Effect of Physical Activity on Academic Achievement of Secondary School Students :The case of Mirab AbayaWoreda, Gamo Gofa Zone of Sothern Nation and Nationalities People's Regional State

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Effect of Physical Activityon Academic Achievement of Secondary School Students :The case of Merab Abaya Woreda, Gamo Gofa Zone of Sothern Nation and Nationalities People's Regional State

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This is to certify that the thesis prepared by Marked ManeboZamba, whichentitled: *The effect of Physical activity on academic achievement on Rural Secondary School Students The case of GamoGofa Zone, Merab Abaya weredas,*in partial fulfillment of the requirements for the Degree of Master of Education in teaching physical education complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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ACRONYMS AND ABBREVIATIONS

CG	Control group
EG	Experimental group
GPE	General physical education
IJPSH	International journals of physical education sport and health
MEd	Master of Education
MOE	Ministry of education
MASPS	Mirab Abaya Secondary and Preparatory School
MVPA	Moderate to vagarious physical activity
NAPSE	National Association of Sport and physical education
SBPE	School based physical education
SNNPR	Southern Nations Nationalities and People's Regional State
PE	Physical education
WMZSS	Wajifo Meles zenawi secondary school

ABSTRACT

The objective of the study was to explore the effect of physical activity interventionon on academic achievement of students in rural Public secondary schools in the case of Merab Abaya woreda, Gamo Gofa zone of Southern Nation Nationalities People Regional state. To realize the purpose of the study, both qualitative and quantitative techniques were applied. Using mixed research method could neutralize or cancel the biases of any single method, and it is used asa means for seeking convergence and integrating qualitative and quantitative data. The research was employed an instruments like students questionnaires, semi-structured interview, 2010 E.C grade 11-th students academic achievment document analysis were employed .The total population of the study was consist of five secondary school students that found in Merab Abaya Woreda and purposively two rural secondary schools were sellecated,160 11-th grade students, 5 physical education teachers and 5 school Principals found in the research setting were selected by purposive sampling for the purpose of this study. The study was also employed purposive sampling technique inorder to destribute the sex ratio equally in both experimental and control group of the study. Acordingly 80 students as experimental and 80 students as control group were selected.To examine effectiveness of the intervention on academic achievement of secondary school students and to identify significant deference bet ween experimental and control group,then the expermental group partcipatedin physical activity intervention 60 minutes for three days per-a week which prolonged for12 week and on the other hand the control group was participate in physical activity in one period in the normal class schedule.Generally Student Percentage, independent t-test, paired t-test were employed as statistical tools to analyze the data by spss vertion-20. Based on measure finding of the study, it was recommended that, participating in regular physical activity at least three days per aweek for 60 minutes for a day was show posetive effect on academic achievement in secondary schools. So MOE should amend the existing PE Period in the secondary schools to promote physical activity in the way to improve academic achievment.

Key words: physical education, physical activity, academic achievement, school based Physical education, academic performance, quality physical education

CHAPTER ONE:INTRODUCTION

1.1. Background of the Study

Educational systems all over the world have incorporated physical education in their curriculum and physical education curriculum is one of the most crucial programs in the schooling as they can promote good health, giving students a new way to make them fit and enable students to learn and achieve their lessons at the same time. In the course of educational delivery physical education program uses physical activity as primary means to achieve intended educational goals. The growing importance of schools and physical education program in promoting fitness and physical activity is widely acknowledged in the body of literature concerned promoting physical activity in secondary schools (Cale and Harris, 2005; Salmon et al., 2007).

A semi-structured 'update' questionnaire distributedto recognised PE 'experts' and PE practitioners(2006) in the European uion in world wide survey II, assessed and reported the situation of physical education inschools across the world. Within general education systems, a majority of countries 89% primary schools; 87% secondary schools have legal requirements for PE in schools.Together with countries where there is no compulsoryrequirement for PE but where it is generally practised, this figure rises to 95% in the European region . The collective surveys'data shown, that PE is a compulsory subject in a largemajority of educational systems globally and, whereit is not compulsory, it is generally taught as a matterof general practice.A semi-structured 'update' questionnaire distributedto recognised PE 'experts' and PE practitioners(2006) in the European Union .

As a subject, physical education in particular is seen as a key vehicle through which to promote fitness and physical activity (Fairclough and Stratton, 2005; Stratton et al., 2008) with the adoption and maintenance of a physically active lifestyle now an established goal of the PE curriculum in many countries. Physical Education is important in helping develop lifelong physical activity habits in children and adolescents (Pate et al., 2006).

The international journals of physical education state that Physical education has traditionally been considered an essential part of curricula to promote a social range of benefits including general health, cognitive development, motor skills and behavior. The

philosophy “Healthy Body, Healthy Mind” was the motive behind the inclusion of physical education along with the curriculum subjects. Physical education is the systematic education of physical activity to develop a man physically, mentally, emotionally and socially competent through an active medium. Physical education can help the students to develop the knowledge, attitudes, motor and behavioral skills, and confidence needed to adopt and maintain physically active lifestyle. Physical activity is defined as any bodily movement produced by voluntary body muscles that require energy expenditure. The term Physical activity is a crucial component of school curricula as it is suggested to increase the students’ academic achievement. The term “Physical activity” should not be confused with “exercise”. Exercise is a subclass of physical activity that is planned, structured and repetitive for a certain purpose.The outcomes of a quality physical education and physical Activity program are very important to high school adolescents（Chappell, 2001).

Physical education can help the students to develop the knowledge, attitudes, motor and behavior skills, and confidence needed to adopt and maintain physically active lifestyle. School systems in every level have mandated internationally to provide quality physical education to benefit students in standard amount physical activity.Bodily benefits of physical activities, like improved aerobic power, increased muscle strength, and fighting obesity have been demonstrated clearly. Furthermore, athletic participants score higher grades in school and have higher educational aspirations than non-participants have. Therefore, physical education may not be considered extracurricular; it is rather a vital component in students ‘academic success (IJPSH, 2015).

Dupont et al. (2009) stated that Physical education as part of education provides the only opportunity for all children and adolescences to learn about physical movement and engage in physical activity. The aim of schools is to safeguard the growth and development of learners and to prepare them for life. Like all other school subjects, physical education shares this aim by focusing more on the socio-motor aspects within an inclusive educational process.

Physical education that offers a balanced methodology to educate the child and adolescence holistically is consistent with the educational mission of schools globally (Ennis, 2011), notwithstanding the fact that schools are not only educational settings. Physical education can help the students to develop the knowledge, attitudes, motor and behavior skills, and confidence needed to adopt and maintain physically active lifestyle.

School systems in every level have mandated nationally to provide quality physical education to benefit students in standard amount physical activity. Instructional opportunities for physical activity and physical education are mandated by most states.In comparison with data prior to 2006, more states have developed mandates for physical education at both the elementary and secondary school levels. However, most mandates lack a specified time allocation that ensures meeting the national assocaition of Sport and physical education recommended 30 minutes per day for elementary school and 45 minutes secondary schools.

MOE (2003) the secondary school physical education curriculum was designed to focuses on goal of promoting physical development and the achievement of personal physical fitness goals, developing competency in a wide variety of physical skills, which allow students to function effectively in physical activities and establishing an understanding of movement.

Several present-day PE curricula are either underpinned philosophically or implicitly informed by the Arnoldian notions of education "in, through and about" movement which relate to the physical, social, affective and cognitive domains and denotes a holistic approach to teaching PE. Brown postulates that education „through" movement is perhaps the dimension that is most effortlessly linked with PE. As a means to an end, this dimension uses movement as a way to meet other objectives. Purposes that are not related to any intrinsic values but oriented towards extrinsic values can be achieved in the physical, emotional, cognitive and social domains through participation in carefully chosen and focused physical activity.

Different Studies conducted onphysical activity have shown that increasing the amount of physical activity can improve many aspects of personal well being. So that physical education teachers understand the variety of ways it can be integrated for academic success and are capable of providing students with many life lessons as well as academic lessons, and being physically fit in one lesson where students will be able to on assessments and bench marks, and positive behaviors. Although physical activity have many positive effect on secondary level students the study was more interested in effects of activity on their academic success,this is because the paramount mission of physical education is to make permanent its pedagogical approach of educating the body by teaching children and adolescence about movement and to develop the necessary skills to become proficient in many kinds of physical activity to enhance academic out and finally as the result of the investigation it is possible to

inform best practice and create an understanding of the crucial role of physical activity for academic achievement of students in secondary school.

This study was provide evidence that health-related outcomes associated with school physical education, higher levels of physical activity implementation are positively associated with improved academic achievements in secondary school youth. An educational rationale for the inclusion of PE in school curricula is provided by the justification of the Arnoldian dimensions. Arnold understood the marginalized view on PE and via an intrinsic validation suggesting that PE activities were worthy in and of themselves, he instead confronted the educational legitimacy of subject matter (Brown, 2013).

1.2. Statement of the Problem

According to Ennis (2011) the content scope of the PE curriculum should emphasis: "… in-depth instruction in a range of physical activities that students [learners] need to learn to be physically active; want to learn because the activities lead to opportunities in competitive sport and recreation; and enjoy learning because the activities are meaningful and relevant in their lives today".

Fall (2007) stated that Secondary school students are experiencing a phase in their development in which they are attempting to make sense out of who they are and how they will live their lives as adults. Physical education can play an important role in that transition. Positive self-concept development is an outgrowth of a number of positive experiences encountered through physical activity.

According to Lee et al.(2007) published data from the 2006 world survey was found few schools in the world provided daily physical education, which will defined as physical education everyday for 30 minutes a day (150) minutes per a week in primary school and 45 minutes per a day (225) minutes per a week in middle and high school according to international standard of physical education recommendation level in daily base is mandatory for its positive benefits.

As stated by Dawn and John (2005) physical education contributes to students' academic and intellectual growth as it provides knowledge and understanding about their bodies and how they function with exercise and without exercise. Students learn how to achieve physical

fitness and the importance of maintaining an active lifestyle for a lifetime. They are introduced to and exposed to a wide variety of activities, competitive and noncompetitive, that bring them enjoyment and support those academic experiences that are critical to understanding the activity.

Tomporowski, et al. (2008) reviewed research studies that examined physical activity effects on children's intelligence, cognition, and academic achievement. 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, visuospational processing, and speeded processing. When the executive and non-executive cognitive processes in older adults were assessed following an aerobic training and non-aerobic training 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.

The teaching of physical education in Ethiopian public schools is an educational practice integrally with other subject that dates back to around 1924 with the expansion of modern education in the era of Imperial Menelik II.The goals of school physical education go beyond the simple promotion of physical activity and fitness and include development of the cognitive knowledge and the physical, social, and emotional skills necessary for participation in life-long physical activity. However, with school systems facing different constraints and pressure to improve academic test scores become as part of daily action of the school. Physical education teachers and school administrators are increasingly questioning the crucial role of physical education and physical activity programs to the central academic mission of schools. This concern has led to a substantial reduction in the time available for physical activity instruction during the school day. For instance the normal national curriculum schedule distribution of physical education for secondary school shows two periods and each subject's time allotment arranged to meet their desired objective. But in current context of adding additional subjects like ICT and mother tongue within the part of secondary school curriculum physical education time allotment in research setting became one period per a week and it is not sufficient for the subject to achieve the intended educational objective and is not implementing with its given time allotment by the national curriculum.

Several researchers had been conducted on the effects of physical activity on academics by using many different interventions, fitness measurements, and with varying results. However this study was more interested to assess the effect of physical activity on students academic achievement in secondary school of Merab abaya woreda and as the result adopt vigrious activity for 60 minutes for three day per aweek which lastes for 12 week and finally the activity performance was corralated with academic achievment performance. The researcher was inicaited to go through in the topic because, the importance of quality physical activity practice asa way of creating greater attentiveness in physical education class to effect academic outcome in the secondary school has not been given much emphasize in the studay area duto many barriers however the result of this study was important for administrators, teachers and students efforts to routine physical activity in their life, because quality physical education and physical activity experiences have the potential to effect academic outcome, on task behavior, cognitive and physical development aspect.

1.3. Objective of the Study

1.3.1. General Objective

The Genral objective of the study focuses on assessing the effect of physical activity on academic achievements of students in Gamo Gofa zone: Merab abaya woreda secondary schools, in focus.

1.3.2. Specific Objective

The specific objects of the study was intended to:

1. Explore positive significant link between physical activity intervention and students academic achievements between experimental and control group.

2. Examine those challenges of school physical activity implementation in the secondary schools.

3. Evaluate sufficiency of current period allotment of Physical education of the curriculum break dawn for secondary schools.

4. Add educational value of school physical activity to Scondary school community.

1.4. Research Question

Based on the research objective the study was attempt to answer the following research questions which are associated with the problem under investigation in mentioned research setting.

1. what extent physical activity is conducted in the secondary school to effect acdemic achievement of students?
2. What are those challenges to promote school physical education and physical activity?
3. Is there relationship between physical activities performance with academic achievement of the student.
4. Is the current time allotment of PE is adequate to promote PA in secondary schools?

