for their heart and health.”

It was interesting to note that losing weight was another common theme expressed in journals and interviews. Weight loss is not a typical focus for students at their age, rather it is “being fit” that tends to more commonly discussed. However, Student 3 shared that physical activity “is important because it helps you lose weight when you do it every day.” One Group B member referred to weight loss as something that happens as a result of meeting goals that you set for yourself because of choosing to move. Student 13 stated, “I think it is important for your health to be active because it helps you to reach your goals like losing weight.” Certain Group A members connected burning calories to the process of losing weight. For example, Student 5 shared that “it is important to be physically active so you can burn calories that you had gotten
during the day.” In conclusion, only three students which were from Group A only, made reference to diabetes and how physical activity is a means to help prevent it from occurring. In specifically talking about why they chose to be active that day, Student 2 stated in their journal, “when we got home I ran a little until bedtime because I did not want to get diabetes”.

**Types of Physical Activities**

Based on the analysis of data from the PAQ-C questionnaire, journals, pedometer readings, and interviews, it was determined that CSPAP positively affects the activity level and perception of students choosing to be physically active in unstructured time outside school hours. In the comparison of pre and post results of the PAQ-C questionnaire, Group A members showed more of an increase in movement as a whole compared to Group B. Several Group B members individually demonstrated lower scores in comparison to their pre results, but on average as a group, they remained at the same physical activity level as their pre results. The Parent pre and post surveys were used to determine the accuracy and reliability of their child’s PAQ-C questionnaire responses. Due to the structure of the survey, portions of it aligned with parts of the PAQ-C questionnaire very closely, allowing for checks on straight-lining and pattern responses that could affect the quality of the data. Tables 4.4 and 4.5 demonstrate both the pre and post results for the PAQ-C questionnaire that Group A and Group B members completed. Figures 1 and 2 provide a visual for the PAQ-C individual questionnaire results along with the average score of the entire group for both the pre and post questionnaire.
Tables 4.4 and 4.5 scores for the pre and post PAQ-C reference to the physical activity level of an individual with 5 being the highest and 1 being the lowest.

**Table 4.4**  
*PAQ-C Questionnaire Results for Group A*

<table>
<thead>
<tr>
<th>Assigned Number</th>
<th>Pre PAQ-C Score</th>
<th>Post PAQ-C Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Student 2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Student 3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Student 4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Student 5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Student 6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Student 7</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Student 8</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Student 9</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Student 10</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*Figure 1.* PAQ-C activity survey results for Group A
Table 4.5

PAQ-C Questionnaire Results for Group B

<table>
<thead>
<tr>
<th>Assigned Number</th>
<th>Pre PAQ-C Score</th>
<th>Post PAQ-C Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 11</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Student 12</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Student 13</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Student 14</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Student 15</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Student 16</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Student 17</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Student 18</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Student 19</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Student 20</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 2. PAQ-C survey results for Group B
Pedometer readings were collected each week day in order to better understand the amount of unstructured time that students spent being physically active after school. On a Monday, the data collected would include the weekend and the previous Friday due to school not being in session. From the pedometer readings, it was very clear that Group B was more active than Group A in longer periods of time overall along with overall time spent in physically intense activities. Surveys, journals and interviews were used to determine the reliability of the data being analyzed while inversely checking the type of activity that the students shared about. Tables 4.6 and 4.7 share the total amount of steps, time spent in moderate-vigorous physical activity, and total active time for each group.

