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Teachers' and Students' Perception of The Influence of Physical Exercises on Academic Achievement of North

Wollo Selected preparatory Schools

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This is to certify that the thesis prepared by Dawit Guangul, entitled: “Teachers ' and Students’ Perception of the Influence of Physical Exercises on Academic Achievement in North Wollo; selected preparatory schools” and submitted in partial fulfillment of the requirements for the degree of master of education teaching physical education complies with the regulation of the university and meets the accepted standard with respect to the originality and quality.

Signed by Examining Committee

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Chair of department or graduate program coordinator

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ABSTRACT

The aim of this study was to explore teachers'' and students' perception on the influence of physical exercise on academic achievement in three North Wollo selected preparatory schools, Amhara Region. A total number of 256 grade eleven (11) students and sixty one (61) teachers were as a sample of the study using stratified and simple random sampling techniques. Questionnaire (closed, mixed and open ended) and interview was the instrument employed to collect data. Descriptive statics and qualitative analysis method were employed in analyzing the raw data. The results show that both teachers and students perceives as PE has a positive impact; on improving academic achievement (63%), on the study focus(70%), overall students' performance(63%), class room behaviors(57%), students result (63.7), class room participation(63%) and helps to compute with other on academic performance(63%) . Though students need to participate in PE programs. Low provision of PE programs in the school, the surrounding and unwillingness of parent's to send their children's for PE were among the factors that hinders most students not to participate in PE. On the other hand, the presence of sport fields, football teams and taekwondo centers in the surrounding were identified as positive factors that influence students to participate in PE. Above all thought it is encouraging to see that teachers and students perceive as PE improve academic achievement. Nevertheless, most students did not participate in physical exercise programs or activities due to a number of factors. It is imperative to provide access to physical exercise facilities and centers for the surrounding teachers, students and youths to best meet their physical exercise needs and develop all round personality and enjoy academic achievement improvement benefit of PE.

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Acronyms/ Abbreviation

AA Academic Achievement

PA Physical Activity

PE Physical Exercise

PH Physical Education

SPSS Statistical Package for Social Science

ST Students Perception

TE Teachers Perception

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CHAPTER ONE

INTRODUCTION

This chapter presents the background of the study, statements of the problems, general and specific objectives, research question, and significance of the Study, limitation, delamination of the study, operational definition and organization of the study.

1.1 Background of the Study

Regular physical exercise will produce beneficial effects for any age group providing the exercise is specific and appropriate to the level of fitness of the individual. Progressive exercise correctly performed will increase the level of fitness and improve health. It will also create a sense of well -being, produce greater energy and reduce the risk of developing many diseases. Exercise makes demands on the body systems over and above normal every day activities and as result the systems adapt anatomically and physiologically (Rosser, 2001).

Over recent years, research into the association between physical exercise and academic achievement has increased considerably. The latest studies have shown a link between physical exercises integrated into classes, the amount of physical exercise and aerobic fitness, on the one hand, and school grades and standardized test results in individual subjects, on the other. The positive effects of physical exercise on academic achievement have been detected in mathematical subjects in particular. Participation in training as a member of sports and exercise clubs has been linked to good performance at school.

Furthermore, it should be noted that studies that involved increasing the time spent in physical education classes and breaks and, correspondingly, decreasing the amount of time spent in academic classes did not show any deterioration in pupils' academic learning outcomes.

Physical exercise has been found to have a positive effect on students' cognitive functions, such as memory, attention and general information processing and problem-solving skills. The latest studies indicated that increasing physical exercise improved test results, in particular in tasks requiring executive functions and memory. However, there is still very little research on the direct effects of physical exercise on cognitive functions and the results are somewhat inconsistent.

Studies conducted on the relation between physical exercise and academic achievement showed that either significant improvements, non-significant effect or no impairments in academic performance.

Some studies showed that Physical exercise is related to better academic performance. These studies showed that physical exercise predicts higher academic performance and Physical exercise has positive influences on classroom behavior, faster decision making, concentration, memory, and cognitive function (Hillman et. Al, 2009; Sattelmair & Ratey, 2009; Coe et al., 2006)).

On the other hand, Molloy (1989) and Uhrich & Swalm (2007) both reported non-significant effects with some of their PA and academic performance outcomes. Ahamed et al. (2007) reported that, increased PA by 47 minutes per week yet academic performance remained the same, showing no effect.

Regardless of the time allotted for physical education and physical exercise, in the reality we observed that students' physical activity begins to decline when they go to upper grade levels and after adolescence (CDC. et. al 2000).

As we know government, schools environment, teachers, students and other related bodies has been positive influence for students' academic achievement. In addition to the above point's physical exercise also the best ways for students learning because of the following regular exercise contribution such as, physical, mental, social, and emotional benefits to the students.

On the other hand academic performance is highly regarded as a measurement of student success and may be used by a wide range of stakeholders, including students, parents, teachers, higher education institutions and employers to make decisions on the student's future.

In addition to academic achievement and cognitive skills, physical exercise also appears to promote other aspects that are important in terms of learning, such as classroom behavior concentration on assignments and participation in classwork – and, subsequently, learning itself. Physically active pupils also have higher goals for further studies after comprehensive school.

Moreover, physically fit pupils are absent from school less frequently than their less fit peers. While participation in sports can play an important role in increasing physical exercise levels and school sports participation alone may not be sufficient to meet the current physical exercise recommendations for adolescents.

The U.S. Department of Health and Human Services suggests that students accumulate 60 minutes of physical activity every day. Physical activity levels tend to decline during adolescence suggesting that efforts to promote physical exercise during this period are essential. Participation in organized school sports offers opportunities for students of all ages to be physically active and has been shown to help improve students' self-esteem and psychological well-being. Research has also shown that good aerobic fitness has a positive correlation with memory and executive functions. Conversely, muscular fitness does not appear to have any link to cognitive functions. The connections between physical activity and cognitive functions may contribute to explaining the link between physical exercise and academic achievement.

In Ethiopia also, work the time allocation for PE especially in secondary school of Amhara Region has changed from 2 periods per week to 1 period per week and schools are implementing it accordingly starting from the Academic year of 2010 (ANRSBOE 2010). However, no current research exists supporting the reduction of non-academic programs to improve academic performance.

Above all, these studies at least proved that spending more time in physical education or physical exercise did not have harmful effects on standardized academic achievement test scores. In general majority of the above studies are done abroad and their focus is not on students and teachers Perception of physical exercise in academic achievement.

Thus, it is imperative to explore teachers and student's perceptions of how they view the effect of physical exercise in academic achievement. It is also believed in most studies that, there is no studies which will be used students and teacher's perceptions to explore this relationship before.

Which means no studies have explored student and teachers perceptions on physical exercise to explain the relationship between physical exercise and academic achievement. The proposed study aims to fill this gap in understanding to help execute future programs and policies to support physical activity

Therefore; I hope that, this research was successfully answered the research questions by asking the students and teachers about their perceptions of the influence of physical exercise on academic achievements through the use of semi-structured interviews and questionnaires type of quantitative and qualitative research methods.

1.2. Statement of the Problem

It is understood that exercise is important for learning, but how much is necessary for academic improvement is still a debate among scientists. According to Hobson (2008), Castelli noted a single 10 minute bout of physical exercise is enough to boost attention and problem solving skills.

Research shows that as female student's, they are more likely than males to stop engaging in physical exercise because they are not fun, are too competitive, and demand too much time (Strong, 1990). Other barriers included lack of time and motivation (Humbert et al., 2006; Tergerson & King, 2002). Ammouri, Kaur, Neuberger, Gajewski, and Choi (2007) found adolescent males generally cite competition and females more often mention weight management as reasons for participating in physical exercise.

Research shows adolescents with siblings, parents, and peers who support and/or engage in physical exercise are more likely to participate in physical exercise than those lacking support (Ammouri et al., 2007; Dagkas & Stathi, 2007; Loucaides et al., 2007; Ries et al.,2008; Sallis et al., 2000; Voorhees et al., 2005).

Other studies have examined environmental influences affecting student's participation in physical exercise. These findings showed environmental factors such as cost for sport wears, facilities, and proximity are the greatest barriers for physical exercise in low socioeconomic (SES) student's (Dagkas & Stathi, 2007;Humbert et al., 2006).

The consequences of physical exercise on health are well-known but the outcomes on academic achievement are not yet fully understood. As far as my knowledge, Physical education is a unique subject it develop the three educational domain that is cognitive, physcomotor and affective domain when the students perform physical exercise.

Few studies have examined the perceptions of teachers and students on the influence of physical exercise and its contribution to academic performance so far. This study is concerned to teachers and students perception on the influence of physical exercise on academic achievement. The main reason as the researcher is that there is no any formal research which was conducted and reported in the context of three towns of North wollo. That is why this researcher aimed to study from the above mentioned point of view among selected preparatory schools.

As a result, the study would try to explore teachers and students perception of the influence of physical exercise on academic achievement.

1.3. Objective of the study

1.3.1. General Objective of the study

The general objective of the study was identify teachers and student's perceptions of the influence of physical exercise on academic achievement in the case of selected preparatory schools.

1.3.2. Specific objectives of the study

The specific objectives of the study was:-

- To determine teacher's perceptions of the influence of physical exercise on the students' academic achievement.
- To know students' perceptions of the influence of physical exercise on their academic achievement.
- To investigate the factors that affects students to participants in physical exercise or not participants

1.4 Research questions of the study

In order to address the main purpose of the study the following research questions was forwarded:

1. What are the perception of preparatory school teachers about the effect of physical exercise on students' academic achievement?
2. What are the views/ perception of students about the effect of physical exercise on their academic achievement?
3. What are the factors that affects students to participants in physical exercise or not participants?

1.5. Limitation of the study

This study was only conducted on North Wollo preparatory schools, grade eleven students and in three preparatory schools are the main limitation of study.

1.6. Delimitation of the Study

Conceptually, the study was delimited only in investigating teachers and student's perception of the effect of physical exercise on students' academic achievement. Geographically, the scope is delimited only to kobo, Mersa and Wolida towns' preparatory schools.

Therefore, the findings of this study only reflects teachers and students perception of the influence of physical exercise in student's academic achievement in the selected preparatory schools of the three towns of North Wollo Zone, Amhara Region,Ethiopias.

1.7. Significance of the study

The main significance of this study was the connection of teacher's and student's perceptions to the relationship between physical exercise and academic achievement.