1.5. Significant of the Study

There is some benefit would be derived from this study. Even if the secondary school setting are mandated organization to deliver an educational accesses to the youth on the many benefit of quality physical activity and in the site to be conduct inquiry no sufficient study has been done regarding on the effect of physical activity on students academic achievements .So that this study was conducted on the effect of physical activity on academic achievements has the following significance. Primarily the result of the study was significant for Merab Abaya woreda secondary schools students due to given recommendation, schools administrators, physical education teachers and stakeholders in the research setting however, It was not only significant for specific research setting but also the result of the study would be benefit different secondary schools in Gamo Gofa zone as well as SNNPRS secondary schools. Because as the result of this research the design of quality physical education and physical activity experiences have the potential to impact on physical, cognitive aspect and academic outcome in the secondary school setting. Finally due to the given recommendation of the finding:

The concerned stake holders increase awareness about the academic benefits of physical activity experience in the school and provide facility and equipment to enjoy students in school based physical education and physical activity.

1.It enable the students to gain information about the positive benefits of physical activity and through acquired knowledge of physical activity in the course of physical activity intervention they associate Physical activity with their real life situation .

2.Due to the finding teachers modify physical education plan to increase time for physical activity to implement standard physical education and physical activity.

3.The study was increase awareness for physical education teachers' professional role in providing physical activity through quality physical education program.

4.The result of the study also enable educational leaders should come up with possible solution and Interventions strategies to promote physical activity in secondary schools.

5.The document helps policy makers and educational leaders to examine and evaluate the relevance of time allotment in the curriculum to the grade level and review accordingly.

6.The finding of this research permits another researcher for future advancement.

1.6. Delimitations of the Study

This study was delimited to Merab Abaya secondary and wajifoMelesZenaw secondary school which are located in SNNPRS in GamoGofa zone in Merab Abaya woreda.Even though physical activity have varies scientific effects like effect on fitness components , effects on health, effects on delay aging ,effects on preventing disease caused by inactivity and the like this study was aimed at to investigate effect of physical activity in academic achievement of secondary school students. The study was delimited to effect of physical activity intervention in two rural public secondary among five secondary schools in the sample woreda and confined to 3 section grade nine students in the sample schools.

1.7. Limitation of the study

Primarily in the course of the study the researcher was encountered with network inaccessblity to search important review literature and journals to get ample information for the work of the study. In order to solve the existing challenges I made strive to get support from two universities academic a fairies of Arbaminch and wolyata university from the research setting to fined the accesses of internet and to attach the draft of the research works.Secondly, during in the course physical activity intervention session assigned physical

activity session has interrupted due to rain and was strived to compensate missed session though make up class. Thirdly, the research was not going on time to accomplish within intended schedule due to deffercent social problme inccountered the the researcher.

1.8. Organization of the Study

The study has organized into five chapters. The first chapter deals with the introductory parts including background, statement of the problem, objectives, significance, scope, delimitation and limitations of the study. The second chapter presents review of related theoretical and empirical literatures. In the third chapter, methodology of the study comprising the data and methods of data analysis presented. The empirical findings of the study are discussed in the fourth chapter. Finally, chapter five is the conclusion and recommendation based on the findings.

1.9. Operational Definition of terms

Academic achievement*:*Academic achievement is the students' result when measured by (test score) before and after the intervention within a school setting. Often this is quantified as achievement in specific subjects , grade point average of grade nine students (2011E.C) .This variable is dependent up on the ability of the students, their background and environment, as well as the quality and quantity of academic instruction that students receives.

Academic performance: Is the extent to which student, teacher or institution has achieved their short or long term goals.

Physical activity:*P*hysical activity refers to the activity intervention provided students for60 minutes each three days per a week extended for three month in the sample research setting.

Physical education: Physical education, as defined by the National Association for Sport and Physical Educationis a curricular area offered in K-12 that provides students with instruction on physical activity, health-related fitness, physical competence, and cognitive understanding about physical activity, thereby enabling students to adopt healthy and physically active lifestyles.

Physical fitness: WHO statedas the state of health and well being and more specifically,The ability to perform aspect of sports, occupation and daily activities without undue fatigue.

Quality physical education: It is referred as standard based school physical education program. As defined by assocaition of Sport Health Activity and Physical education of America, a quality physical education program includes the opportunity to learn, meaningful content, appropriate instruction, and student and program assessment.

CHAPTER TWO: REVEEW OF RELATED LITERATURE

The study contains the theoretical review, which concerned the reviewing of the empirical and theoretical literature which are relevant for the problem that was investigated, second, conceptual frame work in order to demonstrate an understanding of the influence of one variable over other and thirdly, part of survey of related literature because the literature related to any problems helps the researcher to discover information which would enable to have a deep insight, clear prospective and a better understanding of a chosen problem and various factors connected to the study. Hence a number of books, journals and websites were referred and reviews were collected.

To have a thorough understanding and an insight deep into the development of a discipline, the researcher became thoroughly familiarized himself with both previous theory and research. To this end to explore the effect of physical activity on academic achievement of the Students in the secondary school the researcher underlying the following theoretical framework for the study being undertaken .As stated above the study was adapted social cognitive and socio ecological theories, which advocate the design of physical activity intervention for every individual. The intervention was comprises different strategic components to enhance implementation of physical activity in the school environment and which targets PE curriculum, school physical activity plan, monitoring students physical activity plan to asses implementation school based physical activity effect on academic achievement .One important finding of the physical activity study was the influence of teacher behavior on intervention outcomes. Approaches to changing behavior from a social cognitive perspective must include components that emphasize the interaction of the interpersonal environment, the physical environment, and the individual. Teacher's impudence may be used to actively engage students and reinforce physical activity within the school setting. Teachers who actively participate in physical activity lessons can be especially effective in demonstrating and inducing their students to try new behaviors. Guided participation by the teacher further enhances the change process by providing opportunities to practice new behaviors with social support and encouragement.

2.1. Conceptual Frame work

The study intended to assess the effect of physical education and physical activity on students' academic achievement on rural public secondary schools. There is lack of structured physical activities opportunity of students in rural communities and it is great factor on the school life of students' as well future life in termsof manyperspective. Therefore study was adapted Elder's et al. (2006) models of physical activity promotion to develop a social–ecological frame work. It identifies the social and physical environments, and policy opportunities to promote physical activity. Efforts that made to increase regular physical activity behavior are more likely to be successful to investigate the relation between physical activity and academic achievement of students .To this end researcher was admit physical activity intervention session 60 minutes three days per a week for 12 week(three month) in the research setting.

2.2. Goals of PE for Secondary Schools

The goals of physical education for secondary schools are improving physical health and develop a good attitude towards various physical activities that will result in lifetime participation in physical activities MoE (2003). One of the major goals of education is to prepare students to be lifelong learners, knowledge of factors affecting movements is essential to future learning. The general objectives of physical education for grade 9 and 10 syllabus are-

1.Acquire and refine motor skills essential for everyday activities.

2.Develop health-related fitness.

3.Attain knowledge on the benefit of physical education and health-related physical fitness.

4.Develop an application for the contribution that regular physical activity makes to lifelong health.These outcomes embrace the acquisition of physical skills, promotion of participation, achievement of fitness, attainment of knowledge, and development of attitude when viewed from the more traditional perspective, the goals of physical education relate to the student development in three interrelated domains and some of assessment techniques are important in practical session.

2.3. Importance of Physical Activity in the school

The aim of schools is to safeguard the growth and development of learners and to prepare them for life. Like all other school subjects, Physical education shares this aim by focusing more on the socio-motor aspects within an inclusive educational process (DuPont et al., 2009).

Physical education that offers a balanced methodology to educate the young holistically is consistent with the educational mission of schools globally (Ennis, 2011), notwithstanding the fact that schools are not only educational settings. Thorburn and MacAllister (2013), on the other hand, believe that there is unease about the educational contribution of Physical education.

As NASPE (2004) in institutionalized education, the main goal has been developing children's and adolescences' cognitive capacity in the sense of learning knowledge in academic disciplines. This goal dictates a learning environment in which seated learning behavior is considered appropriate and effective and is rewarded. Physical education as a disciplines which educate the citizen through the physical activity media to develop physical competence, knowledge of movement, safety and their ability to use these to perform in wide range of activities associated with the development of an active and healthy life style. It also develops generic skills, specially collaboration, communication, creativity, critical thinking and aesthetic appreciation. As physical education learning out-comes frame-work main volume the Physical education curriculum frame-work is instructed to ensure that students can enjoy an open, flexible and balanced program featuring a variety of movement experiences for overall aims of general education.

The rationale for any subject to be included in the school curriculum relates to the envisaged values associated with broad, unique content and aims (What), learning programs (How), and the actuality and merit of the outcomes (Why). What should be taught relates to the motor and physical domains that are unique to physical education, while the affective, social and cognitive domains are essential to ensure an educational and holistic approach to learning. CDC(2010) reported that the growing bodies of current discoveries and research journals of physical education stated briefly quality physical education and physical activity experience are paramount important in the context of school setting .The national association for sport

and physical education program (NAPSE) guide line sated that a high quality physical education program able to produce skill development in participating in physical activities , improves all qualities of physical fitness, support of other subject area, self-discipline, improve judgment, strengthened peer relation, improve self-confidence and self-esteem and goal setting.

Quality physical education programs are so important to produce learning experience that meet the students developmental needs which helps to improve the mental alertness, academic performance read-nesses and enthusiasm for learning. The National Association for Sport and Physical Education (NASPE) has taken the position that physical education is a critical component to educating the whole child. Physical education is integral part of total education of every children and adult student from kindergarten to higher education should have the opportunity to participate in a quality physical education program to help the students develop health related fitness, physical competence in movement activities, cognitive understanding, and positive attitude towards physical activity life styles. Thus, the school is responsible to implement physical activity according to its importance.

According to international position statement for physical education Berlin 2010 Physical education develops physical competence so that all children and adolescence can move efficiently, effectively and safely and understand what they are doing. The outcome, physical literacy, is an essential basis for their full development and academic achievement. Physical education in school is the most effective and inclusive means of providing all children, whatever their ability/disability, sex, age, cultural, race/ethnicity, religious or social background, with the skills, attitudes, values, knowledge and understanding for lifelong participation in physical activity and sport. It is the only school subject whose primary focus is on the body, physical activity, physical development and health; and helps children to develop the patterns of an interest in physical activity, which are essential for healthy development and which lay the foundations for adult healthy lifestyles.

The Surgeon General issued a report emphasizing the need for public and private sectors to commit to promoting physical activity (McKenzie &Kahan, 2008). Schools are a key setting to promote a healthy lifestyle and help reverse the current unhealthy life styles observed in students. Schools provide a safe environment with access to facilities and equipment to promote physical activity. For children whose physical activity levels are restricted due to

factors schools is becoming more evident, the opportunities secondary survey designed to assess school health policies and programs. Lee, Burgeson, Fulton, and Spain (2007) published data from the 2006 survey and found few schools provided daily physical education, which will defined as physical education everyday for 150 minutes primary school and 225 minutes in middle and high school daily physical activity level for its positive benefits.

Mahar et al.(2oo6) demonstrated the importance of additional physical activity opportunities throughout the school day, not only in increasing physical activity for children and youth participating in physical activity during school are decreasing .Much of the physical activity students engage in during school is attributed to physical education curriculum and physical education classes . Due to different constraints and lack of the pressures to increase curricular time physical education is being sacrificed.

A significant amount of the research related to physical activity in schools has been based on the physical education setting before school starts may be an opportune time for students to engage in activity. The research was conducted two period a before class physical activity intervention out of assigned 3 period intervention and 1 period in the normal class schedule to assess the effect of physical activity on students academic achievements A before school activity program does not interfere with academic time and may help student meet physical activity recommendations, while preparing them to learn. This is an unexplored area as there are currently no much studies in secondary school level that assess the effects of physical activity on academics .

The relation between fitness and academic achievement provides a unique opportunity to use physical activity as an intervention that may impact the health and academic achievement of children and youth simultaneously. Although it may be intuitive to consider physical education class as the logical target for increased physical activity, time allocated to physical education has steadily declined and teachers are often faced with overcrowded conditions and limited equipments and facilities and this often results in little time actually spent in physical activity during physical education. The evidence for significant increases in academic achievement in response to increases in physical activity during physical education class is not convincing (Ahmmed et al., 2007; Carlson et al., 2008).

However, several studies (Coe et al., 2006) have indicated that increased time devoted to physical education does not decrease academic achievement.

Donnelley et al (2009) physical activity is coupled with teachers`, existing lesson. Evidence suggests that physical activity breaks improve classroom behavior such as increased time –on –task and better concentration. Manly et al (2006) Attention to- task is fundamental to learning and impacts other components of classroom management such as discipline. (Caldwell, Huitti &Graeber, 1982) Academic engagement can be defined as the percentage of students who were observed to be on task during an academic lesson. Academic engagement can be accessed through direct observation in the classroom.

Maher et al (2006) Teachers who implemented classroom physical activity breaks reported fewer students who lacked motivation, objectively assessed students physical activity negatively associated with abbreviated problem behavior index. While we expected to find that the implementation and physical activity were associated with more of the class room behaviors assessed the finding regarding less off task- and in attentive behavior have been supported by similar study.