Table 4.6  
*Total Pedometer Results for Group A*

<table>
<thead>
<tr>
<th>Assigned Number</th>
<th>Total Step Count</th>
<th>Total MVPA Time</th>
<th>Total Active Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>52,964</td>
<td>1:13:01</td>
<td>8:27:34</td>
</tr>
<tr>
<td>Student 2</td>
<td>48,863</td>
<td>0:25:54</td>
<td>7:05:09</td>
</tr>
<tr>
<td>Student 3</td>
<td>108,962</td>
<td>1:31:20</td>
<td>16:39:16</td>
</tr>
<tr>
<td>Student 4</td>
<td>73,837</td>
<td>1:29:59</td>
<td>11:28:41</td>
</tr>
<tr>
<td>Student 5</td>
<td>38,041</td>
<td>0:28:29</td>
<td>4:50:24</td>
</tr>
<tr>
<td>Student 6</td>
<td>40,115</td>
<td>0:38:47</td>
<td>4:46:12</td>
</tr>
<tr>
<td>Student 7</td>
<td>97,183</td>
<td>0:24:58</td>
<td>13:55:42</td>
</tr>
<tr>
<td>Student 8</td>
<td>50,952</td>
<td>0:19:19</td>
<td>7:34:48</td>
</tr>
<tr>
<td>Student 9</td>
<td>72,703</td>
<td>0:06:42</td>
<td>11:26:31</td>
</tr>
<tr>
<td>Student 10</td>
<td>62,432</td>
<td>0:19:07</td>
<td>8:52:13</td>
</tr>
<tr>
<td>Assigned Number</td>
<td>Total Step Count</td>
<td>Total MVPA Time</td>
<td>Total Active Time</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------</td>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Student 11</td>
<td>64,051</td>
<td>0:07:17</td>
<td>9:33:34</td>
</tr>
<tr>
<td>Student 12</td>
<td>102,488</td>
<td>0:40:48</td>
<td>19:35:24</td>
</tr>
<tr>
<td>Student 13</td>
<td>126,504</td>
<td>0:37:36</td>
<td>19:30:29</td>
</tr>
<tr>
<td>Student 14</td>
<td>91,952</td>
<td>0:25:22</td>
<td>13:50:24</td>
</tr>
<tr>
<td>Student 15</td>
<td>117,788</td>
<td>0:46:23</td>
<td>17:49:23</td>
</tr>
<tr>
<td>Student 16</td>
<td>119,982</td>
<td>0:29:22</td>
<td>17:41:21</td>
</tr>
<tr>
<td>Student 17</td>
<td>65,227</td>
<td>0:35:49</td>
<td>9:26:35</td>
</tr>
<tr>
<td>Student 18</td>
<td>96,550</td>
<td>7:53:58</td>
<td>14:33:18</td>
</tr>
<tr>
<td>Student 19</td>
<td>95,266</td>
<td>0:38:19</td>
<td>14:07:27</td>
</tr>
<tr>
<td>Student 20</td>
<td>116,743</td>
<td>3:44:06</td>
<td>16:57:12</td>
</tr>
</tbody>
</table>

Journals, surveys and interviews served as a method for students to share and express the different ways that they chose to move their body. During the data analysis, the different types of physical activities were coded from Group A and Group B member’s data in order to more completely understand the impact that CSPAP had on students’ unstructured active time. There were a number of different activities that were stated which allowed for themes to evolve amongst the information. Through the information, it was determined that CSPAP improved willingness to be physically active and helped provide students with additional activity ideas based on certain experiences they had throughout the program. It was evident, however, that Group B members were extremely active without intervention based on pedometer results in particular. Something noticeable from the different themes was that a majority of Group B
members spent a considerable amount of time at the park and Group A did not. While the park provides different objects and pieces of equipment that promote being physically active, it can also be a place to join in with friends on certain activities that motivate them to be even more physically active. Student 13 from Group B shared, “I went to the park and I was going to walk but instead I saw my friend Anna playing soccer with her sister so I joined in to play for a while.” What potentially could have been a low-key physical activity turned into a moderate-vigorous activity and potentially engaged the student in a longer period of movement time due to socialization and the context of the environment. Student 18 shared in one of their journal entries, “Yesterday I went to the park and played with my friends.” Another journal entry found Student 18 saying, “I went to the park and played tag.” A very limited number of Group A members mentioned the park in their responses, however, Student 9 referred to the fact that because of CSPAP and their current involvement in physical activity, being at the park made them want to do more. She stated, “I went to the park it made me want to do more things than last time.”

There were a number of the same activities that both group members referred to throughout the study. Walking, jogging and running were common themes and were spoken about in a general way for most. Student 15 shared in their journal, “Yesterday I was walking and playing with my sisters at my brother’s football game.” Student 3 discussed how this form of movement was incorporated at their house because they chose to be active. The student said, “I was running and walking up my steps.” The word “play” was said quite often by many members from each group in generalized language, however, it was used often within the context of the sentence or speech to further support their reference to the type of physical activity shared. Student 1 demonstrated this when she stated, “Yesterday, I played outside with my friends.” She
also shared in another journal entry, “I just skated outside and played hide and go seek freeze tag with my friends and siblings.” It was evident that both groups also tended to play a number of different sports throughout the study such as basketball, football, soccer, and baseball. In a journal entry, Student 17 said, “I was playing outside with my friends and we were playing with the football.” Student 18 stated in their journal, “Yesterday I got home and I played soccer with all of my friends.” In a journal entry covering the weekend, Student 8 shared, “on Sunday I played basketball.” In a very similar manner, the word “exercise” was used amongst both groups as a general form of expression to the type of physical activity that they participated in. Student 5 stated, “When I got home I exercised a little.” However, deeper connections were made from other Group A members, such as when Student 9 writes, “I started playing and running also then I came back inside and did little exercises like jumping jacks.” Student 7 interchanged physical activity with exercise and stated in her journal, “Yesterday I walked for exercise because it was rainy and nasty outside.”