The researcher expected the following importance from this study.

- Illustration the teacher's perception of influence of physical exercise for academic achievement.
- Display students' perception of influence of teachers and students on physical exercise for academic achievement.
- To know that hinders students to participants in physical exercise or not to participants

1.8. Operational Definitions of Terms

According to the context of the words and terms that were used in this thesis proposal, the researcher has put the following terms and words based on the context they are used in each research topics for the sake of clarity and consistency.

- **Academic achievement** is the overall excellence in all academic disciplines; represented in this study as cumulative grade point average.
- **Academics** refer to student dispositions on school and grades.
- **Exercise** is a type of physical activity with repetitive actions for the purpose of increasing performance in an effort to improve or maintain physical fitness.
- ***Fitness*** is a component of Physical Education that involves completing exercises to stay healthy.

- ***Physical activity*** includes any action that a person participates in that involves bodily movement.
- ***Perceptions*** in this thesis will refer to how students and teachers think and believe and the way that they view and understand things. Other words often associated with perceptions are attitudes, beliefs and conceptions,
- ***Sport*** refers to games where individuals or teams compete against one another.
- **Motivation** is the effort put forward to participate in physical activity. It can be influenced by internal and/or external factors that stimulate the desire and energy to be interested and committed.
- **Physical education** is an education through physical exercise.
- **Health** is quality of life which consists physical, mental, and social well-being.

1.9. Organization of the study

This study was organized in to five chapter. Chapter one deals with introductory part includes background and statement of the problem, objectives, significance of the study, limitation and delamination of the study with definition of key terms. It was provide with an overview of the study and the reason why the topic is worth. Chapter two is about review literature, in this chapter the research question begin to clarify. Whereas, chapter three discuss the design and metrology, data sources, sampling techniques; the types of instrument and data analysis techniques and ethical consideration used were discussed. Chapter four provides presentation, analysis and interpretation of the gathered data by discussing the sample population and the research finding. And in the last chapter the whole research project is considered. In this regard the researcher gives the summaries, conclusion and recommendation of the study. Finally, lists of the reference material used in the study, questioners and similar guides were attached to the research document.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Introduction

The researcher has gone through several books, periodicals and journals and published thesis, while searching for relevant facts and finding that were related to this present study. Such studies and their results are detailed in this chapter with justifications.

2.1. Academic performance

There is a growing body of research, both in the UK and internationally, which has found a positive association between participation in physical activity, and higher academic performance in young people (Chaddock et al, 2012; Singh et al, 2012; Lleras, 2008; Trudeau and Shepard, 2008; Strong et al, 2005; Taras, 2005).

Amongst this research there are some key reviews which have studied the influence of physical activity on academic performance (Trudeau and Shepard, 2008; Singh et al, 2012 and Taras, 2005). In detail: Trudeau and Shepard (2008) reviewed the literature on the relationship between PE, school physical activity and school sports on academic performance. They concluded that physical activity can be added to the school curriculum by taking time from other subjects without the risk of hindering student's academic achievement.

Further conclusions were made stating the literature strongly suggests that academic achievement, physical fitness and health of children will not be improved by limiting the time allocated to PE instruction, school physical activity and sports programmes. It was also reported that cross-sectional studies generally indicate a positive association between physical activity and academic achievement.

A review by Singh et al (2012) aimed to describe the prospective relationship between physical activity and academic performance, focusing only on longitudinal studies. It was concluded that participation in physical activity is positively related to academic performance in children, however only 2 high quality studies were found and the need for future high-quality studies was highlighted. These future studies should also examine the dose-response relationship between the two variables as well as explanatory mechanisms for this relationship.

Taras (2005) reviewed literature investigating the association between physical activity and academic outcomes among school-aged children. It was recognized that physical activity is well associated with improved overall health and that among school-aged children it can help develop social skills, improve mental health, and reduce risk-taking behaviors. It was

concluded that there may be some short-term benefits of physical activity, such as concentration. The long-term improvement on academic performance is a result of more vigorous physical activity but further research is needed in this area.

2.2 Benefits of Physical Activity

Ratey and Hagerman (2008) stated that the relationship between food, physical activity, and learning is hardwired into the brains circuitry.

Humans were born to move. From the beginning humankind, it was innate for us to hunt and search for food. Physical activity was a part of daily life and using the brain was a way of survival. In 2011, however, exercise is viewed as a way to stay in shape or get fit. It is viewed as leisure time rather than a means of survival, and it is viewed entirely separate from intellect.

According to the Center for Disease Control (CDC; 2009), suggested that "American society has become 'obesogenic,' characterized by environments that promote increased food intake, non-healthful foods, and physical inactivity". The National Health and Nutrition Examination Survey (NHANES) results show an increased prevalence in adolescent obesity from 5% in 1980 to 17.6% in 2006, with 67% of adults classified as overweight or obese (CDC, 2009). Along with obesity, the National Institute of Mental Health (2008) has described mental disorders as the leading cause of disability in the United States and Canada for ages 15 to 44, with one in 10 children severe enough to cause some level of impairment.

Ratey and Hagerman (2008) describe exercise "like taking a little bit of Prozac and a little bit of Ritalin" (p. 38) because exercise is known to balance the neurotransmitters serotonin, norepinephrine, and epinephrine involved with mood, 13 attention, and arousal. Along with improving mood, motivation, focus, and attention, Ratey also discusses how exercise reduces stress, anxiety, depression, and addiction. Exercise is known to improve cardiovascular health and weight, but documentation recently has shown the positive effects on the brain.

Regular physical activity is a factor in healthy living. According to the Surgeon General's report on physical activity and health, the benefits of regular physical activity for children and 5 adolescence include: building and maintaining healthy bones, muscles and joints, reducing feelings of depression and anxiety, and promotion of psychological well-being.

In addition, physical activity helps control weight, reduce fat, build lean muscle, and assists academic performance. Researchers and educators agree that movement is essential to learning as the brain is activated during physical activity. Therefore, by incorporating physical activity, physical education can have beneficial effects on both academic learning and physical activity patterns of students. According to several researchers, (Etnier, Salazar, Landers, Petruzzello, Han & Nowell, 1997; Hillman, Castelli, & Buck, 2005; Hollmann & Struder, 1996; Ploughman, 2008; Shephard, 1997; Trudeau & Shephard, 2010; Sibley & Etnier, 2003) when the brain is activated during physical activity, existing brain cells are rejuvenated and new ones are stimulated. Specifically, there is an increase in cerebral blood flow, enhancement of arousal level, changing hormone secretions, and enhanced nutrient intake.

2.3 Effects of Physical Activity on the Brain

Physical activity effects on the brain have been extensively researched (Etnier, et al., 1997; Ploughman, 2008; Trudeau & Shephard, 2010; Sibley & Etnier, 2003). Physical activity benefits for the brain have included: increase in cerebral blood flow (moderate to high intensities of exercise have shown large increases), changes in neurotransmitters (acute bouts of exercise cause changes), increases in norepinephrine and serotonin (after an acute bout of exercise and chronic exercise influences more long-term increases in neurotransmitters), and permanent structural 6 changes in the brain.

The increases in cerebral blood flow benefit cognitive functioning due to the increased nutrient and oxygen supply to the brain. Additionally, the increases in norepinephrine found in humans are significant due to the fact that studies on rats have shown high levels of norepinephrine associated with improved memory. For example, Isaacs, Anderson, Alcantara, Black, and Greenough, (1992) conducted an experiment where rats were assigned to one of four conditions.

The first group was a motor skill learning group that trained for 30 days on an obstacle course that was periodically increased in difficulty. The second group was also trained for 30 days to walk rapidly and then jog one hour each day. The third group was housed individually with a running wheel, and the activity was voluntary. The fourth group was an inactive group with identical cages as the other groups. Their results found that both the motor skill learning group and the repetitive physical activity group had permanent changes in the brain which demonstrated that physical activity and motor skill learning stimulated angiogenesis (a physiological process in the body that involves the growth of new blood vessels). More recently

a review conducted by Trudeau and Shephard (2010) highlighted the relationship of physical activity to brain health and academic performance of school children. The experimental studies on physical activity and cognition on rats and humans focused on the hippocampus which is related to memory. The focus of these investigations was on long-term hippocampal potentiation (LTP). This is a necessary process in the consolidation of memory and is characterized by an increase in synaptic efficacy.

The LTP appears to be facilitated by physical activity through the following mechanisms: improved synaptic transmission, increased concentrations of neurotrophins protection against the adverse effects of free radicals, and increased neurogenesis (development of neurons). Similar to the Isaac et al. (1992) study, Trudeau and Shephard (2010) reviewed several experimental studies showing improved synaptic 7 transmission after running, and faster learning of maze pathways for rats. Additionally, several adult animal studies have demonstrated increases in brain-derived neurotropic factor (BDNF) and other growth factors in response to physical activity (Ploughman, 2008; Trudeau & Shephard, 2010). For young human adults the BDNF increases have been observed with acute bouts of physical activity. BDNF promotes neural growth and protects neurons from oxidative damage. The increase of antioxidants in the brain of trained animals has been observed, and this increase further protects the hippocampal cells from damage (Shephard & Trudeau, 2010; Ploughman, 2008; Etnier, 1997). Also, studies in elderly humans have demonstrated that endurance physical activity is protective against cognitive decline, and the previously mentioned increase in antioxidants from the physical activity could protect the brain against functional loss (Ploughman, 2008; Shephard & Trudeau, 2010). The next three studies discuss functional magnetic resonance imaging (fMRI) techniques to assess the effects of physical activity on brain functions. FMRI is a neuroimaging technique used to study brain activity to determine which structures are active during specific mental functions.

The first study (Colcombe, Kramer, Erickson, Scalf, McAuley, and Cohen (2004) examined adults using the magnetic imagining techniques (fMRI) to assess brain functions prior and following a 6-month aerobic walking program for 29 sedentary older men. The men in the program were able to perform complex decision tasks more rapidly than those who did not participate.