Kohl et al (2013) classroom physical activity appears to be promising strategy for improving attention in the classroom. Teacher who implemented classroom physical activity breaks had higher-level of agreement with the classroom behavior benefit of physical activity than non-implementers. A number of writers have proposed that teachers' attitudes and expectations towards their people can have pupils' a considerable affects up on teachers' behavior towards those pupils, and that this in turn influences the pupils' behaviors.

It is the role of quality physical education program to help students develop health related fitness, physical competence in movement activity, cognitive understanding and positive attitude toward physical activity so that, they can adapt health and physical activity life style quality programs are also important because they provide learning experiences that meet performance students developmental needs, which in turn helps to improve the mental alertness, a, readiness and enthusiasm. A climate that is positive and supportive can have a great deal of influence on motivation of pupils and their attitude to learning successful supportive and positive classroom climate is characterized as being purposeful, task - oriented, relaxed, warm and with a sense of order .

As Saunders “good” teachers have the following picture. Teachers need to give the impression that they are in control of the lesson, that time must not be wasted and that nothing ought to interfere with the important business of learning business like style of presentation can contribute the general sense of purpose in the lesson, and this is most likely to occur when the teacher in control of behavior from the moment the pupils enter the physical education According to the humorous stereotype, physical education teachers might be the last people to be described as sensitive and caring. However, it is possible to argue that sensitivity on the part of the teacher is more important in physical education lesson than in any other subject areas, since it presents pupils with unique physical and emotional challengers, some in valuing an element of adventure and apparent risk moreover, there is unprecedented emphasis upon public displays of ability overall, the subject demands that the teacher exhibits warmer, reassurance, kindness and tact.

One aspects of teaching that has received a great deal of attention from researchers is related to teacher’s expectations of pupils’ abilities and behaviors. A number of writers have proposed that teacher`s attitudes and expectation towards their pupils can have considerable effects up on teachers` in turn influences the pupils` behavior. Rosen field (2007) shown that lack of physical activity largely causes obesity, diabetic, and cardiovascular disease among children and adolescence. However, few studies have shown that connection between lack of physical activity and the prevalence of sedentary behavior among young population.

2.4. School based physical education intervention

Schools are well positioned to provide time for organized and free-time physical activity for youth through a multi-component approach that includes physical education, physical activity during school, physical activity before and after school. The ultimate purpose of any Physical Education program is to help school adolescents gain the skills and knowledge to be physically active for a lifetime. A developmentally and instructionally appropriate physical education program promotes a physically active lifestyle. It accommodates variety of individual differences such as cultural identify, previous movement experiences, fitness and skill levels, and intellectual, physical, and social-emotional maturity. When we take it into account that students spent more time at school than in any other environment outside the home, it is clear that schools have the potential to play an important role in assisting with the development of all areas of educational domains.

According to WHO(2008) school policy framework which was states implementation of the global strategy on diet, physical activity and health recommendation that increasing the number of physical education classes and/ sports classes is one of the most direct policies to increase students' physical activity. The frame work recommended that policymakers are encouraged to ensure that:

1.Physical education classes contribute to the overall daily physical activity of the students throughout the school years.

2.The majority of the physical education class time is actually spent on physical activity. This includes aerobic/endurance, strength, flexibility, and coordination activities.

3.A variety and choice of physical education classes is offered so that each student's age, gender, and disability needs and interests are taken into consideration.

4.Physical activity is enjoyable, developmentally appropriate, promotes fair play and encourages maximum participation of all students.Pupils learn about physical activity and health, and develop the confidence and skills for lifelong participation in physical activity.

Thorburn and Macalister (2013) stated that there is unease about the educational contribution and worth of physical education. The rationale for any subject to be included in the school curriculum relates to the envisaged values associated with broad, unique content and aims (What), learning programs (How), and the actuality and merit of the outcomes (Why). What should be taught relates to the motor and physical domains that are unique to physical education, while the affective, social and cognitive domains are essential to ensure an educational and holistic approach to learning.

CDC(2010) reported that the growing bodies of current discoveries and research journals of physical education stated briefly quality physical education and physical activity experience are paramount important in the context of school setting .The national association for sport and physical education program (NAPSE) guide line sated that a high quality physical education program able to produce skill development in participating in physical activities , improves all qualities of physical fitness, support of other subject area, self-discipline, improve judgment, strengthened peer relation, improve self-confidence and self-esteem and goal setting.

Quality physical education programs are so important to produce learning experience that meet the students developmental needs which helps to improve the mental alertness academic performance read-nesses and enthusiasm for learning. Physical education is as teaching learning process designed to foster the development of motor skills, health related fitness, knowledge and attitudes relative to physical education through a series of carefully planned and conducted experiences (Chappell, 2001). The learning environment is thought fully structured to enhance the overall development of each student within the true learning domains: psychomotor, cognitive, and affective. These learning experiences help students understand how humans move and how to execute movements safely, efficiently, and effectively.

Deferent Studies examined how differences in physical education affect academic performance. They examined whether increasing the amount of physical education or level of physical activity intensity in physical education classes affect students' academic performance (Bluechardt et al, Ericsson, 2008). They also examined strategies for improving the quality of physical education and (Milosis&Papaioannou, 2007) stated the relationship between increasing the emphasis on different types of activities (i.e., aerobic exercise, coordinative exercise) and indicators of academic performance (Budde et al., 2008), including cognitive skills (e.g., concentration and creativity), attitudes (e.g., self-esteem and motivation), academic behaviors (e.g., conduct), and/or academic achievement (e.g., standardized test scores and GPA).

The study results suggest that school-based physical education either leads to a positive result or is associated with no Change in academic performance. The studies also suggest that increased time spent in physical education is not likely to detract from academic performance even when there is less time devoted to subjects other than physical education (Raspberry *et al.*, 2011).In addition to additional physical activity intervention to increase students physical activity level the researcher was use SBPE approach by participating student in different activities like ball games, school environment to increase the amount of time students spend in moderate or vigorous physical activity in Physical education classes and adjusting additional PE classes.

2.5. Importance of Physical Activity on Health Systemic Effect

Physical activity is important and children and adolescents can gain many health benefits as a result of living an active lifestyle. These benefits include higher levels of cardio respiratory fitness, stronger muscles, stronger bones, the possibility of lower body fat and reduced symptoms of anxiety and depression (U.S. Department of Health and Human Service, 2008). Pangrazi (2007) states that many adults perceive the health benefits associated with regular exercise and adapt their lifestyles accordingly.

"Lack of activity destroys the good condition of every human being, while movement and methodical physical exercise save it and preserve it." stated by Plato. The health benefits of physical activity and exercise are well researched and documented. In addition to benefiting the cardiovascular, respiratory, (muscular-skeletal and nervous Systems) physical activity and exercise also have a positive effect on the endocrine and immune systems.Because,physical activity and exercise have such a wide-ranging effect on all the body's systems. Physical health benefits of participating in regular physical activity and maintaining physical fitness are widely established (United States Department of Health and Human Services, 2008).

It has been clearly demonstrated that physical activity decreases the risk of developing (CVD), stroke, some cancers, obesity, type 2 diabetes mellitus and is also effective in the treatment of several of these diseases. There has also been growing interest in the benefits of physical activity for mental health and a strong evidence base shows that regular activity and improved fitness increases psychological well-being (Biddle, Fox &Boutcher, 2001, Biddle &Mutrie, 2008). Exercise can help people feel better about them and their lives reduce anxiety and improve mood. Evidence is also building to show that physical activity is associated with substantially reduced risks of mental illnesses and conditions such as Depression, cognitive impairment and dementia (Hamer &Chida, 2008).

2.6. Importance of physical activity on brain health

The study of brain health has grown beyond simply measuring behavioral outcomes such as task performance and reaction time (e.g., cognitive processing speed). The technology has emerged that has allowed scientists to understand the impact of lifestyle factors on the brain from the body systems level down to the molecular level. A greater understanding of the cognitive components that sub serve academic performance and may be amenable to

intervention has thereby been gained. Research conducted in both laboratory and field settings have helped define this line of inquiry and identify some preliminary underlying mechanisms. There are several researches finding that have shown physical activity can benefits regarding the human brain, its basic physiology, and abilities. One of the most critical brain functions that can predict academic success is memory. Physical activity effects on the brain have been extensively researched (Ploughman,2008; Trudeau & Shephard, 2010).

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 brain of exercise cause changes), increases in nor epinephrine and serotonin (after an acute bout of exercise and chronic exercise influences more long-term increases in neurotransmitters), and permanent structural changes in the brain. The increases in cerebral blood flow benefit cognitive functioning due to the increased nutrient and oxygen supply to the. Additionally, the increases in nor epinephrine found in humans are significant due to the fact that studies on rats have not shown high levels of nor epinephrine associated with improved memory

So (2012) found that physical activity may increase memory functions and in turn create academic success for students who engage in moderate to vigorous physical activity in multiple ratesper a week. According to Chaddock-Heyman et al. (2015), students who are at higher fitness levels have superior performance on tasks that challenge working memory and standardized tests of mathematics and reading relative to less fit students. On a scientific level, there are several effects that occur within the brain as a result of physical activity.

Chaddock-Heyman et al. (2015) found that about specific brain growth and development that depends on differences in aerobic fitness levels in children and adolescence play a role in cortical gray matter structure, which is important for academic success. Children who have a higher level of aerobic fitness are shown to have cognitive and brain plasticity, which can correlate with success in academic areas, especially mathematics. Also higher levels of aerobic fitness have been associated with larger brain volumes in two regions of the brain that are critical for memory and learning: the hippocampus and dorsal striatum. Conyers and Wilson (2015) agree, stating that the hippocampus is essential for creating new memories and for learning.

Conyers and Wilson (2015) stated that physical activity is important in the process of neurogenesis. Neurogenesis is the process creation of new brain cells within areas of the brain associated with recall. Conyers and Wilson believe that exercise enhances this process, while also forming connections between neurons in response to learning and sensory input, known as experience dependent synaptogenesis.Neurogenesis is important because it activates the higher-order cognitive functions in the brain, which is essential for monitoring, maintaining, and strategizing higher-level cognitive abilities that enhance academic performance.There are many processes in the brain that occur when the body is engaged in physical activity, and the more students are exposed to these activities, the more these functions will continue to increase.

There is also evidence that the prefrontal cortex may function at a more efficient level after engaging in physical activity programs. There are also several health benefits from engaging in physical activity, including increased strength and decreased chance of injuries. Those who are more active experience a reduction in low-density lipoproteins and an increase in high-density lipoproteins (Field, Diego, & Sanders, 2001). Exercise also increases serotonin levels, endorphins, and melatonin, which increase positive emotions (Conyers & Wilson, 2015). These neuron chemicals help to make individuals increase their attention and focus as well as boosting moods, which can enhance mastery of skills. The physical and scientific effects of exercise on the brain and body go beyond academic success and are beneficial for a person's well-being. As the health improves, this can begin to create an atmosphere of achievement and success.

2.7. Benefits of Physical Activity on Academic performance

Due to the many benefits of physical activity on the brain, this in turn results in a higher correlation of academic success with students as well as an increase in positive behavior.Field et al. (2001) found that among the health benefits of physical activity, exercise has been noted to Increase performance on cognitive tasks as well as raise serotonin levels. In students who perform higher rates of exercise, it has been shown that those same students will have higher grade point averages. The number of hours a week a child is physically active can impact their engagement in sports, social settings, and energy levels, causing them to take the initiative to put in the extra efforts in academics. The amount of time spent in physical

activities, specifically twenty minutes or more daily, improves performance on perceptual and decisional tasks (Trudeau &Shephard, 2008).

Trudeau and Shephard noted that when students are involved in physical activities such as music, it has the potential to increase reading skills. Physical activity in general, not specific to physical fitness levels or sports involvement, has positive effects on academic scores through increased focus, decision making skills, and increasing interest levels. Students who are more physically active in aerobic exercise show higher levels of success in the area of math more so than other academic areas. Aerobic fitness activities have been linked to cognitive functions, response speed, working memory and attention (Desai et al., 2015).

Moses (2011) found that many studies have noted high levels of physical exertion had positive influences on mathematical performance and that increasing the amount of physical activity time did not have a negative effect on academic performance. Desai, Kurpad, Chomitz, and Thomas (2015) state that aerobic exercise and activity positively support mental health, influence health behaviors, and is associated with academic achievement. A child's cognitive performance in school has the potential to be enhanced through the integration of physical activity and exercise into the school day, with or without adding in programs. There are several ways that educators can get the students moving with mathematics problems, taking brain breaks, providing after school exercise programs, and much more.