While there were a number of different connections between both groups’ involvement in a sport of some type, one particular difference that emerged was the use of certain types of equipment or individualized activities that individual or some members from each group used or participated in. One student from Group A engaged in archery quite often. He wrote, “Every day I get home and hang my backpack on the door I go outside to practice archery.” Student 7 shares in a journal entry, “Yesterday I rode my bike then I jumped on my trampoline.” Telling about a time during a weekend, Student 1 says, “On Saturday I was jumping into the pool and swimming.” One student from Group B shared in a journal entry about a Zumba experience since it was something they hadn’t participated in it in recent times. Student 13 stated, “I did more exercise than I have because this is the first time coming to Zumba this year and I forgot what to
expect since it I haven’t been here since the summer.” Chores were also mentioned and associated with physical activity by several Group B members. Student 20 says, “What I did at home yesterday was I did quite a bit of walking and running a little because I was doing chores which required me to have to walk a lot because I was walking from room to room.” Student 18 stated, “I went home and I did the chores and that is all then I went to bed.”

In reference to the impact that CSPAP had on the different types of physical activities that Group A members participated in during unstructured times, Student 2 stated in an interview, “It helped me be a little bit more active because at home I don’t have much things to do as here but because we kept on doing different things here, I have balls at home I didn’t know I could use them for certain activities to move your whole body and started being more active at home because of them.” Student 3 shared that “I wouldn’t want to just stay at home and just sleep and not doing anything. I would want run around and lose weight and all that stuff and not be lazy and laying down all the time. I want to move around and now I barely watch TV.” Student 1 said, “I am more active than like I was before, even though I still played with my friends. When I would get home from school I would always watch TV, sometime I would play outside but only if my friends would play with me. But now I just go outside even if my friends aren’t out there and play with my siblings and stuff.” In recognizing a personal area to improve because of their involvement in CSPAP, Student 5 stated, “It has made more physically active probably cause usually over the weekend or something I would usually just sit down and now I am trying to do something.”

**Physical Changes to the Body Physical Activity**

In each group’s participation with different types of physical activities, themes emerged relating to the physical changes and feelings that occurred as a result. In recognizing specific
changes that occur to the body, it helps to indicate how intense the activity is for the individual and the particular health benefits that they may begin to see with continued participation over time. It was evident from the data analysis that getting tired or exhausted from physical activity was a common factor amongst both groups, with Group A members shared very specifically as to why they got tired. As a result of a long day and an evening full of activities, Student 3 shared that, “On Friday, I went to my brother’s football game and walked around some. When I went home I did a little running in my house and I was walking a little. I got so tired I stopped and went upstairs to my room and went to sleep. I was very tired after this long day.” Student 4 says, “I was doing a workout with my mom and sister and I was working out it made me feel tired.” In a more generalized response, Student 19 recorded in their journal, “I played with my friends and I felt tired.” However, Student 7 shared that “when I went swimming it made me feel tired that’s why I took a nap.” In sharing about their weekend and the activities they did and how it made them feel physically, Student 4 wrote, “I was walking and running up and down the hill and it was so hard to do and we was playing just dance and that made me so tired because we did not stop and it was so hard to do.”

While it could be considered an interchangeable word with tired or exhausted, several students from both groups made connections to their body feeling “hurt” as a result of physical activity. Student 2 claimed that “while I was walking to get my arrows my legs were starting to hurt than I went inside the house and from there I stayed.” In the process of spending part of the day swimming and the rest of the day walking and running around at the fair, Student 20 stated, “How this made me feel physically was my legs hurt and my arms hurt from all the running and other stuff.”
A number of participants recognized physiological changes that occurred as a result of participating in a physical activity. In regards to running around and playing catch, Student 17 wrote, “I felt tired and hot physically.” In response to working hard physically, Student 4 shared how they became hot and sweaty as they became tired. She stated, “I did was running up and down a hill and it really was tiring to do but it was hot and I was sweating.” After playing soccer with some friends, Student 5 shared that she “felt sweaty and hot” as a result of the activity.