The (fMRI) detected that physical activity had modified brain function in the prefrontal cortical area of the brain that regulates and controls behavior. Most recently, two recent studies are the first to explore changes in the preadolescent brain by use of (fMRI) techniques. Chaddock,

Erickson, Prakash, VanPatter, et al. (2010) explored the association between childhood aerobic fitness and basal ganglia structure and 8 function. The researchers used the MRI technique to detect changes in the basal ganglia that is involved in attentional control. Their results demonstrated that higher-fit children (aged nine and 10) showed superior performance on an attention and inhibition task, and greater volumes in the basal ganglia area of the brain were observed, compared to similar aged lower fit children. The conclusion of the research was that aerobic fitness in children is connected to the increased volumes in the brain which is related to enhance cognitive control. The second study conducted by Chaddock, Erickson, Prakash, Kim, et al. (2010), was also performed on nine- and 10- year old children, and extended the previous research on animals and elderly adults that have demonstrated aerobic physical activity's connection to increased memory.

The structure of the brain studied through the MRI was the hippocampus. Researchers compared the hippocampus volume of high versus low- fit children, and whether the differences were related to performance on an item and relational memory task. The results were consistent with previous research on animals and elderly adults in that higher-fit children demonstrated greater bilateral hippocampus volumes and superior relational memory task performance compared to the lower fit children. These findings are the first to demonstrate the positive effects of aerobic fitness on the structure and function of preadolescent brains.

Overall, the above mentioned mechanisms of increased cerebral blood flow, changes in neurotransmitters and permanent structural changes in the brain have shown a potential for enhancing learning and memory in adult rats, and in adults there is evidence that regular physical activity increases the protection for the brain against functional loss. In young animals this evidence for the benefits of physical activity on the brain have not yet been demonstrated, but it is possible that the evidence to date on adult animals may have a greater influence on the more plastic brains of young children (Trudeau & Shephard, 2010). 9

In the very young children (infancy (one month to one year) through early childhood (one year to six years), research demonstrates that daily movement is crucial in brain development as sensory pathways in the brain are developing (Blakemore, 2003; Leppo, Davis, & Crim, 2000; Sibley & Etnier, 2003). Developing control of muscles and movement is important for the infant and child's ability to interact with her environment (Leppo et.al. 2000; Sibley & Etnier, 2003). Movement contributes to the organization of neural circuits that develop through the process of synaptogenesis, which permits children to learn to develop control over their sensory

abilities and motor functions. Cognitive functioning is also facilitated by the process of myelination stimulated by movement.

In addition, the cerebellum is affected by children's movement especially in the first few years of life as cells are forming functional circuits in the cerebellum which in turn affect spatial perception, memory, selective attention, language, handling of information, and decision making (Blakemore, 2003; Leppo et,al. 2000; Sibley & Etnier, 2003). The importance of physical activity for the very young and the older adults is well supported. John Ratey, (2008) integrates hundreds of scientific studies and research papers to demonstrate physical activity improves brain function at every age level. Ratey emphasizes that physical activity enables the cells in the brain to be optimal, which maintains and improves brain functioning.

2.3.1. Concentration

Another area that can benefit from movement and physical activity in the learning environment is student concentration. Teachers face the challenge of incorporating different strategies into their lessons in order to reach students of different learning styles and abilities. Physical activity and movement can help teachers diversify their teaching and classroom lessons to help their student's abilities to concentrate on what they are learning. In his study "Effects of Acute Bouts of Exercise on Cognition", Tomporowski (2003) researches exercise and movement and its effect on students. He found that "observations indicated that children's frequency of disruptive behaviors was substantially lower following exercise sessions than on non-exercise days" (Tomporowksi, 2003, pg. 301). From this he draws that movement and physical activity help students to relax and enter a state in which they were able to concentrate. Physical activities' role in this study gave students a time to release energy that would have inhibited their ability to focus in the learning environment.

2.3.2. Classroom Behaviors

There are many benefits to incorporating physical activity and movement into the classroom environment and lessons. Children are eager to move around and often struggle to stay stationary. Students may struggle with their abilities to stay inactive and focus on the teacher or a lesson for long periods of time. They may be unable to pay attention and therefore may disturb or disrupt the lessons. Students work better in the classroom if they have had a chance to move around. This change in behavior after being able to move around, as discussed by Tomporowski (2003), shows that there is a relationship between movement and behavior in the classroom environment.

2.3.3. Effects on Learning

Physical activity and movement has a relationship with learning in the classroom. The former benefits of movement in the classroom, improvement in overall behavior and self-efficacy, both aid in a student's performance in the classroom. If students are able to move around, their abilities to learn will also be increased. Jenkins, Mulrine and Prater (2008) discuss this in their article, stating that movement can "increase activity in the parts of the brain involved in memory, attention, spatial perception, language, and emotion. There are indications that movement can strengthen learning and memory and boost learner motivation and morale" (pg. 18). Thus, physical movement can directly correlate to other parts of a student's life such as their memory and their motivation in what they are doing. Tomporowski states that in "exercise can, under certain conditions, amplify response speed and accuracy, and it can facilitate cognitive processes that are central to concentration and problem solving" (2003). The research shows that physical movement and exercise can improve a student's learning in the classroom, and a teacher's incorporation of it can benefit their students overall education.

2.4 Physical Activity Effects on Cognitive Functioning

A significant positive relationship has been observed in the research on the relationship between cognition and physical activity. For example, Sibley and Etnier (2003) conducted a met analysis of 44 studies that showed a positive correlation with a significant overall effect size of 10 0.32 between physical activity and seven categories of cognitive performance (perceptual skills, intelligence quotient, achievement, verbal tests, mathematics tests, developmental level and academic readiness) among school-aged children. Additionally, the review demonstrated that all design types and different types of physical activity produced cognitive function benefits. Examining children with and without clinical disorders, a review by Tomporowski, and (2003) demonstrated positive acute exercise effects on children's behavior and cognitive performance. Cognitive performance was measured in several ways depending on the study.

The studies were evaluated in light of the executive function hypothesis. Executive function involves scheduling, response inhibition, planning, and working memory. In the studies physical activity effects on executive function in adults have experienced the most significant results out of the four types of cognition's mental processing: executive function, controlled processing, visuospatial processing, and speeded processing. When the executive and non-executive cognitive processes in older adults were assessed following an aerobic training and

non-aerobic toning program, there were post-training differences. The aerobic training group performed tests that required executive function more efficiently and rapidly than the non-physical activity group.

2.5. Effects of Physical exercise on Health

According to the U.S Department of Health and Human Services, (USDHHS; 2008), examined that, physical activity in children and adolescents reduces the likelihood that as adults these individuals will develop chronic diseases such as heart disease, hypertension, type- 2 diabetes, and osteoporosis. Regular physical activity in children and adolescents has been shown to improve cardio-respiratory fitness, strengthen muscles, support bone growth, promote healthy body weight, build self-esteem, and reduce anxiety and stress (USDHHS).

Several studies also discuss the impact of physical activity on academic] achievement. One particular study states "children who are more physically active are more likely to achieve better academically" (Government of Western Australia Department of Sport and Recreation, 2008, p. 1). Based on these findings, it should be the role of society to provide many opportunities for children and adolescents to incorporate physical activity into their daily life and thereby help lay the foundation for a life-long, healthy lifestyle.

2.6. Effects of Physical exercise on Brain Health

While it is known physical exercise is important for improving cardiovascular health, emerging research focuses on the benefits of exercise on brain health. Tomporowski et al. (2008) discussed children's mental performance central to cognitive development. Four important points on how exercise impacts the brain an improves cognitive processes involved in learning and memory are: enhancing circulation so individual neurons can get more oxygen and nutrients, stimulating the production of the mood enhancing neurotransmitters and nerve growth factors such as brain-derived neurotropic factor (BDNF), creating new brain cells in a process called neurogenesis, and improving plasticity (Jensen, 2008).

2.7. Effects of Physical exercise on Oxygen circulation

The brain needs a continuous supply of oxygen and glucose as its source of fuel. While glucose comes from foods eaten, the oxygen supply comes from physical activity. As individuals perform physical activity, this increases the number of capillaries in the brain which allows for the transport of oxygen in the blood.

The amount of oxygen in the blood has an impact on the cognitive abilities of an individual. The more oxygen available to the brain, the better a student will perform cognitive tasks. Sousa (2006) states "armed with the knowledge that movement is connected to cognitive learning, teachers and administrators need to encourage more movement in all classrooms at all grade levels" (p. 233). As a result, it would be ideal for teachers to incorporate physical activity into every lesson in order to oxygenate the brain and facilitate attentiveness in students.

2.8. Effects of Physical exercise for Plasticity

A final outcome of exercise on improved learning is through a process called plasticity. Everything individuals do, think, and feel, is regulated by how the brain cells are connected to one another (Ratey & Hagerman, 2008).

It is through the repetitive firing of these neurons that connections are strengthened which plays a role in how learning occurs. Cotman and Berchtold (2002) point out that exercise is a simple way to support and maintain brain plasticity by inducing BDNF and neurogenesis in the hippocampus.

2.9. Physical Activity in Schools

If exercise is considered "brain food" and physical activity truly plays a role in increased cognitive function and improves academic performance (Ploughman, 2008), then the implications for education today must be discussed. There are three areas during17 the day where educators can incorporate exercise into a student's day in order to enhance cognition and improve academic performance. These areas include movement of students in the classroom, physical education participation, and extra-curricular activities.

Before discussing the literature on physical activity in school settings, it is important to define the difference between physical activity, physical fitness, and exercise. While these terms are sometimes used interchangeably, they are clearly different terms needing further clarification when discussing studies relating physical activity to overall brain health. Evans and Burghardt (2008) describe physical activity as "an action that requires muscle contraction in your body…this includes walking, chores, playing Wii sports, and in some cases even sitting.

Physical fitness is described as a set of attributes either health-related (cardiorespiratory endurance, muscular strength, flexibility, and body composition) or skill-related (balance, agility, power, reaction time, speed, and coordination) and these attributes are usually measured with a specific set of tests completed during physical education class (Caspersen et al., 1985).

Exercise, is a type of physical activity, “a dedicated time for repetitive actions with the purpose of increasing performance or physical capacity” (Evans & Burghardt, 2008, p. 94), such as conditioning for many athletic activities, in an effort to improve or maintain physical fitness. It is important to note “although all exercise is physical activity, not all physical activity is exercise.