According to So (2012) Vigorous exercises will raise heart rate higher than strengthening exercise and he also demonstrated that higher levels of physical activity result in a higher correlation of academic success than lower levels of physical activity. Vigorous activities increase brain and memory functions and can have a positive influence on boys and girls. Strengthening exercises have not shown a high correlation with academic achievement when compared to more vigorous activities Performed less than four times a week, especially in boys. As it is relevant to secondary schools have to push for higher academic success through higher standards physical education, the positive effects on academic achievement from movement and physical activity within the school day should be considered in all concerned body. Higher levels of physical activity have shown to give greater success with concentration, memory functions, behavior, and decision-making skills for students, all of

which can enhance a student’s academic abilities and achievement and could then transfer over to higher levels of academic success.

As Kumar and colleagues (2013) Yoga practice improves individuals’ physical fitness levels, focus and relaxation, as well as several aspects of cognition and executive functions .It is suggested that yoga should be practiced several times a week and for multiple weeks in a row in order to gain the physical and cognitive benefits. Suggested yoga skills include breathing techniques, loosening exercises, and physical postures. Specific yoga skills can be performed different postures such as the butterfly pose, cobra posture, raised leg posture, and tree posture.

2.8. Physical activity and academic achievement

Participating in the course of Physical education has many effects more than just muscle groups and motor skills. Physical activity has a positive effect on the brain's ability to heal, regenerate and integrate new information, according to the Journal of Physical Education, Recreation and Dance. In the context of schools, these discoveries are of paramount importance. Physical activity correlates positively with academic achievement. PE courses can promote emotional stability through exercise, which helps to combat depression and aid in attentiveness and calmness, important traits in the classroom. Physical release and mental discipline directly translate to students' abilities to function in the classroom. The case for inclusion of physical education programs and other opportunities for physical activity during the school day is strengthened considerably by a substantial body of scientific evidence linking regular participation in physical activity higher levels of academic achievement.

The neuroscience research conducted in health enhancing physical activity supports an emphasis on aerobic exercise and motor skills, including motor activities that are bimodal and complex, to facilitate enhanced cognitive and executive functions and executive control. This neuroscience research has been corroborated by multiple studies that found positive associations between physical activity and academic achievement of student.

Aerobic exercise is physical activity that requires increased rate of heart beat and harder breathing. Moderate-intensity aerobic activity: heart rate is raised, break a sweat. (e.g., fast walking, playing doubles tennis)Vigorous-intensity aerobic activity: even higher heart rate;

break a sweat, hard to speak without pausing for a breath. (e.g., jogging, running, singles tennis, basketball, soccer) (CDC, 2011).

There is a growing body of evidence that physical activity is associated with improved academic performance. Aerobic training in the form of group games requiring more complex motor activities (e.g., running games, modified basketball, soccer) increased activity in the prefrontal cortex and improved performance on tasks requiring executive functioning as well as having a marginal positive effect on mathematics achievement (Davis et al. 2007). Physical activity throughout the school day has also been shown to have positive benefits on academic achievement.

A study by Donnelly et al. (2009) demonstrates the effectiveness of Physical Activity across Classrooms on BMI and academic achievement over a three year longitudinal study. PAAC promoted 90 min per week of MVPA delivered by classroom teachers. Results include increased academic achievement, smaller increases in BMI, and increased energy expenditure in the students where perform above or equal to 75 minutes of per week was delivered compared to below 75 min. Further, students in the PAAC program were shown to spend more time in and out of school participating in MVPA. Increased activity on the weekends is thought to be due to a change in attitude fostered by the PAAC program, but is not definite.

An Active living research which conducted by Darla.M and colleagues (2015) which is focused on physical activity across the curriculum (PAAC) shown thatPhysical activity can have both immediate and long-term benefits on academics. Almost immediately after engaging in physical activity, children are better able to concentrate on classroom tasks, which can enhance learning. Over time, as children engage in developmentally appropriate physical activity, their improved physical fitness can have additional positive effects on academic performance in mathematics, reading, and writing. Recent evidence shows how physical activity's effects on the brain may create this positive outcome. The research project suggested that adding sessions of physical activity to a school curriculum could have long-term benefits, such as improved academic performance. When comparing improvement in standardized test scores over three years, schools were stratified and randomly assigned to receive physically active lessons did six percent better than their peers who had received the same lessons in a seated, inactive manner.

2.9. Physical Activity and Cognitive aspects

Many recent body of research revealed that regular physical activity has great effect on cognitive functioning school aged children and on adolescences. Trudeau et al.(2008) stated that many CDC research has shown that physical activity can affect the physiology of the brain by increasing cerebral capillary growth, blood flow, oxygenation, production of neurotrophins, growth of nerve cells in the hippocampus (center of learning and memory), neurotransmitter levels, development of nerve connections, density of neural network, and brain tissue volume. These changes may be associated with improved cognitive function including attention, information processing, storage, and retrieval, enhanced coping, enhanced positive effect, reduced sensations of cravings and pain.

Desai, Kurpad, Chomitz, and Thomas (2015) state that aerobic exercise and activity positively support mental health, influence health behaviors, and is associated with academic achievement.

Best (2010) explains that cognitive function, and specifically executive functioning, is enhanced through aerobic physical activity. To date, most studies examining these topics have analyzed the impact of acute exercise bouts because of cost and participation benefits. He fined that chronic and acute aerobic activities affect cognition differently and that each component of cognitive functioning can be impacted uniquely depending on where an individual is developmentally. For instance, in one study of chronic exercise, running programs that became more physiologically demanding over time were found to enhance mental flexibility and divergent thinking associated with executive functioning in children and adolescences.

A study by Joyce et al. (2009) found that the beneficial effects of acute steady-state moderate intensity exercise on cognitive performance can be maintained 30 minutes post exercise and can last for up to 52 minutes after exercise cessation in 13-14 year old students. The findings suggest the 30 minutes of exercise performed at moderate intensity (40% of heart rates close to 130 BMP) will yield such results. Increases in cognitive performance are due to response inhibition improvement; as described above, acute aerobic exercise affects inhibition, which is associated with cognitive processes central to problem solving and goal-oriented behavior. Joyce said that this is due to the residual effects of acute aerobic physical activity on

improved executive functioning; physical activity should be scheduled in advance of other academic courses such as reading and mathematics.The physical education class and activity session should be fun for students because much brain research suggests that cognitive input to the executive function networks is more likely when stress is low and lessons are stimulating and challenging, passing though the reticular activating system of (a lower brain filter that focuses attention on changes perceived in the environment) and specifically that pleasurable classroom activities release dopamine, a neurotransmitter that stimulates the memory, as well as promotes the release of acetylcholine, which increases attention(Willis, 2007).

2. 10. Physical fitness and academic performance

Many research finding conducted on the association between fitness and academic performance seems to corroborate the mechanisms proposed by neuroscience research. Extensive research on the association between fitness and academic performance conducted in China, Illinois, Massachusetts,California, and Texas shows a connection between increased levels of physical fitness, as measured by fitness tests(FITNESSGRAM®), and academic achievement (Chih& Chen, 2011; Chomitz et al., 2009; London &Castrechini, 2011; Roberts et al., 2010; Van Dusen et al., 2011). For instance, Van Dusen, et al. (2011) found that all FITNESSGRAM® variables except body mass index (BMI) were positively associated with academic performance; measures of cardiovascular fitness were found to have the highest connection to cognition. Further, each additional unit of cardiovascular fitness across quintiles was associated with improved performance on a standardized test, specifically the Texas Assessment of Knowledge and Skills. Also using the FITNESSGRAM® test, preliminary results presented at the American College of Sport Medicine conference.

Desai et al. (2015) agree that when studying the effects of exercise and academics, considerations should be made for the adequacy of opportunities of fitness in schools, not just physical activity, in general. There are several health-related fitness components that make up physical activity and aerobic fitness has shown to have a more significant relationship with academic achievement.

Bass et al. (2010) suggest that students in the healthy fitness zone for cardio respiratory fitness were six times more likely to meet or exceed the Illinois Standardized Achievement Test (ISAT) reading test requirements and over two and a half times more like to meet or exceed ISAT maths test requirements than students who were not in the healthy fitness zone. In addition, Srikanth et al. (2010) found that when comparing the effect of social support, self-esteem and cardio respiratory fitness on middle school students' reading and math tests, cardio respiratory fitness was the only factor correlated with higher scores.

A consistent relationship between fitness and academic achievement is also exemplified by Grissom's research (2005). His results indicate that a relationship exists between fitness and academic achievement, in that as one improved, so did the other. Results from a study by Cottrell et al. (2007) show that there is a significant relationship between children's cardio-respiratory risks such as fitness index and blood pressure, as well as weight, and their reading/language, arts, mathematics, and science test scores. These results suggest that there is value in implementing surveillance programs to evaluate weight risks, fitness, risk for diabetes, and/or high blood pressure.

2.11. Barriers to physical activity in secondary schools

Generally we know that one feature of education is complexity in its practice and full of different related barriers in the course of implementation and the following scholars stated those barriers within schools that restrict teachers providing physical education and physical activity programs have been classified by Morgan and Hansen (2008) as being either school (outside the teachers' control), teacher related (arising from the teachers' behavior) and students related barriers.

2.11.1. School Related Barriers

Many research has highlighted many school barriers including budget constraints, scarce resources, reductions in time provisions in the curriculum implementation, the absence of professional development, the crowded curriculum itself and the lack of facilities and equipment Hardman, 2008; Morgan & Hansen, 2008) reported that the lower priority given to physical education, the absence of performance measures for physical education and activity, and in sufficient infrastructure were the three major school barriers identified by different studies the provision of a curriculum that was capable of meeting the health and

physical education guidelines. Effective schools are distinguished from inefficient ones by the frequency and extent to which teachers learn together, plan together, test ideas together, discuss practices together, reflect together, grapple together with the fundamental vision and focus of developing students to fullest capacity. Effective schools are a learning community, a place where teachers and administrators study, work and learn together with the mission of improving student academic achievement. All efficient schools have a culture and it is the information one gets from a culture that sends a message to the student that they will be productive and successful.The effective teacher thinks, reflects and implements Ontario (2010).

2.11.2. Teacher-related barriers

If schools are to be effective in the promotion of physical activity then teachers need not only 'an enthusiasm for and belief in its value, importance and role', but also a clear understanding of the are developed through adequate and appropriate professional development. Professional development and learning is another key component of successful health promotion implementation in schools, with staff competence and understanding having been found to be critical (Samdal and Rowling, 2011).

According to Bailey et al. (2009) the role of the PE teachers is central in the social learning process. Why would they want to state this in a negative sense? By means of a holistic approach to teaching PE, quality program driven by properly trained and qualified, enthusiastic teachers, it can materialize, no development will happen automatically.

Thorburn and MacAllister (2013) refer to unease about the education contribution of PE. The real objectives of Physical Education classes are to provide General Physical Education (GPE) to all students. This entails to more than just sports. As physical education teachers we must ensure that our students will experience many ways to live long healthy lives. In physical education classes, students will learn many activities, exercises, sports and other fun ways to stay healthy. While doing this student will develop their fine and gross motor skills needed for living healthy lives. The most important thing is for these students to be taught by qualified and knowledgeable teachers that are trained and know how not to turn school kids and adolescence away from physical activity.

As stated by different scholar's teachers are responsible pedagogically for using appropriate and effective instructional strategies to help students achieve the physical education curriculum expectations, as well as appropriate methods for assessing and evaluating student learning. Teachers bring enthusiasm, addressing individual students' needs and ensuring high-quality learning opportunities for every student. The attitude with which teachers approach physical education is critical, as teachers are important role models for students.

Most teacher-related barriers have been reported in primary school studies (Barroso, McCullum-Gomez, Hoelscher, Kelder& Murray, 2005; De Corby, Halas, Dixon, Wintrup& Janzen, 2005; Morgan & Hansen, 2008). The barriers described include possessing low levels of confidence or interest in teaching physical education, being unable to provide safely planned and structured lessons, having had personal negative experiences in physical education and lacking training, knowledge, expertise and qualifications to provide physical education (DeCorby, Halas, Dixon, Wintrup& Janzen, 2005; Morgan & Bourke, 2005).The comprehensive primary school-based findings reflect not only the lack of research across the secondary levels in schools, but could possibly be attributed to both secondary and specialist primary school teachers having dedicated physical education units as part of their training. This specialization should equip teachers with the skills to overcome barriers more easily and enable them to plan and implement programs accordingly.

Ontario, (2010) stated that teachers have to design physical activity experiences appropriate for the developmental level of adolescents and appropriate instruction in Physical Education incorporates best practices derived from both research and experience for teaching adolescents in ways that facilitate success for all students. Providing a safe and inclusive learning environment allows the adolescent to experience positive, challenging, and enjoyable physical activity while learning skills and developing an understanding of the benefits and importance of physical activity. The ultimate purpose of any Physical Education program is to help adolescents gain the skills and knowledge to be physically active for a lifetime. A developmentally and instructionally appropriate physical education program promotes a physically active lifestyle. It accommodates a variety of individual differences such as cultural identify, previous movement experiences, fitness and skill levels, and intellectual, physical, and social-emotional maturity.

Appropriate instruction in Physical Education incorporates best practices derived from both research and experience for teaching adolescents in ways that facilitate success for all students. Providing a safe and inclusive learning environment allows the adolescent to experience positive, challenging, and enjoyable physical activity while learning skills and developing an understanding of the benefits and importance of physical activity. Teachers design physical activity experiences appropriate for the developmental level of adolescents (Ontario, 2010).