Unique individual connections were made by certain Group A and Group B members in response to changes recognized due to physical activity. Student 20 shared in a journal entry, “Saturday my legs were super tired and sore from running and playing.” After walking up and down his stairs at home in combination with the walking he did while out with his family, Student 3 stated, “I felt tired after doing all of this stuff my legs was sore.” In her body’s response to running, Student 13 described feeling her heart change due to the physical activity she has participated in. She wrote, “I felt physically, my heart because I ran a lot yesterday.” Student 6 recognized that being involved in certain types of physical activities cause him to get out of breath and breathe hard. In his journaling, he indicated a strong understanding that with the continued choice to be physically active, this physical change can improve. He stated, “It’s important that you stay active so you’re not breathing hard and your able to do more things.”

**Psychological Changes due to Physical Activity**

Certain psychological factors influence an individual’s choice to be physically active (Gavin, McBreatry, Malo, Abravanel, & Moudrakovski, 2016). A final theme that transpired as a result of the data analysis dealt with psychological changes that students from each group expressed as a result of participation in a physical activity. Being excited and happy was an emotion expressed quite frequently throughout the journal logs and individual interviews with
Group A. In getting to be with her friends, Student 4 shared, “It makes me happy cause I get to play with my friends.” In response to the impact that CSPAP has had on their emotions towards being physical activity, Student 8 stated, “I get happy by learning how to keep myself in shape.” One particular student who journaled a considerable amount about going to the park said, “I felt so happy that I went to the park.” Another student referred to something that they journaled on a number of times was Student 1 who stated, “I felt emotionally happy because I love swimming.”

“Good” was a common phrase used amongst members in both groups. Student 11, who is referring to walking and spoke broken English, said it “make me feel good because I walking a lot.” Very similar to them, Student 5 stated, “I felt good about the walking.” In sharing about the effects of being physically active for an extended period of time, Student 16 stated, “I helped my dad cut the grass and I ran for one hour in the park and I felt good.” While this seemed to be one state of mind that these students were in emotionally, others felt that the physical activity “calms” them as well. Student 5 shared that walking made her feel “calm and cool.”

In a final conclusion, certain students felt that through their choice in being physically active, the activity itself, help energize or provide them with a renewed sense of energy. Student 8 described this thought when he shared on the way that playing sports makes him feel. He stated, “It made me feel like I have a lot of energy and I can’t stop moving my muscles.” When referencing to how CSPAP has helped increase physical activity at home, Student 4 shared, “I can just get like more energy than staying home and to doing nothing.”

Summary

During data analysis through open, axial, and selective coding of journals, questionnaires, and interviews, one main category emerged to answer the research question: What are the effects of a Comprehensive School Physical Activity Program (CSPAP) on student unstructured
physical activity? Emerging themes that supported the main variable consisted of reasons to be physically active, types of activities involved in, physical feelings due to physical activity, and psychological feelings due to physical activity.

It was identified that through the structure of CSPAP, Group A member’s perception in choosing to be more physically active during unstructured times improved. Though Group A was not as active as Group B members, they demonstrated through questionnaires, journaling and interview that they began to value the importance of finding time to move and relate it to the health benefits that could be received as a result of this choice.

This chapter presented the findings to broader theoretical issues through surveys, questionnaires, journals, pedometer readings, and interviews for Group A (experimental group). For Group B, this consisted of surveys, questionnaires, journals, and pedometer readings. Chapter Five provides findings, conclusions, implications, and recommendations for future studies.
CHAPTER 5: Findings, Conclusions, Implications, and Recommendations

Child health concerns such as obesity, type 2 diabetes, and liver disease are just a few of the growing issues in the United States today (Yanovski, 2015). In recent years, this has grown into a public health issue due to the high rise in the number of children being diagnosed with health related issues at such an early age. It is very clear that the school holds a critical position in the efforts to help combat this epidemic (Huberty, Dinkel, Coleman, Beighle, & Apenteng, 2012). Changing the perception of the way students view and understand the importance of living a physically active life goes beyond the realms of just the physical education class (Tercedor, et al, 2017). Providing intervention and restructuring the school environment allows for the promotion of physical activity in unique ways that offer students the opportunity to better understand the importance a choosing to live a physically active life, at an early age.