2.10. Movement in the class

The importance of physical movement in the classroom to stimulate the brain and boost learning. His suggests18 incorporating energizers every 20 minutes, facilitating physical movement and providing manipulatives. He states, “An active body enhances an active mind” (p. 41).Sousa (2006) states: Although moving around in class is common in the primary grades, it drops dramatically at the secondary level…teachers are understandably concerned about having adequate time to cover the enormous amount of material in the curriculum…trading a few minutes of teacher talk for a movement activity can actually increase the amount of learning retained, it could be a very worthwhile investment of time. Sousa also discusses several strategies for how teachers can incorporate movement into daily lessons, making physical activity fun for the students, while at the same time improving learning. Such activities include: energizers, acting out key concepts and words like charades, role-playing, and verbal tug-of-war, all of which allow students an opportunity to get up out of their seats and use their body in a physical way to learn.

Oberthur (2008) discusses how teachers have become creative in incorporating exercise in their classrooms. She describes how various teachers are integrating activities like yoga during the day, allowing brain breaks for students to get their wiggles out, and teaching a system called “belates.” Belates is a method for learning math using steps, gestures, and words completed in unison. Individuals have described this as being similar to martial arts. Another teacher instructs with her students perched on exercise balls. She believes this movement provides several benefits such as improved attention, concentration, and focus. Along with the teacher, students believe the balls “improve 19 their ability to pay attention, concentrate, take notes, engage in classroom discussions and take exams” (Wyatt, 2009).In an article published by the Robert Wood Johnson Foundation (2010), a Gallup poll of almost 2,000 elementary school principals nationwide suggests the most unexpected opportunity to boost learning may be occurring outside the classroom on the playground at recess.

While allowing student's opportunities for movement in the classroom and during recess seems logical in theory, time in the day and an increased pressure to cover the curriculum and prepare students for standardized testing (Evenson, Ballard, Lee, & Ammerman, 2009).incorporating the movement into lessons becomes a challenge for teachers due to a lack of Physical education.

The demands of standardized testing in schools have greatly increased since the No Child Left behind Act of 2002. This Act is designed to assess schools each year to determine if students are improving academically on their annual goals. This pressure for student improvement creates a great deal of stress for school towns to find a way to increase instructional time. The instructional time strain has caused some schools to reduce or eliminate physical education classes in order to increase students' academic performance. However, no current research exists supporting the reduction of non-academic programs to improve academic performance. A study conducted by Sallies' and Owen (1999) suggested "spending more time in physical education did not have harmful effects on standardized academic achievement test scores 20 in school students.

Carlson et al. believe physical education impacts students21 academic achievement physiologically (increase in blood flow to the brain), psychologically (raising self-esteem and reducing stress and anxiety), and behaviorally (better participation and concentration), resulting in improved learning. Jensen (2005) believes if schools do not put into action a concrete physical education program they are truly creating a disadvantage for student intellect and the potential for improved academic performance. The results of studies analyzed by Trudeau and Shephard (2008) showed adding an hour of physical education to the school curriculum, thereby taking time away from other subjects, does not impede student academic achievement.

The study also supported positive influences on classroom behavior, concentration, memory, and cognitive function. One of the most inspiring physical education programs today comes out of Naperville Illinois, one of the fittest and smartest high schools in the nation. This program first begin in 2004, when students identified as low performing in literacy and math were offered a "learning readiness" physical education class, similar to zero-hour PE, followed by an appropriate support class. After one semester, students who took part in both the physical education and support classes improved more than those students who were only in the support class.

Ratey and Hagerman (2008) mention it is not likely most physical education classes will produce these benefits unless students are completely engaged in vigorous exercise and wearing heart rate monitors to maximize their heart rate. In this class, students are graded on how much time they spend in their target heart rate zones during an activity, rather than on the mastery of certain skills. Since Naperville offers such a wide range of interests (18 different activities), everyone 22 can find something they enjoy.

The real meaning of physical education at Naperville is about personal progress and teaching students a lifestyle, not increasing sports skills. Based on the current research, clearly the quality of physical education is most important for academic achievement. While physical activity predicts higher academic performance, physical education with insufficient duration and intensity levels of activity does not. Therefore, physical education programs need to "increase activity levels, improve physical fitness, help control weight, and enhance academic performance –and it should be an integral component of our educational systems" (Sattelmair & Ratey, 2009, p. 370).

2.11. Physical Fitness

Physical fitness is best described as a generalized state of wellbeing or an ability to perform certain sports related tasks. In this paper physical fitness is measured by multiple tests performed usually during physical education class to estimate aerobic fitness, muscular strength, flexibility, and body composition. Castelli, Hillman, Buck, and Erwin (2007) looked at the relationship between physical fitness and academic performance in 259 third and fifth graders and found aerobic exercise was positively associated to academic achievement on standardized tests, grades, and other measures of cognitive performance, while body mass index significant relationship between fitness and academic achievement, though the direction of causation is not known…promoting fitness by increasing opportunities for physical activity during PE, recess, and out of school time may support academic achievement" (p. 30).23 Grissom (2005) was one of the first researchers to analyze a sample size of 884,715 California (BMI) was inversely related.

As the overall fitness scores improved, the mean achievement scores also improved. Grissom states when administrators need to make decisions about where to focus resources in a climate of academic accountability, a proven relationship between physical fitness and academic achievement could be used as an argument to support, retain, and perhaps even improve

physical education programs" (p. 12).Similar research has also been found in California; students with higher levels of fitness were associated with higher academic achievement.

The California Department of Education (2001) compared 954,000 fifth, seventh, and ninth graders‟ FITNESSGRAM® scores to their Stanford Achievement Test and found a positive relationship. Another study conducted by Singh and McMahan (2006) analyzed scores in 253 elementary schools and found a positive correlation between academic achievement (California Standards Test) and physical fitness scores. Singh and McMahan also emphasize that it is the responsibility of schools to promote physical activity and a life-long behavior change since "schools are the only institutions which have structured and continuous contact with nearly all children" (p. 212).One of the largest studies included more than 2.4 million Texas students. Welk and Meredith (2009) found several correlations between physical fitness and academic achievement. The study reports students who are physically fit, measured by FITNESSGRAM® test results, are more likely to do well on the state's standardized 24 tests, have better school attendance, and are less likely to have disciplinary referrals involving truancy, drugs, alcohol, and violence.

2.12. Extra-curricular activities

It would be ideal for students to participate in physical education classes for at least one hour every day, but this is not always practical. Therefore, extra-curricular physical activities opportunities must be provided before after school. While Coe et al. (2006) found physical education during the day reduces boredom and improves attention in the classroom, they also found physical education alone does not improve grades.

The study found students who were involved in more vigorous physical activities, such as organized sports, did approximately 10% better in core classes than students not involved in vigorous activity. In this case, the difference between physical education class and vigorous physical activity is that during physical education class most students are not getting their heart rates up enough to be classified as vigorous activity. While Broth (2002) states "early analysis of the effect of participation in sports on academic achievement produced inconsistent evidence" (p. 60), several studies have shown participation does in fact, improve academic

achievement. From the research conducted by Fujita (2006), support is found for the idea that students who participate in certain extracurricular activities, such as sports, improve their academic achievement by raising their grades and test scores. Stephens and Schaben (2002) support this idea.

They conducted a study to see if the number of sports students played had an effect on overall academic performance. They found students who participated in at least one sport during an academic year performed better in their overall grade point average and class rank.25 Silliker and Quirk (1997) not only found a relationship between participation and performance, but reported participants had significantly higher grade point averages during in-season competition. Fredricks and Eccles (2006) and Trudeau and Shephard (2008) included differences in background such as race and income in their research. Both studies showed positive correlation between student participation in school sports and academic achievement, regardless of race.

These studies also discussed the importance of schools ports for psychological benefits. Another study showing psychosocial benefits was conducted by Field, Diego, and Sanders (2001) and compared suburban high school seniors. Their study found those who had a higher level of exercise reported higher grade point averages, better relationships with parents, were less depressed, used drugs less frequently, and spent more time engaged in sports. In a study conducted by Fox, Barr-Anderson, Neumark-Sztainer, and Wall (2010), researchers tried to clarify whether greater academic achievement was associated with physical activity in general or specifically sports team participation. The study found for high school girls physical activity in general and school sports are associated with higher grade point averages. For boys, only sports participation was associated with a higher grade point average. This suggests boys must participate in school sports, not just any other physical activity, in order to see the improvements in academic achievement. Regardless of the gender outcome, academic success was related to overall physical activity in sports, other physical activities, or a combination of both.

Ratey and Hagerman (2008) mention that while exercise alone will not make students smarter it puts the brain in the optimal situation for learning to occur. Davis et al.26 (2007) discovered “exercise may be a simple, important method of enhancing children’s cognitive and academic development” and “these results may persuade educators to implement vigorous physical activity curricula during a childhood obesity epidemic” (p.510). It is understood exercise is

important for learning, but how much is necessary for academic improvement is still a debate among scientists. According to Hobson (2008), Castelli.et.al noted a single 10 minute bout of physical activity is enough to boost attention and problem solving skills. Davis et al. (2007) claims mental and physical health benefits were observed after 20 minutes of physical activity, and Tomporowski (2003) suggests30 minutes a day for improving cognition and social development. For optimal overall body and brain health, the CDC (2010) recommends "adolescents should do 60 minutes (1 hour) or more of physical activity each day.

All of the times have been shown to be effective in improving cognition and social development. Another study suggests students who engage in vigorous physical activity perform better overall in school than students with moderate or no physical activity (Coe et al., 2006). What this suggests is students who perform any physical activity are more likely to perform better academically than students with no physical activity.

2.13. Factors Influencing Physical Activity Participation

Considerable effort has been dedicated to quantitative studies investigating physical activity correlates in adolescents (Loucaides, Plotnikoff, & Bercovitz, 2007; Sallis, Prochaska, & Taylor, 2000). Many of these studies have identified these correlates using an Ecological Model of Physical Activity Behavior (Spence & Lee, 2003). This model suggests physical activity behavior is influenced by biological, psychological, and 27 environmental factors. However, a study conducted by Humbert et al. (2006) combined this model and the Ecological Model of Health Behavior (Sallis & Owen, 1997) to provide a framework in which to explore factors that influence physical activity among adolescents. This study used qualitative methods to explore three different categories: intrapersonal (biological, psychological, and behavioral influences), social (family, peer, and adult support), and environmental factors (facilities, communities, accessibility) believed to be influences on physical activity participation.