Teachers should plan content that will allow students to experience progressive levels of achievement toward standards. Not only will students achieve competence in a variety of movement activities, but they will also understand the conceptual basis and principles that contribute to effective movement and fitness. By the end of the required curriculum, students should fully recognize and understand the significance of physical activity in the maintenance of a healthy lifestyle, and should have developed the skills, knowledge, interest, and desire to maintain meaningful activity for a life time.

Secondary School PE teachers will find that their students exhibit a wide range of different with respect to motor skill development. Some students have mastered the fundamental manipulation of psychomotor skill, and the non-psychomotor skills that serve as a foundation for the more specialized sports skills that are typically emphasized at this level. Other students lack competency in the fundamental skills. Teachers must assess students' abilities at the start of instruction, accept students at their entry level, and provide a sequential progression of activating to allow each individual to attain the stated more skill objectives. Effort and participation should be encouraged, extra help should be provided if necessary, personal accomplishments should be recognized. Learning experiences that provide for success while developing skill proficiency increase the probability that students will incorporate PA into their lifestyle (Susan, 2004).

2.11.3. Student-related Barriers to Participation in Physical Activity

Students' are responsibilities with respect to their own learning develop gradually and increase overtime, as they progress through elementary and secondary school. With appropriate instruction and with experience, students come to see how an applied effort can enhance learning and improve achievement. As they mature and develop their ability to

persist, to manage their behavior and impulses, to take responsible risks, and to listen with understanding, students become better able to take more responsibility for their learning and progress. Learners to take responsibility for their improvement and achievement are an important part of every student's education (Grout and Long, 2009).In contrast to the barriers experienced by teachers, a recent study from the United Kingdom investigated heads of physical education and heads of schools' perceptions of barriers to providing physical education and physical activity in secondary school environments (Boyle, Jones & Walters, 2008). Despite reporting some school and teacher-related barriers similar to those found in the primary school studies, Boyle, Jones and Walters (2008) also found that teachers perceived some school and teacher-related barriers similar to those found in the primary school studies.

Boyle, Jones and Walters (2008) also found that teachers perceived that students were learn by the greater availability of sedentary opportunities and consequently suggested that lower levels of fitness and lower physical ability in students might be impacting on both delivery and participation in physical education and physical activity. Therefore, further consideration of other barriers in secondary schools that inhibit the delivery of and students' participation in physical education is warranted; student-related barriers are further obstacles that teachers must be able to plan for and overcome when providing educational opportunities for students.

Previous research on children's and adolescents' self-reported barriers to participation in physical education and physical activity has reported changing attitudes to activity and physical education, adolescents' decision making favoring more sedentary activities, the importance of peer pressure or desire for peer approval when choosing activities, the changing fitness levels of students, student unwillingness to participate, a dislike of activity, a lack of understanding of the benefits of physical activity and a decline in student interest (Boyle et al., 2008; Dagkas&Stathi, 2007; Sherar et al., 2009; Trudeau &Shephard, 2005).

The barriers to student learning and participation may in part be explained by social cognitive theory which highlights the relationship between cognitive, behavioral and environmental factors that influence an individual's choices, including those relating to physical activity behavior.These three factors are not independent, but are mutually dependent and all influence learning and activity choices within a host of contexts. Due to the large amount of time dedicated to schooling, students are influenced greatly within the school environment by

many Elements, including their teachers, their peers; the programs provided their participation in classes and their engagement in curriculum and extra or co-curricular activities. The interaction and influence of all three factors on preferred behavior is certainly most evident at the secondary school level, where adolescents begin to cement their own attitudes and beliefs regarding physical activity.

The benefits of participation in physical education and physical activity are numerous and have been highlighted by Bailey et al. (2009), who categories them as being physical, lifestyle, affective, social, and cognitive. However, it becomes increasingly difficult to provide quality physical education and physical activity opportunities in schools when constrained by many schools, teacher- and student-related barriers. The majority of previous research has focused on primary schools therefore, it is important to understand the barriers to physical education and physical activity provisions in secondary schools more clearly. The limitations identified by teachers responsible for providing school-based opportunities need to be examined, as an understanding of these barriers is essential to making improvements and developing quality physical education programs in secondary schools, both now and into the future.

Megan Hylok (2011) examined the study of exploring student perceptions to explain the relationship between physical activity and academic achievement in adolescents: A mixed methods study. A nationwide survey conducted by the Center for Disease Control in 2007reported 65 percent of high school students did not meet the recommendation that youth participate in at least 60 minutes of physical activity most days of the week (CDC, 2008). Physical activity is important and many adolescents are not meeting the recommendation, therefore, it is important to explore the adolescent perceptions to understand which factors influence physical activity participation. Students who participated in developmental appropriate regular physical activity attain physical well being, effects on brain ability in information processing, emotional stability, physical release and mental discipline which directly translate to students' ability to function in the class room setting and positive link between increased physical activity and academic performance.

Whitehead (2010) demonstrated that individual quality that enjoyed participating physical activity as physically literate individuals possess assurance and self-confidence in-tune with their movement capabilities. They demonstrate sound coordination and control, and can

respond to the demands of a changing environment. They will relate well to others, demonstrating sensitivity in their verbal and non-verbal communication, and will have empathetic relationships. The physically literate individual will enjoy discovering new activities, and will welcome advice and guidance, confident in the knowledge that they will experience some success. The individual will appreciate the intrinsic value of physical education, as well as its contribution to health and well-being, and will be able to look ahead through the life course with the expectation that participation in physical activity will continue to be a part of life. Considering its importance to rounded human development, the stake holders, the teacher and school administrators and policy-makers should place emphasis on this , supporting physical literacy through education practice which encourage physical activity in school day .The promotion of physical literacy should then remain a key feature of any physical education curriculum throughout primary and secondary schools.

CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

This chapter outlines the manner in which the study will be conducted.The key componentswhich are commonly employ in the section are ,the research design, description of the study area, population of the study, sampling techniques, sampling size, data collecting instruments, data collecting method, data collecting procedure and analysis.

3.1. The Research Design

The purpose of this study was to explore the effect of physical activity intervention on students academic achievment in secondary school in Gamo Gofa Zone, Mirab Abaya woreda and to suggest some possible solutions for existing challenges. To meet this purpose, both qualitative and quantitative techniques were applied. Using mixed research method could neutralize or cancel the biases of any single method, and it is used asa means for seeking convergence and integrating qualitative and quantitative data (Creswell, 2009).

Quantitativelly quasi-experimental research design (a field test design) was used and qualitativelly interview and questionnaires were employed and analized.In quantitative technique precisely, a post test experimental-control group design is adopted for the study. The experimental and control group were post-tested after the treatment to determine the effect of physical activity intervention in academic achievement. They were also post tested after the treatment. The whole classes were purposively assigned to experimental group and control group.

3.2. The Research Method

Kothari (2004) stated that research method as the behavior and instruments used in selecting and constructing research techniques employed by the researcher. To assess the effect of physical activity on students academic achievement study selected sample of research setting and sample of respondents were selected by using purposive sampling techniques and the study employed different methodes for survey of data from different sources like questionnaire, interview and school document analysis.The study tried to see the effect of physical activity intervention in female students. In course of the study to collect data questionnaires were distributed to sample public secondary school students, interview of Secondary school directors and physical education teachers. To achieve the purpose of the study 88 male and 72 female totally 160 students were selected for physical activity

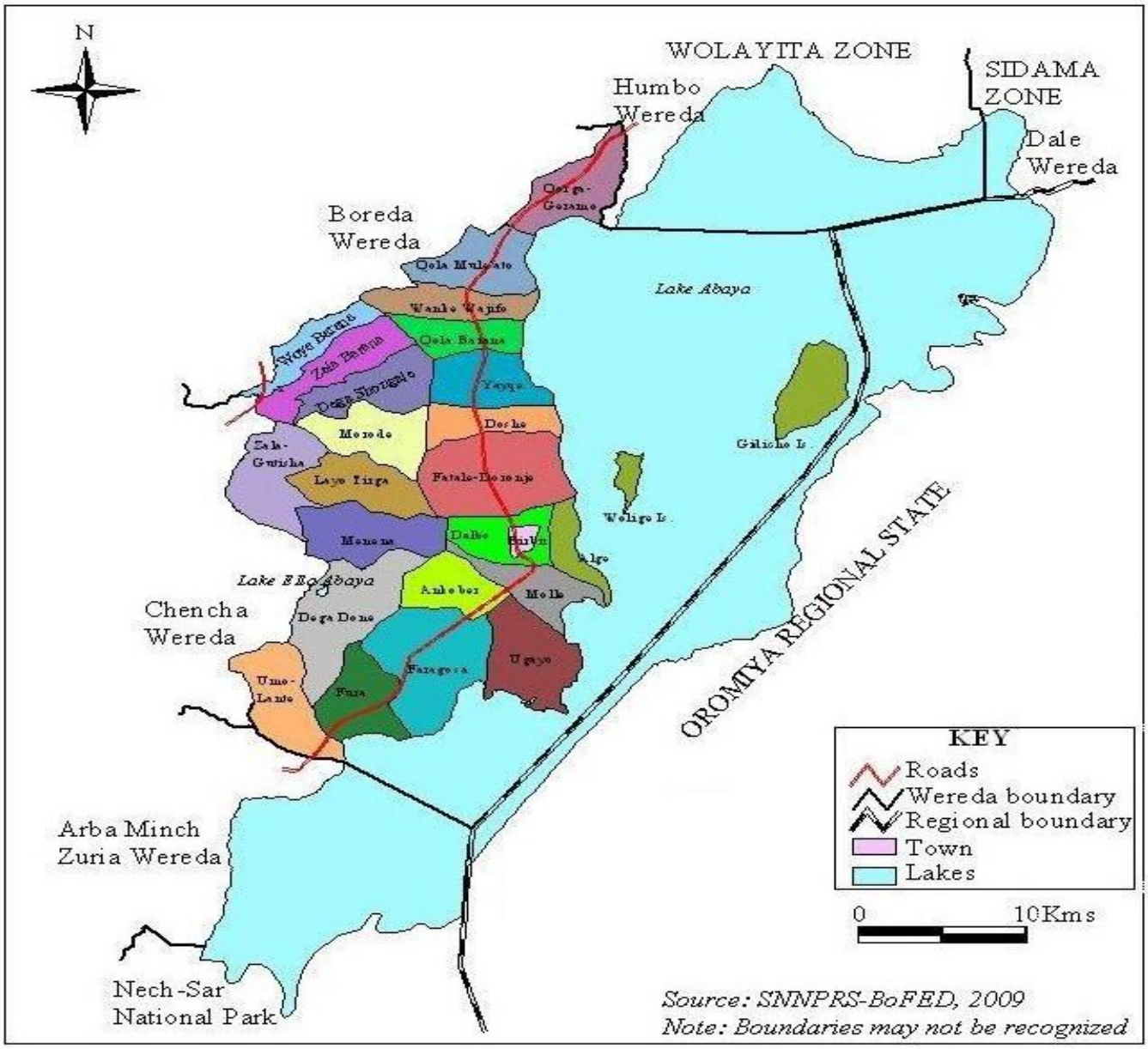
intervention program which was last for three months .The physical fitness components selected for the intervention were by large cardiovascular activity, muscular endurance activity, speed and flexibility activity. The class test was ademistered and given before and after physical activity intervention as pretest and posttest for sample students and the scores were recorded.The document analysispart tried tocompute post- intervention and pre-intervention result between experimental and control-group in three categories 1.Maths and english achievmen 2.Biologyt,chemistry,History andgeography achievment 3. All the Six Subjects analyzed by independent t- test,paired T-test andPearson product moment correlation, generally the data analized by using SPSS software version -20.

in the part of data analysis the study was used SPSS vertion-20 for statistical techniques and to identify correlation exist within variables it aid correlating tools and eventually the researcher was drawing the conclusion of the finding and evaluate the result.

3.3. The Research Setting

The study was conducted in rural public secondary schools of Merab Abaya district which is in Gamo Gofa administrative zone, SNNPR regional State.It is one of the 18 administrative district*s'* of GamoGofa zone.The seat of district administration is Birbir, which is located at 50 kms distance north of the zonal capital town of Arba Minch and found at about 225 kms distance away from the regional capital Hawassa and at 450 km distance from Addis Ababa. Merab Abaya district was bordered in the east and south by Lake Abaya, which separates it from the Oromia region on the east. In addition, Arba Minch Zuria on the south, on the West by Chencha, on the North West by Boreda district, and on the north by Wolayita zone. The district lies between 6 °11' – 6 °35'N latitude and 37°38'-37°58'E of longitudes.Particularly the study was conducted in Merab Abaya secondary and preparatory and Wajifo Meles Zenawi Secondery school .The former school consists 71 male and 15female totally 86 teachers and qualified as 76 BA and 8 MA where as Wajifo secondary school also consists 15 male and 6 female(1 diploma and 20 Ba).Generally the study setting have the following character which mean that no youth sport project accesses and the schools are less facility and equipments to enjoy the youth in physical activity during the school and after the school.