This study investigated the possible solution to the increase of children participating in sedentary activities (McManus, 2007). It examined the way that the school can play a significant role in getting students to take initiative in becoming more active on their own at home. This study specifically addressed the impact that a multi-component intervention program had on students and the way they perceived physical activity, before and after the study. This chapter presents the summary, findings, conclusions, implications, and recommendations for future studies.

Summary of Study

This qualitative study utilized an interpretive approach to better understand the phenomenon based on the results of information collected from surveys, interviews, journals and pedometer readings. The conceptual framework was based on the fact that the environment, people, and behavior are constantly influencing each other (Morton, Atkin, Corder, Suhrcke, &
van Sluijs, 2015). This aligns with further examining whether a Comprehensive Physical Activity Program that creates a school environment which models, teaches and increases physical activity, will increase students’ choice to be active more regularly outside of school.

This study was guided by the following research question:

1. What are the effects of a Comprehensive School Physical Activity Program (CSPAP) on student unstructured physical activity?

Participants, consisting of 10 randomly chosen students, were selected from two different classes in order to create both the experimental and control group. The ten students selected in the experimental group were identified as Group A, while the other students selected for the control group were identified as Group B. Students from each group were asked to complete a pre and post Physical Activity Questionnaire for Older Children (PAQ-C) that asked students to recall physical activity for the past seven days. Parents of each child were asked to complete an additional pre and post survey that questioned their child’s participation in certain types of physical activity for the same seven-day recall period. Members from each group completed journal entries on a program called Seesaw each week day to reflect on their previous day’s activity. Daily pedometer readings were taken for the previous day’s physical activity level as well. At the end of the study, students from the experimental group were interviewed in order to gain more insight on the specific impact of the CSPAP and their choice to be physically active.

Upon completion of collecting data, information was analyzed by open, axial, and selective coding (Seidel, 1998). Themes emerged through open, and axial coding that provided support for the main variable identified in selective coding.
Findings

In the process of analyzing the student data, four main themes emerged to support the findings in determining the effects of CSPAP on student unstructured physical activity. It was evident that through the interventions received and the way that information was shared on the questionnaires, journal entries, and interviews that students from Group A increased their physical activity level based on health contributions. Deeper connections made to health concerns help support this finding. Certain Group A members shared about deeper underlying health issues by referencing the ways that physical activity minimizes heart disease, the risk of diabetes and controlling body weight. With this mindset, students are able to make personal decisions independently that can affect them for a lifetime (Dauenhauer, Keating, Lambdin, & Knipe III, 2017).

Understanding the types of physical activities that Group A members participated in helped the researcher to determine the reasons for an increase in activity based on the data collected from the PAQ-C, journals and interviews. It was very clear that Group B members were much more active in general overall and spent more time in activity that was considered to be moderate-vigorous. A difference between the two groups was that Group A tended to do more things around the house while Group B members did not. Group B members expressed multiple times in journal entries that time was spent at the park participating in various forms of physical activity. However, in comparison to pre and post PAQ-C results, growth in activity was reported from a seven-day recall for Group A as a whole while Group B remained at the same level. Continued analysis of the data shared that as students from Group A progressed through the program, certain students became more knowledgeable on ways to engage in physical activity at
home while others chose to participate in physical activity more frequently or in different ways than when they first started.

Physical changes to the body emerged as a theme that developed as a result of the journals and interviews. Changes to the body were recognized by both groups and were generally connected to the improvement of the body. Further data analysis revealed their ability to make deeper connections with the changes, such as the more they are physically active, the easier it becomes to breath during physical activity. It was very common for students from both groups to associate certain changes to the strengthening of muscles. As a result of being involved in CSPAP, Group A members demonstrated a positive connection with the changes that occurred, allowing for the needed health benefits to be recognized. These changes also provide a supporting factor to the psychological changes that occur as a result of them being physically active.

The choice to be physically active is influenced by psychological factors that can stem from one’s experiences and feelings (Anderson, Cohen, Naumova, Jacques, & Must, 2007). Based on those experiences and feeling, one might choose to be involved or not be involved with physical activity. The results demonstrated that students from both groups expressed many different emotions. The identified feelings from both groups primarily remained the same throughout the study in relation to how participation in physical activity made them feel psychologically. This particular theme supports the main variable through the connection of physical activity positively affecting participants psychologically.