2.13.1 Intrapersonal influences.

Research supports the intrapersonal influences as the greatest area of influence on adolescent participation in physical activity. One factor frequently studied is the area of self-efficacy (Loucaides et al., 2007) or self-esteem. Several studies mention self-esteem as an important aspect of mental health; developed early in life, it plays a significant role in lifestyle (Daley, 2002; Kirk, 2005; Shephard, 1983). Other research discusses factors such as weight management and enjoyment (Allender et al., 2006) and fun and motivation (Dagkas & Stathi, 2007; Humbert et al., 2006; Tergerson & King, 2002) as important influences on physical

activity participation. Research shows that as female adolescent's age, they are more likely than males to stop engaging in physical activities because they are not fun, are too competitive, and demand too much time (Strong, 1990). Other barriers included lack of time and motivation (Humbert et al., 2006; Tergerson & King, 2002). Ammouri, Kaur, Neuberger, Gajewski, and Choi (2007) found adolescent males generally cite competition and females more often mention weight management as reasons for participating in physical activity. 28 Other studies discuss how positive perceptions of physical activity are developed during early learning experiences (Kirk, 2005) and during quality physical education classes (Trudeau & Shephard, 2005). Humbert et al. (2006) found the most important factors for adolescents participating in physical activities were if the activities were fun and if friends were involved. These two factors made adolescents were more likely to participate.

2.13.2 Social influences

Significant research also shows social influences as a major impact on adolescent participation in physical activity. Ries, Voorhees, Gittelsohn, Roche, and A stone (2008) discussed the importance of support and encouragement from parents, peers, and other community members as very important to adolescents. Research shows adolescents with siblings, parents, and peers who support and/or engage in physical activity are more likely to participate in physical activity than those lacking support (Ammouri et al., 2007; Dagkas & Stathi, 2007; Loucaides et al., 2007; Ries et al., 2008; Sallis et al., 2000; Voorhees et al., 2005).

2.13.3 Environmental influences

Other studies have examined environmental influences affecting adolescent's participation in physical activity. These findings showed environmental factors such as cost, facilities, and proximity are the greatest barriers for physical activity in low socioeconomic (SES) adolescents (Dagkas & Stathi, 2007; Humbert et al., 2006). The study conducted by Humbert et al. (2006) used a qualitative approach to analyze adolescent perspectives to explain the relationship between socioeconomic status (SES) and physical activity. Gordon-Larsen, McMurray, and Popkin (2000) found that environmental factors such as daily participation in physical education class and the availability of a community 29 recreation center were related with physical activity. Giles-Corti and Donovan (2002) found recreational facilities located near the home were used more than facilities located farther away from an individual's living space. They also found the most frequently used facilities were not within a defined space, but in

informal areas such as streets, open public space, and beaches. This study, along with several others, found environmental influences to be secondary to individual and social influences.

CHAPTER THREE

METHODOLOGY OF THE RESEARCH

3.1. Research Method and Design

In this study, a descriptive study design was employed. The main objective of the study was, to explore teachers and students' perceptions of the influence of physical exercise for academic achievement in selected preparatory school of North wollo Zone, Amhara regional state, Ethiopia. The research involves a mixed research design. So both quantitative and qualitative method/approach of data collection and analysis was employed.

3.2. Research site and Population of the study

3.2.1. Research Site

The study was conducted in three government preparatory schools located in North wollo Zone, Amhara region, Ethiopia which is 530Km away from Addis Ababa and 360 Km from the regional capital, Bahir Dar. Particularly, the three schools are located in; woldiya, kobo and Meresa Administrative towns of North wollo Zone.

3.2.2. Population of the study

I have planned to include three administrative towns (Woldiya, Meresa and Kobo) school in the study. Thus, a total of 61 preparatory school teachers (47 male and 14 female), and 256 students (119 male and 137 female) attending the 2011 E.C academic year were included in the study.

3.3 Sources of data

3.3.1 Primary data

Primary data and secondary data were collected in order to asses teachers' and students' perception of the influence of physical exercises on academic achievement in three preparatory schools. Thus, primary data were obtained from students and teachers of the three randomly selected preparatory schools through individual interview using a standard semi structured questioner.

3.3.2. Secondary data

The secondary data were obtained from various source such as from different books, journals, documents and internet sources.

3.4. Sample size and sampling technique

3.4.1. Sampling size

The total study sample size was 317(61teachers and 256 students) in the selected three preparatory schools of Meresa, kobo and woldiya towns in North Wollo.

Sample size calculation formula.

Yamane's sampling formula: (Yamane, 1967)

$$\mathbf{n}=\frac{\boldsymbol{N}}{\mathbf{1}+\boldsymbol{N}(\boldsymbol{e})\mathbf{2}}=$$

N = target population

n = required sample size

e = sample error

Sample error =10% with 90% confidence level.

- Student sample size for Kobo preparatory school: $n=\frac{N}{1+N(e)2}= n=\frac{622}{1+622(0.1)2}= 86$
- Student sample size for Woldiya preparatory school: $n=\frac{N}{1+N(e)2}= n=\frac{832}{1+832(0.1)2}= 89$
- Student sample size for mersa preparatory school: $n=\frac{N}{1+N(e)2}$ $n=\frac{441}{1+441(0.1)2}$ =81

Total students' sample size for the three preparatory schools: 256(Male119, Female 137)

- Teachers sample size for Kobo preparatory school: $n=\frac{N}{1+N(e)2}n=\frac{26}{1+26(0.1)2}= 20$
- Teachers sample size for wolidia preparatory school: $n=\frac{N}{1+N(e)2}$ $n=\frac{30}{1+30(0.1)2}$=23
- Teachers sample size for mersa preparatory school: $n=\frac{N}{1+N(e)2}$ $n=\frac{22}{1+22(0.1)2}$-18

Total teachers sample size for the three schools: 61(Male 47, Female 14)

3.4.2. Sampling technique

For the current study, stratified sampling technique used to get representative sample from the selected schools because this method of sampling is more effective for comparing strata. Since the number of teachers and students are different in each school, within each stratum the researcher used simple random sampling technique used to select sample students and teachers from each particular town schools.

3.5. Data collection instruments and procedures

To obtain adequate information from study participants, semi structured questionnaire is used and randomly selected students and teachers are interrogated for the research questions.

3.5.1 Questionnaire

Two kinds of questionnaire, (closed ended, open ended), were used to obtain information from students and teachers. Student's and teachers' questionnaire has 20 items; 4 open-ended and 16 closed ended questionnaire for students and 10 closed ended questionnaire for teachers.

3.5.2 Interview

The researcher was used individual interview technique using semi structured questioner only for teachers and data were collected from students using self-administered questioners in randomly selected preparatory schools.

3.6. Data collection pilot testing for validity and reliability of instruments

The items of the questionnaire were adopted from various previous researchers done on students and teachers perception on the impact of PE in academic achievement and the questionnaire items from Parker (2016), Kevin and Kyle (2014) Hylok (2011), Morgan and Hanson (2008) studies in which the validity and reliability of the instruments were checked by the aforementioned researchers.

3.7. Method of data analysis

In this study both qualitative and quantitative technique of data analysis has been used. Therefore, the data obtained through questionnaire had been analyzed quantitatively. For the quantitative analysis the investigator used frequency and percentages. Thus, the information obtained through close- ended questions was filled to put in to number through SPSS statistical software package version 20.

While data obtained using open-ended questions and semi structure interview have been analyzed qualitatively using descriptions. Analysis of the open-ended questions were used based on the approach of grouping of similar responses from the open-ended questions and categorizing and labeling of the various description provided by the respondents. Therefore, all the data which were collected through self-administered questionnaire, and semi structured interview from the target population have been collected and analyzed accordingly.

3.8. Ethical consideration

At each phase of the study the researcher respected the rights, needs, values, and desires of the participants (Creswell, 2003). Ethical and moral considerations was an important aspect of educational research. Ethical concerns must be considered throughout every aspect of a research study (Basit, 2010). To ensure the safety and well-being of all those involved in the study, researchers will be gain ethical permission from a governing body. This research project will be received clearance for completion from the Human Research Ethics:

The process of gaining ethical clearance involved submitting of information's on how the data will be collected as well as submitting consent forms and information sheets. The participants were informed that they could withdraw from the study at any time without any consequences.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter deals with presentation, analysis and interpretation of data obtained from students and teachers. The study employed, a descriptive study design as described under the "Research Design and Methodologies" section (chapter three). Self-administered questioners was administered for students and individual interview for teachers only. Thus, quantitative as well as qualitative analysis of the data was incorporated in to this chapter.

The qualitative part was supposed to be in words, phrases and sentimental analysis. Hence, the qualitative data includes the data gathered through interviews. The study covered three preparatory schools of North wollo namely: wolidia, kobo and mersa towns.

All the questioners that were distributed to students and teachers were filled appropriately, completed and returned to the researcher. In analysis the data of the study, technical, statically and procedures were used. Items involved in the questionnaires were classified in to two major categories. The first category deals with general background information gathered from respondents, while the second part treated specific items of the study. Hence, the approach used in qualitative data expressed the form of two categories analysis method. Therefore, frequency and percentage were used for the analysis of characteristics of the respondents.

4.1. DATA PRESENTATION AND ANALYSIS

Several questions have been forwarded for the respondents through closed, mixed and open ended questionnaire and interview. The respondents then have responded to the questions. Based on the data obtained from the respondents and the data collection instruments, the researcher has presented the findings in the next section.

4.1.1. Characteristics of Respondents

The characteristics of 256 grade eleven (11) students and 61 teachers participated in the study is presented below in the table.

Table 4.1: Students and teachers characteristics

No	Item	Respondents	Frequency	Percentage
1	Sex	Male	119	46.5%
		Female	137	53.5%
2	Age	14-17years	160	62.5%
		Above18yrs	96	37.5%
3	Schools	Wolidia	89	34.8%
		Kobo	81	31.6%
		Mersa	86	33.6%
4	Sex	Male	47	77.00%
		Female	14	23.00%
5	Age	25-40 years	45	73.8%
		41above yrs	16	26.2%
6	Qualification	first Degree	40	65.6%
		Master	21	34.4%
7	Respondent	Grade 11	24	39.3%
	to teach	Grade 12	16	26.2%
8	Respondent school	Wolidia	23	37.7%
		Kobo	18	29.5%
		Mersa	22	32.8%

As Show in the above table that 119 (46.5%) of respondents were male in the remaining 137(53.5%) of respondents were female. 160 (62.5%) of respondent were between 14-17 age years category, 96 (37.5%) of respondent above 18 age years. 89 (34.8%) of the respondents were from Wolidia preparatory school, 86(33.6%) students from Kobo and 81(31.6%) from Mersa Preparatory School.