ADMINISTRATIVE MAP OF MIRAB ABAYA WEREDA



3.4. population of the Study

The target population of the study was consists teachers and students of Merab Abaya secondary school and Wajifo meles zenaw secondary school.The total population of the study consisted 1290 nine grade students and the number of the subject of the study in Merab abaya Secondary school consisted 484 male 584 female students, four physical education teachers three school directors.where asWajifo meles zenawi secondary school was comprise 138male and 120 female students ,two school directors and one physical education teacher.The study was conducted physical activity intervention on 80 students to measure effect of physical activity performance on academic achievement of students.

3.5. Source of Data

The data were gathered from different respondents who have adequate exposure to the effect of physical activity on students academic achievement in secondary schools of Gamo Gofa Zone in Mirab Abaya Woreda. The data sources were catagorized in to two, namely; primary source and secondary data sources. The primary data sources were: secondary school students, physical education teachers, school principals. Relevant literature were used as a secondary data source.

3.6. Sample Size and Sampling Techniques

The study was employedmainly purposive sampling techniques to determine the sample size.160 students determined as sample size of the study from 1290 grade nine students for the case of time and resource management .The set experimental sample was consist 80 students and the control group of the Studywas consists 80 students.Finaly the experimental group were involved in physica activity intervention for 12 week.

3.7. Research Instrument

To collect valuable data for the purpose of this study several methods were used .These methods allowed to assess the effect of physical activity intervention on students learning achievement in the secondary school level to be explored from different perspectives; which is the process known as triangulation (Basit, 2010). The data collection tools used in the

study included semi structured interviews, direct, a questionnaire and 2010 E.C secondary school students' achievement document was used as a primary source of data.

3.7.1 Questionnaire

The reason for selecting questionnaire is to find out related quantitative data from respondents about the research finding. Even though questionnaires are the most extensively used methods of data collecting instruments according to Sarandakos it used as supportive in this study. The researcher was used questionnaire for students about the types of physical activity op- opportunities available and concerning the significant deference of students' academic achievement pre-intervention and post-intervention. The researcher design and employ close ended questions for students. The questionnaires was prepared in English language and translated into Amharic when the respondents filling it. Finally, the questionnaires were distributed to the sample respondents for these end 160 questionnaires were distributed for the selected respondents and dispatched to gather reliable data for the effective finding.

3.7.2. Interview

Interview is one of the major tools to gather information from participants in deferent type of study. Therefore, the study was employed semi- structured interview. Semi-structured interviews were chosen because, it give a chance to interviewer to respond freely; not limit the interviewer personal response in the given some alternatives as structured interview and it makes the researcher to develop similar question for different respondents and in case it avoid the researcher interview deference in accordance with the respondents practical skill and ability and it also allow for flexibility and provide the opportunity for unanticipated findings to be discovered, for mid interview clarification and for further questions to be asked and explored (O'Toole &Beckett, 2010). Interviews were conducted with five PE teachers and five school administrators to collect valid data about physical activity opportunity. Prior to each interview, 8 suggested questions were prepared (Appendix G and H: Interview Schedule)

3.7.3.Document Analysis

The study is used secondary school students achievement document of students test score of the year 2011 E.C as main tool of data gathering instrument. The purpose of the document analysis was to assess the significant different between physical education and physical activity performance with students academic achievement performance among the experimental and control group in the given sample schools before and after the physical activity intervention. The tool was also used to validate and check the consistency of the data which was obtained through an interview and questionnaire. Crosschecking the responses was done by employing document review as a data collection tools.

3.8. Data Collecting Procedure

To undertake the research and to get relevant information it is mandatory to get the free-will of school principals and other all respondents. After all it is possible to conduct the actual intervention regarding physical activity for consecutive 12 week(three months in the selected schools. Later on it preferable to conducting interview & providing written test to assessing students' academic performance, state of students on -task behavior between an experimental and control group of the study. Finally questionnaires will be distributed to be filled by respondents.

3.9 .Methods of Data Analysis

In order to achieve the objectives of the study the data obtained from different sources through different data gathering instruments like questionnaires, interview, school achievement document 2010 E.C was compiled by correlating the effect of physical activity on academic achievement of the secondary school students .The study was mainly employed quantitative techniques to analyzed and interpret the data. To compute the relation between physical activity performance due to the intervention with the students achievment was empolyed the Pearson correlation and IBM SPSS statistical data editor verstion-20 procedure to draw conclusion based on the gathered quantitative data.

3.10. Ethical Consideration

Ethical and moral considerations have become 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 welfare of all those involved in the study, the researcher made efforts to make the research process ethical. Permission was sought from all participants/respondents before they were interviewed or had a questionnaire administered to them and was ensured freedom of expression and that nothing was said or written other than what they believed in or admitted. To this end, in order to investigate the effect of physical activity performance on academic achievement of students in secondary school to assign physical activity intervention out of the normal class researcher was undertaken consent with the students, parents, teachers and school head to obtain freewill to conduct the intervention and tried clearly inform the respondents about the purpose of the study i.e., purely for academic purpose. As the researcher was introduce its purpose in the introduction part of the questionnaire and interview guide to the respondents, and confirm the subjects, confidentiality as protected. In addition, the study was based on individual consents. The researcher also was not personalized any of the response of the respondents during data presentations, analysis and interpretation. Furthermore, all the materials used for this research was acknowledge.

CHAPTER FOUR: PRESENTATION,ANALYSIS AND DISCUSSION

This part of the study presents the presentation, analysis and discussion of the data obtained from the sample schools by using assigned data gathering tools, to search for appropriate answers to the basic questions listed in chapter one. The presentation part is categorized into two major parts. The first part presents the characteristics of the respondents; whereas, the second part deals with the analysis and discussion of the effect of Physical activity on students' academic achievement based on the data collected. from a total of 160 students' questionnaire distributed, interview of Secondary school directors and physical education teachers. In order to collect data questionnaires were distributed to sample public secondary school students, interview of Secondary school directors and physical education teachers. To achieve the purpose of the study 88 male and 72 female totally 160 students were selected for physical activity intervention program which was last for three months .The physical fitness components selected for this study were by large cardiovascular activity, muscular endurance activity, speed and flexibility activity. The assessments of pretest and posttest were given for all students under the study and the scores were recorded. The collected data were analyzed by independent t- test, Pearson product moment correlation and paired T-test using SPSS software version -20.

4.1. Characteristics of respondents

The Description of the characteristics of the respondents gives some basic information about the sample population. Thus, the following part show the general characteristics of the respondents involved in the study.

4.1.1 Description of respondents by sex

Generally based on the data in table -1 below show that sex ratio of student respondents filled the questionnaires in the sample schools. In the regard Merab abaya Secondary and preparatory school student respondents consisted of 59 (60.8%) males and 38 (39.2%) females and where as in Wajifo Meles Zenawi secondary school student respondents consisted of 29(46.2%) males and 34(53.8.2%) females. Totally sample of male respondents consisted 88(55%) and female respondents were consisted 72(45%).

Table-4.1 characteristics of sex of respondents

Name of the school		Sex-of-therespondents		Total
		Male	Female	
Merababaya-sec. &pre.	Count	59	38	97
	% of Total	60.8%	39.2%	60.6%
Wajifo secondary		29	34	63
	% of Total	46.2.%	53.8%	39.4%
	Count	88	72	160
	% of Total	55%	45%	100.0%

4.1.2. Descriptions of respondents by age

Based on the data in Table 2 below, the ages of respondents participated as the sample of the study ranges from 15year – ≥ 20 year and have shown each category of age in the sample schools. MASPS respondents Consisted 23 (14.4%) of 15 years and WMZSS consisted 25(15.6%) that accounts 48(30%), In terms of 16 year Merab abaya consisted 30(18,8%) and Wajifo consisted 18(11.2 %) total1y 48 % which indicates that (the same with 15years) became in this age level , 20(12.5%) of 17 year respondents consisted in MASPS and 8(5%) consisted in WMZSS,18 years respondents totally accounts 20(12.5) of the total sample size and12(7.5%) consisted in Merababaya and Where as 8(5%) consisted in Meles Zenawi Secondary School, concerning 19 year category were 5(3.1%) consisted in MAPS and 3(1.9%) in WMZS and finally the age category 20 accounts 4(2.5%) only consisted in Merab abaya secondary and preparatory school. Finally age category ≥20 account 4(2.5%) out of this Merab abaya consisted 3(1.87) and Wajifo MelesZenawi Secondary school was consisted 1(o.63%).

Table-4.2.Characteristicsof age of respondents

Age of the respondents			Name of the school		Total
			Merababaya.sec&pre.	Wajifo secondary	
	15	Count	23	25	48
		% of Total	14.4%	15.6%	30%
	16	Count	30	18	48
		% of Total	18.8%	11.2%	30%
	17		20	8	28
		Total	12.5%	5%	17.5%
	18	Count	12	8	20
		% of Total	7.5%	5%	12.5%
	19	Count	5	3	8
		% of Total	3.1%	1.9%	5%
	20	Count	4	0	4
		% of Total	2.5%	0.0%	2.5%
	>20	Count	3	1	4
		% of Total	1.87%	0.63%	2.5%
		Count	97	63	160
		Total	60.6%	39.4%	100.0%

4.1. 3 Description of respondents by Choice of stream

As it was indicated in chapter three the study was used purposive sampling to select sample schools and simple random sampling techniques to categorize the sample as experimental and control group of the study. Based on the table-3 below which describing about characteristics of respondents in terms of choice of stream totally 72(45%) accounts natural science stream and 88(55%) choice social science stream. but, when we level the choice of stream to sample schools MASP consisted 43(26.9%) of natural science and 29(18.1%) were Wajifo Melese zenawi secondary school, However 88(55%) sample size choice lay social science out of this 54 (33.7%) in Merab abaya and 34(21.3%) were consisted in wajifo Melese Zenawi school.

Table-4.3 Characteristics respondents based on stream choice of stream

Name of the school		Choice of stream		Total
		Natural science	Social Science	
Merababaya sec.&pre.	Count	43	54	97
	% of Total	26.9%	33.7%	60.6%
WAjifo secondary	Count	29	34	63
	% of Total	18.1%	21.3%	39.4%
	Count	72	88	160
	% of Total	45%	55.%	100.0%

4.1.4. Description of respondents by experimental and control group

As indicated in table-4 below, the study was including160 students as sample size.Among those 80 students selected as experimental group and 80 students as control group by using purposive sampling techniques'to set beforephysical activity intervention.The data clearly shown that 42(26.2%) and 38(23.8%) of the experimental group of the study in Merab abaya secondary and preparatory and Wajifo Meles zenawi secondary school respectively. But 42(26.2%) of the sample were control group in Merab abaya and 38(23.8%) were selected in Wajifo Melese Zenawi secondary school.

Table-4.4. Characteristics of respondents by experimental and control group

Name of school		Experimental and control group		Total
		Experimental	control group	
Merab abaya sec.&pre.	Count	42	42	80
	% of Total	26.2.%	26.2%	50%
Wajifo secondary	Count	38	38	80
	% of Total	23.8%	23.8%	50%
	Count	80	80	160
	% of Total	50%	50.%	100.0%

4.2. School Document Analysis

As indicated in chapter one the study employed school document as the main research instrument of the study and used it as post test of this field test research to assess the effect of physical activity on students' academic and achievement in the secondary school. The following statistical analysis was made on school document 2011 E.C in order measure the students physical activity performance with academic achievement performance between experimental and control group across selected subjects.

4.2.1. Independent sample t-tests of experimental and control group

An independent sample t–test was conducted to compare students' post test result of experimental and control group. The English mean score was significantly different between the two groups $t(158) = 6.845$, $p < 0.001$ that the mean score of students assigned to experimental group.($M = 74.825$, $SD = 7.716$) was significantly higher than the mean score of students assigned to the control group 66.675, $SD = 7.339$).

Table:4. 5 Independent sample t-tests on English and math's achievement

Variables	Levine's testforequality of variances		T- test for Equality of Mean							
	F	Sig.	T	Df	Sig.(2-tailed)	Mean		Mean Difference	Standard Deviation	
Eng.	2.143	0.011	6.845	158	0.000	EG	CG	8.150	EG	CG
						74.825	66.675		7.716	7.339
Math's	2.121	0.010	9.878	158	0.000	EG	CG	10.950	EG	CG
						64.675	53.725		7.076	6.945

Similarly, the math's mean score was significantly different between the two groups t (158) = 9.878, p <0.001 the math's mean score of students assigned to the experimental group (M = 64.675, SD =7.076) was significantly higher than the control group of the study.