Implications and Conclusions

It was very clear that a school environment structured around promoting physical activity leads students to change their behavior. Placing the importance of physical activity on their mind
allows students to engage and participate in consistent conversation and physical activity that contributes to a change in the choice to be active after school. Through the different forms of intervention received, Group A members demonstrated a strong connection to health-related concerns as a means to being more active. The interventions also indicated how it helped provide the knowledge on ways to engage in physical activity at home and reinforce other ways in order to improve the frequency of participation in physical activity on their own. It was evident that while the study impacted the choice to become more active, it did not necessarily improve the choice to be involved in more moderate-vigorous activities.

**Recommendations**

Future recommendations could include conducting research on different types of physical activities that children tend to participate in. This study could shape the understanding on how specific activities motivate children to be active. This may also lead to better understanding of the intensity level in which a child might participate during each activity. It would also be recommended that additional research be conducted on the impact that pedometers might have in motivating children to be more active. This will allow there to be a better understanding of the data dealing with daily physical activity and whether it is by choice or because of the tracking device. A final recommended study would be on parents and their role in the process to a child’s choice to be physically active. Information collected through these recommendations can assist in providing additional data to better determine the impact that CSPAP has on student unstructured physical activity.

**Summary**

Childhood obesity and health related concerns are on the rise (Cheung, Cunningham, Naryan, & Kramer, 2016). Providing a means to combat this epidemic is a priority for the future.
The school plays a pivotal role in this quest as by serving in a primary role that proves to be very influential on the behavior and choices that kids make. Physical education classes cannot be considered the only means of engaging and educating students on the importance of choosing to live a physically active life after school (Perera, Frei, Frei, & Bobe, 2015). This study has shown that through the restructuring of the school environment and the heavy promotion of physical activity through a wide-range of interventions throughout the school day, there is a positive influence on the child’s perception of physical activity. This leads students to better understand how the healthy decisions made now can last a lifetime.
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Appendices
Appendix A

Survey
PAQ-C Survey

**Physical Activity Questionnaire (Elementary School)**

Name: ___________________________  Age: ____________

Sex:  M _______ F _______  Grade: _________

Teacher: ________________________

We are trying to find out about your level of physical activity from the last 7 days (in the last week). This includes sports or dance that make you sweat or make your legs feel tired, or games that make you breathe hard, like tag, skipping, running, climbing, and others.

**Remember:**
1. There are no right and wrong answers — this is not a test.
2. Please answer all the questions as honestly and accurately as you can — this is very important.

<table>
<thead>
<tr>
<th>Activity</th>
<th>No</th>
<th>1-2</th>
<th>3-4</th>
<th>5-6</th>
<th>7 times or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skipping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rowing/canoeing</td>
<td></td>
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<tr>
<td>In-line skating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tag</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking for exercise</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bicycling</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Jogging or running</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerobics</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swimming</td>
<td></td>
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<tr>
<td>Baseball, softball</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dance</td>
<td></td>
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<td></td>
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<tr>
<td>Football</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Badminton</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Skateboarding</td>
<td></td>
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<tr>
<td>Soccer</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Street hockey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volleyball</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Floor hockey</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketball</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice skating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-country skiing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice hockey/ringette</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Physical activity in your spare time: Have you done any of the following activities in the past 7 days (last week)? If yes, how many times? (Mark only one circle per row.)
2. In the last 7 days, during your physical education (PE) classes, how often were you very active (playing hard, running, jumping, throwing)? (Check one only.)

   I don’t do PE ..............................................
   Hardly ever ............................................
   Sometimes ..............................................
   Quite often .............................................
   Always ....................................................

3. In the last 7 days, what did you do most of the time **at recess**? (Check one only.)

   Sat down (talking, reading, doing schoolwork).....
   Stood around or walked around ........................
   Ran or played a little bit ................................
   Ran around and played quite a bit ....................
   Ran and played hard most of the time ..............

4. In the last 7 days, what did you normally do at lunch (besides eating lunch)? (Check one only.)

   Sat down (talking, reading, doing schoolwork).....
   Stood around or walked around ........................
   Ran or played a little bit ................................
   Ran around and played quite a bit ....................
   Ran and played hard most of the time ..............

5. In the last 7 days, on how many days **right after school**, did you do sports, dance, or play games in which you were very active? (Check one only.)