Characteristics of the sixty one (61) teachers participated in this study is presented below in the table.

As shown in the above table; from the total numbers of teachers, 14 (23.0%) female and 47(77.0%) male were included in the study. Regarding teachers teaching experience years, 12(19.5%) had 1-5 years teaching experience, 34(55.7%) were teaching between 6-10 years and 15 (24.6%) have above11years of teaching experience.

Of the 61 respondents teachers, 45 (73.8%) were aged between 25-40 years and the rest 16 (26.2%) were above 41 years of age .With regard to qualification of teachers; 40 (65.6%) of teachers have first degree and 21 (34.4%) have second degree.

The above table indicted that 23 (37.7%) of respondents of teachers were from Wolidia preparatory school whereas, 18 (29.5%) and 20 (32.8%) of respondents of teachers were from Mersa and kobo preparatory school respectively.

Based on the above table 24 (39.3%) of the respondents were teaching grade eleven, 16 (26.2%) of the respondents were teaching grade twelve and 21 (34.4%) of the respondents were teaching both grade levels of students of the preparatory school.

4.1.2 Presentation and analysis of Students' response to the questionnaire

4.1.2.1. Students' response to the closed ended questionnaire

Students were asked 17 questions having 5 levels of categories regarding their perception of the influence of physical exercise on academic achievement. The rating were in five levels of categories: -

For analysis purpose, based on the principle of round off, both students and teachers questionnaire response is interpreted as:-

Mean ≥4.5- strongly agree **Mean 1.5 to < 2.5 disagree**

Mean 3.5 to < 4.5 agree **Mean ≤ 1.5 strongly disagree**

Mean 2.5 to < 3.5 undecided or neutral

Note: SD: strongly disagree, D: disagree, N: neutral, A: agree, SA: strongly agree

Table 4.3: Student's perception on the influence of PE for academic achievement

No.	Items	Number of respondents										
		SD	%	D	%	N	%	A	%	SA	%	Mean
1.	PE allows me to have better Concentration on my study	9	3.5	32	12.5	35	13.7	98	38.3	82	32	**3.8**
2.	PE helps me to focus on task during class for different subjects	40	15.6%	66	25.8%	14	5.5%	74	28.9%	62	24.2%	**3.2**
3.	PA will allow me to be better with my achievement in school	22	8.6%	56	21.9%	27	10.7%	107	41.8%	44	17.2%	**3.4**
4.	engaging in PE has positive contribution for the overall academic performance	29	11.3%	38	14.8%	27	10.5%	105	41%	57	22.3%	**3.5**
5.	I participate actively in the class when I return from HP Practical class	14	5.5%	57	22.3%	27	10.5%	87	34%	71	27.75%	**3.6**
6.	PA helps me/will to improve my classroom behavior	19	7.4%	52	20.3%	37	14.5%	86	33.6%	62	24.2%	**3.5**
7.	Participating in PA allows me to perform better in school	8	3.1%	61	23.8%	27	10.5%	94	36.7%	66	25.8%	**3.6**
8.	Student's participation in PE can increase students result	8	3.1%	44	17.2%	41	16%	62	24.2%	101	39.5%	**3.8**
9.	PE helps me to compete with others on academic achievement	11	4.3%	49	19.1%	34	13.3%	60	23.4%	102	39.8%	**3.7**
10.	I feel comforted when enter to the next class after completing physical education practical class	23	9%	58	22.7%	22	8.6%	60	23.4%	93	36.3%	**3.5**
		Overall mean = 3.56										

1= **strongly disagree 2= Disagree 3= Neutral 4= Agree 5= strongly agree**

As it is shown in table above, students rating of their perception on influence of PE to have better concentration on study, 38.1% of the participants strongly agree, and 31.9% of students agree. Whereas, 12% and 3.5% of the participants disagree and strongly disagree respectively. This indicates that 70% (38.1% of the participants strongly agree, and 31.9% agree) of students perceives that PE has a positive impact to better concentrate on study or learning.
As far as the mean score is concerned, students rating of their perception on influence of PE to have better concentration on study was found 3.8 which is under the category of agree.

Regarding students perception on the contribution of PE to helps students to focus on task during class for different subjects, 15.6% students perceive it negatively i.e. strongly disagree, 25% disagree, 5.5% neutral, 28.9% agree and 24.2% strongly agree.

Above all more than 53% of students agree on the contribution of PE to helps students to focus on task during class for different subjects, 40% of students disagree, and 5.5% of students neutral. As far as the mean score is concerned, students' perception on the contribution of PE to helps students to focus on task during class for different subjects the mean score was found 3.2 which means under the category neutral.

As far as students' perception on the influence of PE for improving overall academic performance, 11.3% strongly disagree, 14.8% disagree, 10.5% neutral, 41% agree and 22.3% strongly agree the mean score was found 3.5 that means under the category of agree.

Above all more than 63% of students (41% agree and 22.3% strongly agree) perceive that PE has a positive influence of for improving overall academic performance. Seemingly the mean score was found 3.5 which under the category of agree.

On perceptions of physical exercise to improve classroom behavior in school, 7.4% of students strongly disagree, 20.3% disagree, 14.5% neutral, 33.6% agree and 24.2% strongly agree. Above all more than 57 % of students (33.6% agree and 24.2% strongly agree) perceive that physical exercise can improve classroom behavior in school. The mean score in this regard was found 3.5 which means under the category agree.

Students' perception on the influence of PE of increasing students' result, 3.1% of students strongly disagree, 17.2% disagree, 16% neutral, 24.2% agree and 39.5% strongly agree with

the mean score of 3.8 which means under the category agree. Above all more than 63 % of students perceive as PE increase students result (24.2% agree and 39.5% strongly agree).

Students' perception on the influence of PE to help to compete with others on academic achievement 4.3% strongly disagree, 19.1% disagree, 13.3% neutral, 23.4% agree and 39.8% strongly agree. Above all more than 63 % of students perceive as PE help to compete with others on academic achievement (23.4% agree and 39.8% strongly agree). Moreover the mean score was found **3.7** which means under the category of agree which means physical exercise was impacts on students on academic achievement.

Moreover, students perception of the impact of PA to have better achievement in school 8.6% strongly disagree, 21.9% disagree, 10.5% neutral, 41.8% agree and 17.2% strongly agree, the mean sores of 3.4 which means under the category neutral.

As far as felling of students after practical PE class is concerned, 9% of students strongly disagree, 22.7% disagree, 8.6% neutral, 23.4% agree and 36.3% strongly agree. This indicates that more than 59% of students (23.4% agree and 36.3% strongly agree) perceive that they feel comforted, and the mean score also showed 3.5 which is under the category of agree.

As far as the active participation level of students after practical PE class is concerned 5.5% strongly disagree, 22.3% disagree, 10.5% neutral, 34% agree and 27.7% strongly agree. This indicates that majority of student's i.e. more than 61% of students (34% agree and 27.7% strongly agree) perceive as physical exercise improves classroom participation. Seemingly the mean sore in this regard was found 3.6 which is under the category of agree.

Above all, Students questionnaire items which are related with their perception on the impact of PE on academic achievement were ten (item numbers 1, 2, 3, 5, 6, 7, 8,9,10 and 12), and the overall mean of these ten items was found 3.56, which is under the category of agree which means grade eleven preparatory students precipitation on physical exercise was positive.

4.1.2.2 Students' response to mixed and open ended items

1. **The participation of students in Physical exercise activity and reasons that influence them to take part/participate or not**

The data obtained from the mixed item questionnaire showed that among the 256 participants of the study 82 (32 %) participates in PE programs, whereas 174 (68 %) of them did not participate in PE.

Regarding the reasons reported by the study participants that influence students to participate in PE showed that; interest to sport activities, interest to keep their health, to have good body appearance, the presence of sport fields and taekwondo centers, the presence of football teams in their surroundings and encouragement of family members are identified as the main influencing factors in the study.

On the other hand, lack or shortage of time, unwillingness of parent's to send their children's for PE programs, absence of organized PE programs in the surrounding are identified as the reasons for students not to participate in PE programs.

2. Students' response on the mandate of schools to provide PA for students

All participants of the study noted that Schools should provide PA for students (comprises of PE, recess /break-time, free play, extracurricular activities. Students noted that since Physical activity is important to keep our health, to perform daily tasks effectively and efficiently, to reduce mental stress and to give enjoyment, to have good personality and behavior, to develop positive social relationship etc., schools should provide PA for students.

3. **Student's perception on the participation of physical exercise and its impact on academic achievement (from the open ended questionnaire item)**

In analyzing the data obtained from tis open ended item of the questionnaire, three major themes are identified.

Most students noted that PE will not reduce academic achievement if it is done planned. These group of students noted that there should be time for schooling, for PE, for study, to help parent's etc. Thus as far as we do it in program and manage our time, PE will not reduce academic achievement.

On the other hand few students noted that since Doing PE makes students tired or fatigue, it make them not to study hard. Besides, few students noted that PE will improve academic achievement, it reduce stress and helps us to feel free and relax, and thus we can study academic subjects in active and free mind.

Above all, most students perceive that PE will not reduce academic achievement.