Table:4.6. Independent sample t-test across natural and social science subjects

	Levine's-test for equality of variances		T- test for Equality of Mean							
	F	Sig.	T	Df	Sig.(2-tailed)	Mean		Mean Difference	Standard Deviation	
Chem.	2.035	0.010	5.600	158	0.000	EG	CG	6.013	EG	CG
						73.288	67.275		7.588	5.885
Bio.	5.064	0.026	3.421	148.496	0.001	EG	CG	4.450	EG	CG
						75.263	70.813		9.209	7.111
Hist.	2.012	0.010	5.656	158	0.000	EG	CG	5.813	EG	CG
						75.350	69.538		6.191	6.793
Geo.	2.034	0.010	6.386	158	0.000	EG	CG	6.988	EG	CG
						77.425	70.438		6.388	7.415

An independent sample t – test was conducted to compare students subject result of experimental and control group. The chemistry mean score was significantly different between the two groups t (158) = 5.60, p <0.001 that the mean score of students assigned to experimental group (M = 73.28, SD = 7.58) was significantly higher than the mean score of students assigned to the control group (M = 67.27, SD = 5.88). Similarly, the biology mean

score was significantly different between the two groups F (148.496) = 5.064, p = 0.001 the biology mean score of students assigned to the experimental group (M = 75.263, SD = 9.209) was significantly higher than the mean score of students assigned to control group (M = 70.831, SD = 7.111).

4.2.2. Independent sample t-test student's choice in N. Science and S. Science

Table: 4.7 Independent sample t-tests across all selected subjects

Sub	Levine'stest for-equality of variances		T- test for Equality of Mean							
	F	Sig.	T	Df	Sig.(2-tailed)	Mean		Mean Differenc	Standard Deviation	
Eng.	2.143	0.011	1.803	158	0.073	N.sc	S.sc	2.426	N.sc	S.sc
						72.054	69.628		8.739	8.265
Math's	2.121	0.010	5.155	158	0.000	N.sc	S.sc	6.743	N.sc	S.sc
						62.824	56.081		8.452	8.072
Chem.	2.035	0.010	1.486	158	0.139	N.sc	S.sc	1.739	N.sc	S.sc
						71.216	69.477		8.452	6.320
Bio.	5.064	0.026	1.981	158	0.049	N.sc	S.sc	2.646	N.sc	S.sc
						74.459	71.814		8.505	8.350
Hist.	2.012	0.010	1.188	158	0.237	N.sc	S.sc	1.337	N.sc	S.sc
						73.162	71.826		6.912	7.249
Geo.	2.034	0.010	0.019	158	0.985	N.sc	S.sc	-0.023	N.sc	S.sc
						73.919	73.942		7.163	8.242

An independent sample t-test which was conducted to compare students' subject result of experimental and control group. As indicated in the above table-6 except math's and biology the other four variables are not statistically significant different when we compare experimental group with that of control group. So from these result we can conclude that student's future wish or their respective stream choice had no impact to their academic achievement on this study.

4.2.3. The effect of physical activity on Sex

Girlsw who participated in physical education for 60 or more minutes per week had significantlyhigher achievement scores in mathematics and reading than did girls who were enrolledin physical education for 35 or fewer minutes per week. Among boys, greater

exposureto physical education was neither positively nor negatively associated with academicachievement (Carlson et al., 2008).

Table-4.8 independent t-test was conducted to determine the effect of PA on sex

Sub	Levine's-test-for equality-of variances		T- test for Equality of Mean							
	F	Sig	T	Df	Sig.(2-tailed)	Mean		MD	Standard Deviation	
Eng.	2.143	0.011	1.23	158	0.12	Male	Female	1.66	Male	Female
						71.5	69.83		9.16	7.69
Math's	2.121	0.010	1.91	158	0.057	Male	Female	2.68	Male	Female
						60.4	57.72		10.01	7.06
Chem.	2.035	0.010	1.25	158	0.21	Male	Female	1.4	Male	Female
						70.94	69.47		7.96	6.63
Bio.	5.064	0.026	2.05	158	0.042	Male	Female	2.74	Male	Female
						74.27	71.52		81.17	8.69
Hist	2.012	0.010	1.52	158	0.12	Male	Female	1.71	Male	Female
						73.21	71.5		7.3	6.78
Geo	2.034	0.010	-0.55	158	0.58	Male	Female	-0.68	Male	Female
						73.62	74.3		7.94	7.51

An independent sample t–test which was conducted to compare students' subject result of experimental and control group. As indicated in the above table-7 except biology the other five variables are not statistically significant different when we compare experimental group with that of control group. So from these result we can conclude that student's consignment on sex had no impact to their academic achievement on this study.

4.2.4 . Coefficient of correlation between pre and post test result

Table -4.9 correlation of the subjects before and after the intervention

Subjects	N	Correlation (r)	Sig.
English pre and post test	160	0.773	0.000
Math's pre and post test	160	0.700	0.000
Chemistry pretest and post test	160	0.769	0.000
Biology pretest and post test	160	0.831	0.000
History pre and post test	160	0.753	0.000
Geography pre and post test	160	0.825	0.000

To determine the relationship between the six subjects of experimental and control group Pearson product moment correlation analysis was conducted. There was positive strong correlation between pretest and posttest of all the six subjects as depicted in the above table.

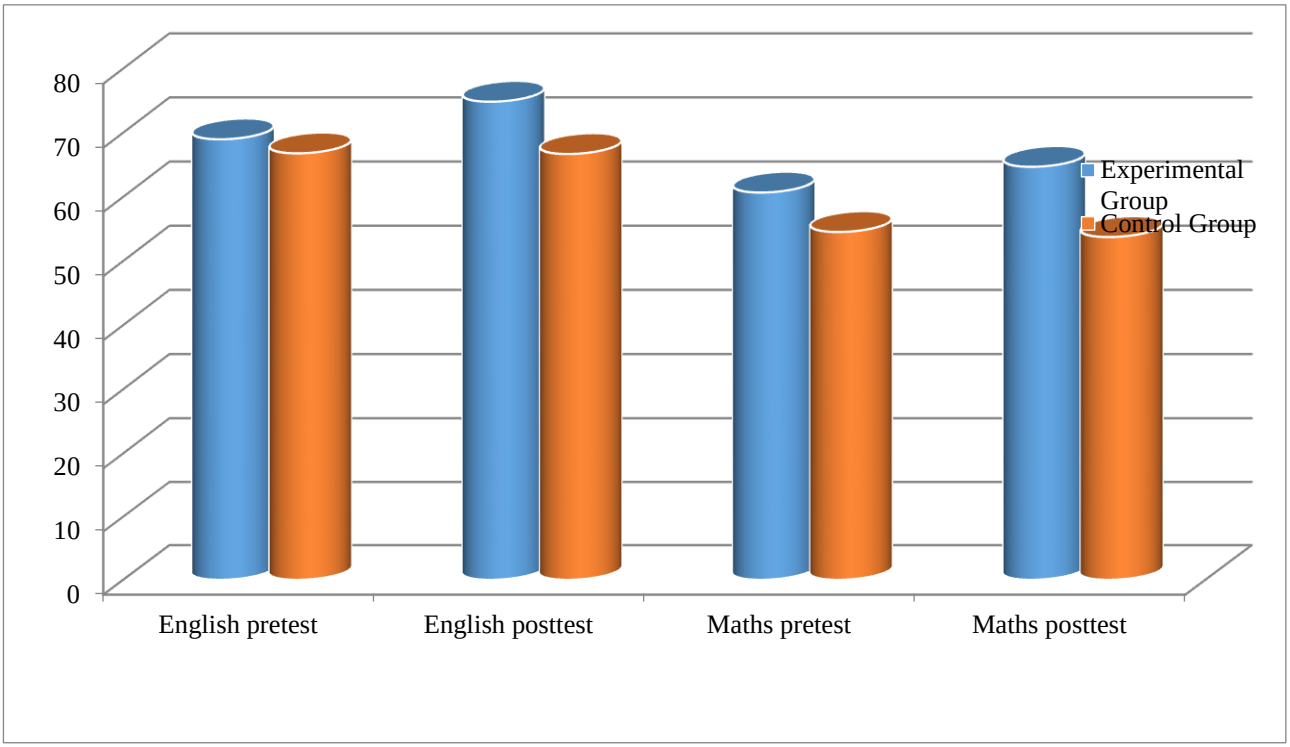
4.2.5. Paired Sample t-test

Table-4.10 significant difference at p-value of post and pre test result among subject

Variable	Experimental group			p. value	Control group			p. value
	PRT	PT	MD		PRT	PT	MD	
English	68.96±8.35	74.82±7.71	5.86	<0.001	66.77±8.05	66.67±7.33	0.10	0.837
Math's	60.66±7.52	64.67±7.07	4.01	<0.001	54.51±5.51	53.72±6.94	0.78	0.293
Chem.	68.03±7.89	73.28±7.58	5.25	<0.001	67.43±7.55	67.27±5.88	0.16	0.613
Biology	72.53±8.99	75.26±9.20	2.72	<0.001	71.18±7.98	70.81±7.11	0.37	0.284
History	70.7768	75.35±6.19	4.57	<0.001	70.23±7.24	69.53±6.9	0.70	0.109
Geo	72.76±6.48	77.42±6.38	4.66	<0.001	70.83±7.84	70.43±7.41	0.40	0.206

As depicted in table 8, there was statistically significant difference at p <0.001 between students who had taken 3 days physical activity as an addition to normal class and who had not taken physical activity as an addition to normal class on all the six variables (English, Math's, Chemistry, Biology, History, and Geography). The improvement which was occurred on all the six variables of experimental group was due to the three months of physical activity training program.One cross-sectional study undertaken from 2004 to 2005 showed that students who passed more fitness tests during Physical Education also outperformed their classmates in Mathematics and English tests (Trots, 2009). Trudeau and Shepherd (2008) state that in the findings of most cross-sectional studies, a positive relationship between physical activity andacademic achievement is identified. The mean score value for English and math's test before physical activity intervention program was 68.96 and 60.66 respectively and the mean score of English and math's test after physical activity intervention program was 74.82 and 64.67 respectively.

Figure-1- Indicates the mean score of English and Math's before and after intervention

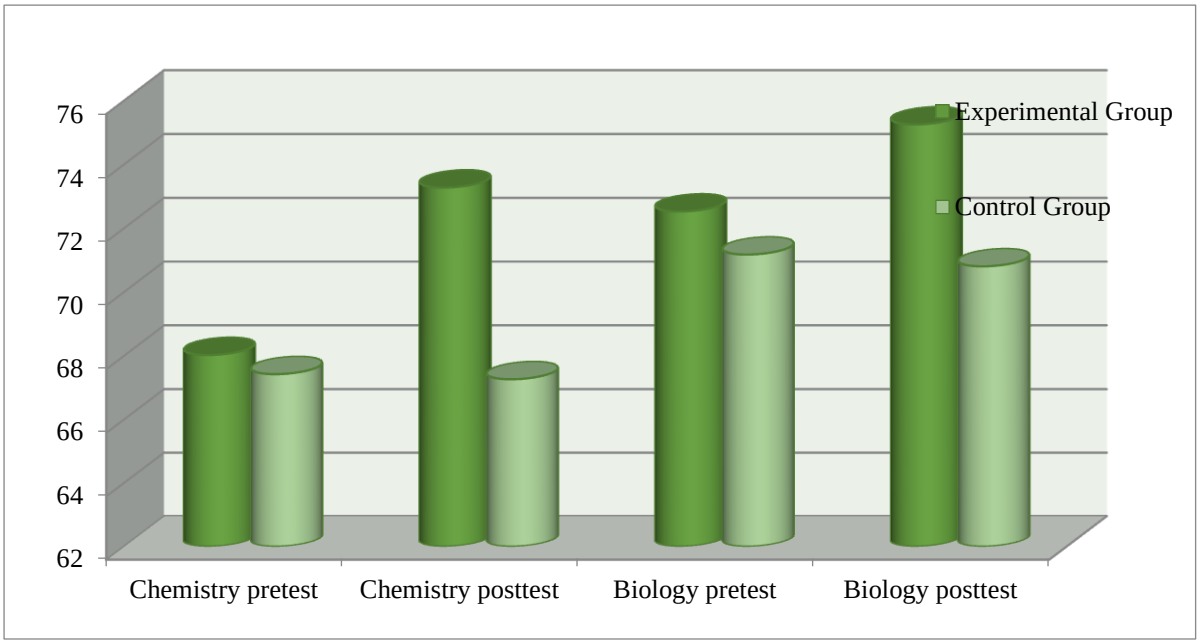


When we compare the mean value score of before training test with the mean score values of after three month physical activity training program, the mean difference value of English and math's increased by 5.86 and 4.01 respectively. But when we saw the control group there was no statistically significant difference at p= 0.837and p= 0.293 respectively between pretest score and post test scores. The pretest score of control group was 66.77 and 54.51 respectively and the post test score of control group was 66.67 and 53.72 respectively. So, from this result we can conclude that physical activity training program given to students for three months improved the Englishandmath'sabilityofstudentsby5.86and4.01respectively. Asrepresentedintable4,therewasalso statistically significant difference at p <0.001 between students who had taken physical activity as an addition to normal class and who had not taken physical activity as an addition to normal class on chemistry and biology test scores.