   None ....................................................
   1 time last week ....................................
   2 or 3 times last week ............................
   4 times last week ..................................
   5 times last week ..................................

6. In the last 7 days, on how many **evenings** did you do sports, dance, or play games in which you were very active? (Check one only.)

   None ....................................................
   1 time last week ....................................
   2 or 3 times last week ............................
   4 or 5 times last week .............................
   6 or 7 times last week .............................
7. *On the last weekend*, how many times did you do sports, dance, or play games in which you were very active? (Check one only.)

- None ................................................................. 〇
- 1 time ............................................................. 〇
- 2 — 3 times ...................................................... 〇
- 4 — 5 times ...................................................... 〇
- 6 or more times .................................................. 〇

8. Which one of the following describes you best for the last 7 days? Read all five statements before deciding on the one answer that describes you.

A. All or most of my free time was spent doing things that involve little physical effort ......................................................... 〇

B. I sometimes (1 — 2 times last week) did physical things in my free time (e.g. played sports, went running, swimming, bike riding, did aerobics) ................. 〇

C. I often (3 — 4 times last week) did physical things in my free time ......................... 〇

D. I quite often (5 — 6 times last week) did physical things in my free time ............. 〇

E. I very often (7 or more times last week) did physical things in my free time ......... 〇

9. Mark how often you did physical activity (like playing sports, games, doing dance, or any other physical activity) for each day last week.

<table>
<thead>
<tr>
<th>Day</th>
<th>None</th>
<th>Little bit</th>
<th>Medium</th>
<th>Often</th>
<th>Very often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Tuesday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Wednesday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Thursday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Friday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Saturday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>Sunday</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>

10. Were you sick last week, or did anything prevent you from doing your normal physical activities? (Check one.)

- Yes ................................................................. 〇
- No ................................................................. 〇

If Yes, what prevented you? ________________________________
Appendix B

Survey
### Which of the following PHYSICAL activities did your child do in the PAST 7 DAYS?

Please complete this questionnaire for the following days: ............................. to ................................

<table>
<thead>
<tr>
<th>Did your CHILD do the following activities in the past 7 days?</th>
<th>MONDAY – FRIDAY</th>
<th>SATURDAY – SUNDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How many times Mon–Fri?</td>
<td>Total hours/minutes Mon–Fri?</td>
</tr>
<tr>
<td>Bike riding</td>
<td>2</td>
<td>40 mins</td>
</tr>
<tr>
<td>EXAMPLE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPORTS ACTIVITIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerobics</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Baseball/softball</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Basketball/volleyball</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Cricket</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Dancing</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Football</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Gymnastics</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Hockey (field or ice)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Martial arts</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Netball</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Rugby</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Did your CHILD do the following activities in the <strong>past 7 days</strong>?</td>
<td>MONDAY – FRIDAY</td>
<td>SATURDAY – SUNDAY</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>-----------------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td>How many times Mon-Fri?</td>
<td>Total hours/minutes Mon-Fri?</td>
</tr>
<tr>
<td>Running or jogging</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Swimming lessons</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Swimming for fun</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Tennis/badminton/squash/other racquet sport</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>LEISURE TIME ACTIVITIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bike riding (not school travel)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Bounce on the trampoline</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Bowling</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Household chores</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Play in a play house</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Play on playground equipment</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Play with pets</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Rollerblading/roller-skating</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Scooter</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Activity</td>
<td>MONDAY – FRIDAY</td>
<td>SATURDAY – SUNDAY</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td>How many times</td>
<td>Total hours/minutes</td>
</tr>
<tr>
<td></td>
<td>Mon-Fri?</td>
<td>Mon-Fri?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skateboarding</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Skiing, snowboarding, sledging</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Skipping rope</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Tag</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Walk the dog</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Walk for exercise/hiking</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>ACTIVITIES AT SCHOOL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical education class</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Travel by walking to school (to and from school = 2 times)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Travel by cycling to school (to and from school = 2 times)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>please state:</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Activity</td>
<td>MONDAY-FRIDAY</td>
<td>SATURDAY-SUNDAY</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Watching TV/videos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art &amp; craft (e.g. pottery, sewing, drawing,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>painting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing homework</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaginary play</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listen to music</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Play indoors with toys</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing board games / cards</td>
<td></td>
<td></td>
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<tr>
<td>Playing computer games (e.g. playstation /</td>
<td></td>
<td></td>
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<tr>
<td>gameboy)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Playing musical instrument</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
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<tr>
<td>Sitting talking</td>
<td></td>
<td></td>
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<tr>
<td>Talk on the phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel by car / bus to school (to and from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>school)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>MONDAY-FRIDAY</td>
<td>SATURDAY-SUNDAY</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td>Total hours/minutes</td>
<td>Total hours/minutes</td>
</tr>
<tr>
<td>Did your CHILD do the following activities in the <strong>past 7 days</strong>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using computer / internet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watching TV/videos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (please state):</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
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<td></td>
<td>No</td>
<td>Yes</td>
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<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Appendix C