4.1.3. Data Presentation and Analysis of teachers response

4.1.3.1. Presentation and Analysis of teachers response to the questioners

Teachers were asked 10 questions having 5 levels of categories regarding their perception of the influence of PA on academic achievement. The rating were in five levels of categories: -

For analysis purpose, based on the principle of round off the mean score obtained from teachers questionnaire response is also interpreted as follow:-

Mean ≥4.5- strongly agree
Mean 3.5 to < 4.5 agree
Mean 2.5 to < 3.5 undecided or neutral
Mean 1.5 to < 2.5 disagree
Mean ≤ 1.5 strongly disagree

Table 4.5. Teacher's perception on PE for students' academic achievement

No.	Items (PE)	Number of respondents										
		SD	%	D	%	N	%	A	%	SA	%	Mean
1.	PE improves students behavior in the classroom	5	8.2%	3	4.9%	8	13.1%	45	73.8%	-	-	**3.52**
2.	PE must be performed daily	5	8.2%	6	9.8%	2	3.3%	39	63.9%	-	-	**3.53**
3.	The school environment is comfortable to perform PE	-	-	-	-	17	27.9%	35	57.4%	9	14.8%	**3.9**

4. PE can increase the result of students	-	-	8	13.1%	12	19.7%	41	67.2%	-	-	**3.54**
5. Teacher engage students to perform PE during PH class	-	-	1	1.6%	27	44.3%	28	45.9%	5	8.2%	**3.61**
6. PE have positive impact for students' academic achievement	-	-	9	14.8%	13	21.3%	30	49.2%	9	14.8%	**3.64**
7. PE allows students to perform better in school	-	-	12	19.7%	10	16.4%	29	47.5%	10	16 .4%	**3.61**
8. PE can improves one's own heath	-	-	1	1.6%	27	44.3%	28	45.9%	5	8.2%	**3.59**
9. PE should be practiced Individually	-	-	-	-	13	21.3%	32	52.5%	16	26.2%	**4.05**
10. PE helps students feel good about his or herself	6	9.8%	13	21.3%	2	3.3%	4	0 65.6%	-	-	**3.9**

Note: SD: strongly disagree, D: disagree, N: neutral, A: agree, SA: strongly agree
1= **strongly disagree 2= Disagree 3= Neutral 4= Agree 5= strongly agree**

As shown in table above, teacher's perception on the influence of PE in improving student's class room behavior and feeling good about his or herself falls between the mean score 3.52 and 3.9 respectively which means agree for this item.

Teachers perceives that the school environment is comfortable to perform physical exercise with the mean score of 3.9, which is under the category of agree.

As far as teachers perception on the influence of PE for increasing students result and improving overall academic performance the mean score was found 3.54 and 3.64 respectively, which are under the category of agree. Moreover, teacher's perception on the influence of PE to allow students to perform better in school, the mean score shows 3.61, which is also agree. The overall mean of these three items is .3.59, which is under the category of agree.

As far as the practice of PE in schools concerned that teacher's perception on the engagement of students to perform physical exercise during P.E class was found 3.61, which is under the category of agree.

Teachers agree that Physical exercise can improves one's own heath, with the mean score of 3.59, and they agreed that physical exercise must be performed daily with mean sore of 3.53, and teachers perceives that PE should be practiced individually with mean score of 4.05.

Above all in this study teachers perception on the impact of PE on academic achievement was found agree or positive in this study.

Therefore, As far as teacher's perception on the influence of PE on academic achievement, the overall mean of teachers rating scale questionnaire items was found 3.68 which is under the category of agree in this study.

4.1.3.2 Teachers response to the Interview

The interview for teachers was guided by or focused on three questions or issues, and the data retrieved from the interview conducted are summarized and organized in relation to questions raised in the interview. Seemingly the collected and analyzed data for each item of the interview is presented as follow.

1. **Teachers' Perceptions on the effect of physical exercise to helps students feel good about themselves**

Yes it is one big Couse for students in our school which helps students to feel comfort with others and with their own class mates is a direction to that regular exercise benefits for students heart, muscle, it is also helps to release of endorphins, this feel- good chemical substance which promote happiness, indirectly increase feeling and self-image about them self.

Therefore, for this questions teachers responds that students must be on the track to perform physical exercise in order to have got their strength, endurance, physical appearance and their moods. Sine, physical exercise is the good or the ways to had good feelings about themselves than students who are inactive in physical exercise.

2.Teachers' Perceptions on the effect of PE in improving student's classroom behavior

Exactly physical exercise improves students behavior and emotional status, we can consider the nature of physical activates almost every sport actives allow the positive interaction of students which to respect each other and controlling overall emotion leading negative interaction.

Sport events teach students to respect rules and regulations which means paly with others, appreciate each other's, respect personal deference, etc which gives best reason to improve student's behavior not only in class room but also in their life style of students.

For this item some of the respondents said that is physical exercise has not relation with student's classroom behavior. However, most of the participants perceives that exercise is the

best way to change or improve student's behavior not only in the classroom but also outside school environment. The findings of this research is consistent with the findings of similar study done by (Hillman et. Al, 2009; which confirmed that Physical exercise has positive influences on classroom behavior, faster decision making, concentration, memory, and cognitive function.

3. **Teachers' Perceptions on a relationship between physical exercise and grades in school**

Increasing physical exercise may improve academic performance. It is clearly that healthy children can learn better in brain and are responsible for both mental process and physical action of human body. So it helps to keep students brain healthy and it is advisable to practices physical exercise which helps the attainment or health enhancing level of physical fitness to cognitive and brain function. Children can respond faster and with greater accuracy to a variety of cognitive tasks after participating in session of physical activities. Overall activity increases allover students or human function for the best result. Therefore, the benefits of physical exercise and movement in learning environment directly related to students focus on their grade.

The respondents explained that; they are able to focus much better as they have had time to release some energy and get endorphins going "after some exercise. They also said that by using physical activity, "students helps to know how to activate their bodies to get themselves into the best state for learning". Therefore, they are able to better concentrate on the task and they are working on or what they are learning.

4.2. RESULT AND DISCUSSION

This section attempts to discuss the findings of the present study. The findings in this study will be presented, interpreted and discussed in response to research questions mentioned earlier.

4.2.1. Student Perception on the influence of PE on academic achievement

Most grade eleven students of the study schools of the three towns perceives that; PE has a positive impact on their academic achievement. This finding is similar with the findings of a research conducted by Singh and McMahan (2006) and they have analyzed scores in 253 elementary schools and found a positive correlation between academic achievement (California Standards Test) and physical fitness scores.

Analysis of the data obtained from the rating scale items of student's questionnaire showed that, most students agreed, PE has a positive impact on their academic achievement. The overall mean of Students questionnaire items which are related with their perception was found 3.56, which is under the category of agree. Seemingly the percentage result in most items of the questionnaire revealed that most students agree on the positive impact of PE for academic achievement.

As shown from table 4.3 above 70% of students perceives that PE has a positive impact to better concentrate on study. More than 63 % of students perceive as PE increase students result, as PE has a positive influence in improving overall academic performance and as it helps to compete with others on academic achievement. Which is in consistent with a study conducted in Turkey conducted by Field, Diego, and Sanders (2001) and compared suburban high school senior and found that those who had a higher level of exercise reported higher grade point averages,

Thus the result of this study tells that students perceive as PE has a positive impact on academic achievement.

Moreover, students response of the mixed and open ended questionnaire also revealed PE will improve academic achievement, as it reduce stress and helps them to feel free and relax, and thus to study their academic subjects in active and free mind, and at least students perceive that PE will not reduce academic achievement. Students also perceives that PE also have an impact in improving their health and to boost their confidence or to feel good about themselves with a mean of 4.4 and 3.9 respectively, and these also has an impact on overall school performance.

That is why the majority of student's i.e. more than 79 % of students perceives that PE should be performed daily and the majority (66% of students) oppose or disagree on the idea that PE should be performed once in a week. Hobson (2008) and Castelli also noted that a single 10 minute bout of physical exercise is enough to boost attention and problem solving skills. Thus our study finding is similar with most studies conducted in same topic.

(See table 4.4). Seemingly, all participants of the study noted that Schools should provide PA for students (comprises of PE, recess /break-time, free play, extracurricular activities.

Above all the result of this study showed that students perceives PE has a positive impact on improving academic achievement or student's perception on the influence of PE on improving academic achievement was found positive.

4.2.2. Teacher's perception on the influence of PE on students' academic achievement

As far as teacher's perception on the influence of PE on academic achievement, the overall mean of teachers rating skill questionnaire items was found 3.68 which is under the category of agree which means teachers perceptions on the influences of physical exercise on students' academic achievement was positive.

In the interview teachers perceive that physical exercise is that influence on students' academic achievement.

4.2.3. Factors that influence students to participate or not to participate in Physical activity

Among the 256 participants of the study 82 (32 %) participates in PE programs, whereas 174 (68 %) of them did not participate in PE. Thus most students do not participate in PE programs due to lack or shortage of time, unwillingness of parent's to send their children's for PE programs, absence of organized PE programs in the surrounding. On the other hand 32% of students in the study participate in PE because they have interest to sport activities, to keep their health, to have good body appearance, the presence of sport fields and taekwondo centers, the presence of football teams in their surroundings and encouragement of family members are identified in the study.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION.

5.1 Summary

This study was aimed at exploring teachers' and students' perception on the influence of physical exercises on academic achievement in three towns of North Wollo selected Preparatory Schools. A total of 256 grade eleven (11) students and sixty one (61) teachers were participated in the study. To achieve the objective of the study and to answer the three leading questions raised in the study, the necessary data was collected through questionnaire (closed, mixed and open ended) and interview.

The collected data were analyzed using percentage, mean score and word description. SPSS version 20 was used to calculate the percentage and mean sores.

The results of this study is summarized below in accordance or in line with the basic research questions raised in the onset of the research as follow:-

- **what are the views/ perception of students of the effect of physical exercise for their academic achievement**

To answer above leading question the data collected from students through closed, mixed and open ended questionnaire were analyzed and interpreted. The result showed that most grade eleven students in three selected preparatory of North Wollo Administrative Zone perceives that PE has a positive impact on their academic achievement.

The overall mean of students questionnaire items which are related with their perception was found 3.56, which is under the category of agree. Seemingly the percentage result in most items of the questionnaire revealed that most students agree on the positive impact of PE for academic achievement (63%); 70% of students perceives that PE has a positive impact to better concentrate on study, more than 63 % of students perceive as PE increase students result, as PE has a positive influence in improving overall academic performance and as it helps to compete with others on academic achievement.

Moreover the analysis result of the qualitative data obtained from the open ended questionnaire items also showed that most students perceive as PE has a positive impact on academic achievement, and few student perceive as it at least did not reduce academic achievement.

Above all the result of this study showed that most students perceive that PE has a positive impact on improving academic achievement.

- **What are the opinions /perception of preparatory school teachers on the effect of physical exercise on students' academic achievement?**

In order to answer this research question depends on questioner and interview items the overall mean was 3.68 which mean teachers perception on influence of physical exercise on academic achievement and the same results was showed on interview questions a good explanation on **(page 31**)

- **What are the factors that influence students to participate or not to participate in physical activity?**

Regarding the third leading question the result of this study showed that most students (68 %) who were participant of this study do not participate in PE programs due to lack or shortage of time, unwillingness of parent's to send their children's for PE programs, absence of organized PE programs in the surrounding. On the other hand 32% of students in the study participate in PE because they have interest to sport activities, interest to keep their health and to have good body appearance, the presence of sport fields, football teams and taekwondo centers in their surroundings and encouragement of family members are identified factors that influence students to participate in PE.

5.2 Conclusion

In a nutshell, in this study explored perception of students and teachers on the influence of physical exercises on academic achievement and the results of the study indicated that both teachers and students perceive as PE has an impact on improving academic achievement, performance, result compute with others in academic performance and class participation. It is encouraging to see that teachers and students perceive as PE improve academic achievement. Though students need to participate in PE programs, the provision of PE programs in the school and the surrounding was found very little, and most students did not participate in PE programs. Thus, it is imperative to provide access to Physical exercise and physical activity programs in the school and the surrounding to best meet the needs of students and youths.

5.3 Recommendation

Based on the major findings of the study and conclusions drawn, the following recommendations are forwarded:

- Schools and physical education teachers should provide provision or access to PA for students in a variety ways such as recess /break-time, free play, extracurricular activities.
- The Woreda Sport and Culture office and other concerned bodies should also increase the provision of access to PA for youths.
- Awareness creation should be done for parents on the impact of PE in academic achievement, and other benefits of PE so as to be willing to send their children's for PA programs, and to encourage their children's to participate in physical exercise programs.
- Future research shall focus on assessing the perception of the society on the impact of PE for academic achievement.

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7. APPENDECES

APPENDIX. A

ADDIS ABABA UNIVERSITY

Department of Science and Mathematics Education

Questionnaire for students

Dear students,

This questionnaire is designed to collect information for research purpose only. Its objective is to investigate your perception of the effect of physical activity in academic achievement. I therefore, kindly request you to provide genuine information for it; hence it highly determines the success of the study.

It is not necessary to write your name.

I thank you in advance for your cooperation!!

Part one: Background Information

1. Name of your school 1. Wolida 2. Mersa 3. Kobo

2. Your sex: 1. male 2. Female

3. Grade level 1, grade 11 2. Grade 12

4. Age 1. 14 up to 17 years 2. 18 above 18 years

Part two:

Direction: following 8 statements are presented. Please indicate to which extent you agree or disagree with each statement based on your perceptions.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

1	Physical activity allows me to concentrate better					
2	Physical activity helps me stay on task during class					
3	Physical activity allows me to concentrate better					
4	focused in the next class after physical education class					
5	Physical activity improves my self-esteem					
6	Physical activity allows me to perform better in school					
7	I feel good after completing physical education class					
8	As physical fitness improves students' academic performance improves					
9	Perform exercise is that increase students result					
10	Preform exercise is important to compare with other students with grade					
11	To participate in physical exercise program is that improves your heath					
12	Is that a family to do physical exercise daily in your home?					
13	After performed exercise you feeling comfort when inter the next class.					
14	After performed exercise you feel good about yourself.					
15	You believe that exercise perform in group.					
16	You believe that exercise perform daily					
17	You believe when you perform exercise is help you to know new friends					

18. Discuss what types of feeling you feel after performing physical exercise?
_____-
_____

19. List the impact of physical exercise to perform or not perform on the result of grade for the students?
_____

20. Discus the effect of exercise to participate for students' on academic result.

_____

_____-

21. What do you feel in class room after and before physical activities to perform?

_____

APPENDIX B

Questionnaire for PE teachers

ADDIS ABABA UNIVERSITY

COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES

The purpose of this questioner is to collect information about teacher's perception of the influence of physical exercise for academic achievement in selected preparatory schools 8of North Wollo in Amara National Regional State of Ethiopia.

Specific Instruction:

● please don't write your name on the questioner and don't give it to other person to fill it instead of you. Your response will be kept confidential and used for study only.

●Put (x) mark for an appropriate value from the given rating scale.

The scale nominated as: - 1 = strongly Disagree 2 = Disagree

3 = Neutral 4 = Agree 5 = strongly Agree

Background

1. Qualification 1. Diploma 2. Degree 3. MS

2. Subject you teach 1. Natural science 2. Social science

3. Experience to teach 1. 1-5 years 2. 6-10 years 3. 11 years above

4. Grade level you teach 1. Grade 11 2. Grade 12 3. Both

5. Age 1. 25---40 years 2. 41 years above

6. Gender 1. M 2. F

Table.2 Questioner for teachers

No	Items	1	2	3	4	5
1.	Physical exercise improves students behavior in the classroom					
2.	I believe that physical exercise must perform daily					
3.	The school environment is comfortable to perform physical exercise					
4.	physical exercise can increase the result of the students					
5.	Teacher engage students to perform physical exercise during P.E class					
6.	I believe that physical exercise have positive impact for students' academic achievement					
7.	I participate actively in class after perform physical exercise.					
8.	Physical exercise allows students to perform better in school.					
9.	physical exercise can improves your heath					
10.	I believe that physical exercise practice individually					

APPENDIX C

Interview for teachers

1. Physical exercise helps students feel good about his or herself
2. Physical exercise improves student's classroom behavior
3. Discuss your thoughts on a *relationship* between physical exercise and grades in school.

APPENDIX. D

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APPENDIX E

Participant's information sheet and informed consent form

Research Title: Teachers' and Students' perception of the influence of physical exercises on academic achievement in North Wollo selected preparatory schools

Investigator name: Dawit Guangul

1. **Rights**

Participation for this study is fully voluntary .you have the right to with draw from the study at any time and this will not label you for any loss of benefits which you otherwise allowed .but it is not advisable

2. **Contact address.**

If there is any questions or enquires any time about the study or the procedures, please contact;

Dawit Guangul +251913186486

Email dawit07dina@gmail.com

Dr. Solomon Teka (Major Advisor) + 251911640498

Email solomonaau@gmail.com

3. **Declaration informed voluntary consent**

I read the participant information consent. I have clearly understood the purpose of the research, the procedure the risk and benefits, issues of confidentiality, the right of participating and the contact address for any requests. I will inform that I have the right to withdraw from the study at any time .Therefore I declare my voluntary consent to participate in this study with my signature as indicated as follows.

Participant code no _____

Name of investigator_____

Signature_____ Signature_____

Date_____ Date_____

APPENDIX F

Table 4.3: Student's perception on the influence of PE for academic achievement

No.	Items	Number of respondents										
	I believe that:-	**SD**	**%**	**D**	**%**	**N**	**%**	**A**	**%**	**SA**	**%**	**Mean**
1	PE allows me to have better concentration on my study	9	3.5	32	12.5	35	13.7	98	38.3	82	32	**3.8**
2	PE helps me to focus on task during class for different subjects	40	15.6	66	25.8	14	5.5	74	28.9	62	24.2	**3.2**
3	PA will allow me to be better with my achievement in school	22	8.6	56	21.9	27	10.5	107	41.8	44	17.2	**3.4**
5	engaging in PE has positive contribution for the overall academic performance	29	11.3	38	14.8	27	10.5	105	41	57	22.3	**3.5**
6	I participate actively in the class when I return from Ph Ed. Practical class	14	5.5	57	22.3	27	10.5	87	34	71	27.7	**3.6**
7	PA helps me/will to improve my classroom behavior	19	7.4	52	20.3	37	14.5	86	33.6	62	24.2	**3.5**
8	participating in PA allows me to perform better in school	8	3.1	61	23.8	27	10.5	94	36.7	66	25.8	**3.6**
9	student's participation in PE can increase students result	8	3.1	44	17.2	41	16	62	24.2	101	39.5	**3.8**
10	PE helps me to compete with others on academic achievement	11	4.3	49	19.1	34	13.3	60	23.4	102	39.8	**3.7**
12	I feel comforted when enter to the next class after completing ph. ed practical class,	23	9.0	58	22.7	22	8.6	60	23.4	93	36.3	**3.5**
	Overall mean											3.56

APPENDIX G

Table 4.4: Student's perception on the practice of PE and its Impacts on other aspects of Personality

No.	Items I believe that PE:-	Number of respondents										
		SD	**%**	**D**	**%**	**N**	**%**	**A**	**%**	**SA**	**%**	**Mean**
4	must be performed once in a week	74	28.9	98	38.3	24	9.4	32	12.5	27	10.5	2.36
11	can improves my heath	7	2.7	16	6.3	6	2.3	61	23.8	166	64.8	**4.4**
13	can helps me to feel good about myself	25	9.8	29	11.3	16	6.3	68	26.6	118	46.1	**3.9**
14	should be practiced in a team	31	12.1	64	25	18	7.0	80	31.3	63	24.6	**3.3**
15	must be performed daily	18	7	29	11.3	31	12.1	88	34.4	90	35.2	**3.8**
16	PE helps me to get new friends	12	4.7	29	11.3	24	9.4	96	37.5	95	37.1	**3.9**

APPENDIX H

Table 4.5. Teacher's perception on PE for students' academic achievement

No.	Items I believe that:-	Number of respondents										
		SD	%	D	%	N	%	A	%	SA	%	Mean
1	PE improves students behavior in the classroom	5	8.2	3	4.9	8	13.1	45	73.8	-	-	**3.52**
2	PE must be performed daily	5	8.2	6	9.8	2	3.3	39	63.9	-	-	**3.53**
3	The school environment is comfortable to perform PE	-	-	-	-	17	27.9	35	57.4	9	14.8	**3.9**
4	PE can increase the result of students			8	13.1	12	19.7	41	67.2	-	-	**3.54**
5	Teacher engage students to perform PE during Ph.Ed class	-	-	1	1.6	27	44.3	28	45.9	5	8.2	**3.61**
6	PE have positive impact for students' academic achievement	-	-	9	14.8	13	21.3	30	49.2	9	14.8	**3.64**
7	PE allows students to perform better in school	-	-	12	19.7	10	16.4	29	47.5	10	16.4	**3.61**
8	PE can improves one's own heath			1	1.6	27	44.3	28	45.9	5	8.2	**3.59**
9	PE should be practiced individually	-	-	-	-	13	21.3	32	52.5	16	26.2	**4.05**
10	PE helps students feel good about his or herself	6	9.8	13	21.3	2	3.3	40	65.6	-	-	**3.9**