Interview Questions
Student Interview Questions

1. In being a part of a Comprehensive School Physical Activity Program, how would you say that it has impacted or influenced your choice to be physically active?

2. Has the CSPAP allowed you to think more about being physically active on a daily basis?

3. Has the CSPAP helped you grow in knowledge and understanding on the importance of being physically active on a daily basis? If not, how come? If so, how?

4. What does physically activity mean to you and is it important to you? Why or why not?

5. Has the CSPAP program helped you to find more ways in being active at home and outside school hours?

6. Does a CSPAP make you feel forced to be physically active or has it helped your willingness to be physically active?

7. Has the CSPAP helped bring an awareness to the importance of physical activity to other family members at home?

8. Has any part of the CSPAP more specifically impacted your thoughts to being physically active than another part of the program?

9. How has CSPAP impacted your overall active time in comparison to before the program started?

10. How has the CSPAP impacted your emotions towards being physically active over the three weeks?
Appendix D

Informed Consent
Informed Parental Consent

You are invited to include your child as a volunteer in a research study being conducted by Josh Van Pelt, Doctoral student, in the Education program at Carson-Newman University. The study will begin in September and continue for approximately 3 weeks (September 4-September 21). Please read this form and indicate whether you give consent for your child to participate. Your child was selected as a possible participant because of his or her classroom placement for the fifth grade. I ask that you read this form and ask any questions you may have before agreeing for your child to be in the study.


Background Information
The purpose of this research study is to better understand the effects of a Comprehensive School Physical Activity Program (CSPAP) on unstructured student physical activity.

Procedures:
Your child will be involved in an intervention that allows them to participate in a before (7:00-7:30 a.m.) and after school physical activity program (2:45-3:30 p.m.). During the school day, they will be given physical activity breaks during core academic instruction along with being a part of a structured recess environment. Your child will also receive instruction on fitness components and the importance on living a physically active life in their physical education class. With informed parental consent, your son or daughter will be given a pedometer to track their daily physical activity level after school until bedtime. Data from survey information, journals, pedometer readings, and interviews will be accessed by the researcher and analyzed for the effectiveness of a multi-component intervention on children unstructured physical activity. Identifying information will only be provided to the researcher. The researcher will take precautions to protect participant identity by not using the names of participants, classrooms, or the school in his results or writing. The researcher will use the anonymous assessment results for dissertation, publication, and presentation purposes.

Participant Risks
There will be no harm to participants in this study and you have the right to remove your child at any time.

Participant Benefits
There are benefits for participating in this research project. Participants may increase their daily level of physical activity and see limited health improvements as a result. The findings from this study may assist educators in planning effective intervention that improves the amount of time a child is physically active in an unstructured environment. Also, information from this study will provide educators with valuable insight into students’ motivation, attitudes, and skills needed to become more involved in unstructured physical activity. This knowledge can assist them in helping children understand and live out a healthy active life for a lifetime.

Contacts and Questions:
The principle researcher conducting this study is Josh Van Pelt, who is the Physical Education teacher at Norwood Elementary. You may ask any questions you have now or anytime throughout the research. If you have questions later, you are encouraged to contact the researcher at 865-689-1460 or by email at kevin.vanpelt@knoxschools.org. This research project is being conducted under the direction of Dr. Julia Price, Ed.D. Carson-Newman University and has been approved by the Knox County School System.

The researcher will gladly answer any inquiries regarding the purpose and procedures of the present study. Please send all inquiries via email at kevin.vanpelt@knoxschools.org

………………………………………………………………………………………………………

By signing below, you are giving your child permission to participate in this study. Please return by Aug. 27th or earlier. Spots will be limited as only 10 students can be selected for this study. Understand that early arrival and pickup arrangements for the afternoon will need to be adjusted due to the study requirements.

Student’s Name

_______________________________________________________