The improvement which was occurred on chemistry and biology of experimental group was due to the three months of physical activity training program. The mean score value before training program for chemistry was 68.03 and for biology was 72.53 and the mean score value after physical activity training program for chemistry was 73.28 and for biology was

75.26. When we compare the mean value score of before training test with the mean score values of after three month physical activity training program, the mean difference value of chemistry increased by 5.25 and biology increased by 2.72. But when we saw the control group there was no statistically significant difference at p= 0.613 and p= 0.284 between pretest score and post test scores. The pretest score of control group was 67.43 and 71.18 respectively and the post test score of control group was 67.27 and 70.81 respectively. So, from this result we can conclude that physical activity training program given to students for three months improved the chemistry and biology ability of students by 5.25 and 2.72 respectively.

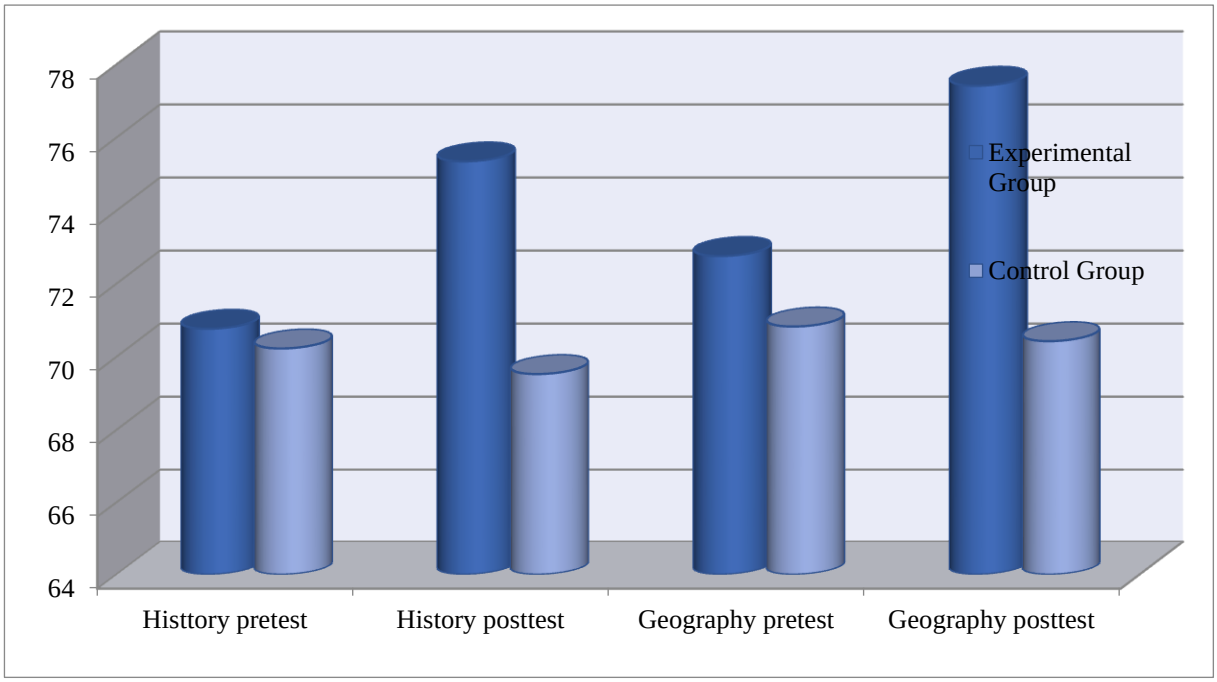
Figure-2 Indicates the mean score value of English and Math's post &pre intervention



As illustrated in table 4, there was also statistically significant difference at p <0.001 between students who had participated in physical activity intervention for 60 minutes for three day per a week as extracurricular activity and who had participated in physical activity one day per a week in a normal physical education class as extra-curricular activity in history and geography test scores. The improvement which was occurred on history and geography of experimental group was due to the three months of physical activity training program. The mean score value before training program for history was 70.77and for geography was 72.76 and the mean score value after physical activity training program for history was 75.35 andfor geography was 77.42. When we compare the mean value score of before training test

with the mean score values of after three month physical activity training program, the mean difference value of history increased by 4.57 and geography increased by 4.66. But when we saw the control group there was no statistically significant difference at *p*= 0.109 and *p*= 0.206 between pretest score and post test scores. The pretest score of control group was 70.23And 70.83 respectively and the post test score of control group was 69.53 and 70.43 respectively. So, from this result we can conclude that physical activity intervention program delivered to students for 12 week (three months) enable to improve the history and geography achievement.

Figure-3.Indicates the mean score value of English and Math's post &pre intervention



4.3. Description on the response of students' questionnaires

The study was employed different research instruments in order to answer proposed research question like students questionnaires, interview of PE teachers and school leaders next to school document. Generally as shown in table -9 all 5 question which was drafted to answer research question-I were targeted to assess physical education andPhysical activityperformance in the research setting .The assumption of respondents based on RQ-I(1) the majority of respondents were responds NO which mean that 113(70.63%) said their

school doesn't provide them PA three day per a week and 45(28.12%) were respond YES as their school provide it and the least 2(1.25%) were respond they have not any idea .

what we understand from the response the students have not been actively involving in physical activity to gain positive effect from school physical education program.School systems in every level have mandated internationally to provide quality physical education to benefit students in standard amount physical activity. According to Lee, Burgeson, Fulton, and Spain (2007) published data from the 2006 world survey was found few schools in the world provided daily physical education, which will defined as physical education everyday for 30 minutes a day (150) minutes per a week in primary school and 45 minutes per a day (225) minutes per a week in middle and high school according to international standard of physical education recommendation level in daily base is mandatory for its positive benefits.Concerning RQ-I(2) 123(76.87%) respondents respond NO as they didn't participated in 45' daily PA and 37(23.12%) respond YES as they were participated 45' daily physical activity program and this was indicate as there is less physical activity behavior beside students of sampling schools. Also the respondents assumption on RQ-I(3) revealed that 84(52.5%) of respondents respond as their school PE club was not guaranteed them in co-curricular physical activity,73(45.6%) were respond NO and 3(1.87%) of the respondents were respond NO I haven't any idea .In this fact students questionnaires response assured that there was lack of provision on school based PE program to participate students in co-curricular activity .

The assumption of respondents on RQ-1(4) which was intended to assess the availability of facility to promote PA in the school 101(63.12%) of respondent respond NO and 56(35%) YES where as the rest 3(1.87%) said I haven't any idea .The above notion indicates as the sample schools were not convenient enough in terms of facility and sport apparatus availability which enables the students to enjoy in school based physical education at break time, in extra time during school day and after class. when we assess the response of the RQ-I(5) which focused on the participation of students in physical activity before and after school time, majority of the respondents or 149(93.12%)of the respondent were respond NO and 11(6.87%)respondents were respond YES. From the above gist of respondents what weconcluded that students had not been associated with daily routine in physical activity life style.

Table-4.11 Students response based on research question –I

Research Question-1: what extent physical activity intervention is conducted in the secondary school to effect acdemic achievement of students?							
NO	Question-designed-to-answer research question -I	Students-that respond "YES"		Students-that respond "NO"		Students respond I haven't idea	
		MASP	WMZ	MASP	WMZ	MASP	WMZ
1	Does school PE provide you physical activity minimum 3 day per week?	24 15%	21 13.1.%	72 45%	41 25.6%	1 o.62%	1 0.62%
2	Have you often participate at least 30' minutes daily PA schedule?	20 12.5%	17 10.6%	77 48.1%	46 28.7%	0 0%	0 0%
3	Does school PE club often provides and involves you in co-curricular activity?	43 26.8%	30 18.7%	52 32.5%	32 20%	2 1.2%	1 0.62%
4	Is school physical education program is convenient to enjoy in PA breaks?	38 23.7%	18 11.2%	57 35.6%	44 27.5%.	2 1.2%	1 0.62%
5	Have you ever participate in PA-before and after school time?	8 5%	3 1.8%	89 55.6%	60 37.5%	0 0%	0 0%

4.3.1. Description on students response based on research question -II

Research question-II was attempted to explore those challenges in the school to promote physical activity in the research setting. Regarding RQ-II (I) 107(66.8) of the respondents were respond NO in terms of availability of pace and facility in the school which enables to promote physical activity,52(32.5%) of respondents answer YES and 1(o.62%) were respond they haven't any idea .So ,based on the given response the sampling schools were in sufficient pace ,facility and equipment to provide PA to the students in the secondary school. The assumption of respondents on RQ-II(II) reveals about 86(53.7%) of the respondents were said " NO" as their PE teachers had not been provided them educationa accesses (an information)about the many benefits of physical activity. The third question drafted to answer RQ-II was assessed whether the school posses or not policy in the school level which intended to promote physical activity. Here 98(61.2%) of the respondents respond NO, 48(30%)of the respondents answered "YES" and 14(8.7%) were answered I haven't any idea .when we concluded from the assumption of respondents there was no draft of policy in the school level which concerns promoting school physical activity .The forth

question of RQ-II(IV) related with those challenges associated with adequacy of period allotment of secondary schools and regarding the issue 117(73.1%) responded 'NO' ,36(22.5%)of respondents answer "YES" and 7(4.4%)responded I haven't any idea. As we know that PE is by the definition an education through physical activity to achieve educational goal. So, to catch the goal the current Single period was not adequate to promote PA and in order to partake age appropriate physical activity in the secondary school. The response of respondents on RQ-II (V) revealed the 89(55.6%) answered "NO" in terms of whether school was given emphasizes for PA as given as academic issues or not ,65(40.6%) of the respondents answered "YES" and 6(3.7%)of respondents said I haven't any idea. It is possible to assure schools were not given much emphasis for PA that was given for academics in the schools.

Table -4.12 Students response based on research question two

RQ-II: What are those challenges to promote physical activity in secondary school?							
NO	Question-designed-to-answer research question -I	Students-that respond "YES"		Students-that respond " NO"		Stud.respond haven'tany idea	
		MASP	WMZ	MASP	WMZ	MASP	WMZ
1	Do you think that there is-sufficient-facility-in-the-school to promote physical activity?	22 13.8%	30 18.6%	77 47.9%	31 19.2%	0 0.0%	0 0.0%
2	Does-P.E-teacher-provide-you-adequate information-on--benefit-of PA.	41 26..9%	32 19.4%	54 26.9%	32 20%	0 0.0%	0 0.0%
3	Doesschool have policy in the school level to promote PA?	46 27.5	20 12%	57 34.1%	43 25.7%	1 0.6%	0 0.0%
4	Is period allotment of PE is adequate topromote PA in secondary schools?	17 10.2%	36 21.6%	86 51.5%	27 16.2%	1 0.6%	0 0.0%
5	Do you think that regular physical activity can promote learners academic achievement?	24 14.4%	27 16.2%	71 42.5%	36 21.6%	9 5.4%	0 0.0%

The aim of research question-3 is to assess the relation between physical activity performances with that of performance of academic achievement of students. The assumption of students response on research Question III-(I) 108 or (66.4%) of the respondents responded "YES " which revealed that there is observable change in academic achievement after the intervention ,52 or (42%)of the respondents responded "No" as the intervention doesn't brought change for them and 4or (2.4%) responded they have not any idea. Regarding

research question III(II) about102(61.2%) of respondents respond “YES” that mean the physical activity that they performed during the intervention had effect in there mood, but 64(36.6%) of the respondents responded “NO” there is no mood change happened after the intervention and based on research question III(III) 110(65.9%) of the respondents answered ‘YES’ as the physical activity increased the sense of concentration in their lesson and also 4(2.4%) of the respondents responded as they haven’t any idea in the research 3(3).The research question 3(4) focuses on the degree of academic deference after the intervention .Here 89(51%) of the respondents answered as there was slight deference in achievement and 75(44.9%) have said “NO” slight deference in achievement and also 3(1.8%) of the respondents respond they have not any an idea totally. The last question of research 3(5) was assess either there is change in academics or no change in academics by comparing post and per–intervention. In the given research question part 85(50.9%) said “NO” that was indicate change and 62(37.1%) responded “YES” to indicate as there no change and 20(12%) responded they have not any idea in the research question 3(5).

Table-4.13. students response based on research question-III

RQ-III: There is relation b/n physical activity performance with academic achievement?							
NO	Question-designed-to-answer-research question –III	Students-that respond “YES”		Students-thatrespond “NO”		Students-respond NO-I haven’t Any idea	
		MASP	WMZS	MASP	WMZS	MASP	WMZS
1	There is observable change in academic achievement after- PA intervention.	64 40.1%	44 26.3%	33 19.8%	19 11.4%	4 2.4%	0 0.0%
2	Is there any mood change that you sense due to participating in physical activity?	69 41.3%	33 19.8%	31 18.6%	30 18%	4 2.4%	0 0%
3	Is there change in your concentr-ation level in your lesson due to PA?	79 47.3%	31 18.6.%	22 13.2.%	32 19.2%	3 1.8%	0 0.0%
4	There-is-slightly-deference-in academic achievement after and before the intervention.	59 35.3%	30 18%	43 25.7%	32 19.2%	2 1.2%	1 0.6%
5	There is no change in your academic achievement before and after the intervention?	44 26.3%	18 10.8%	51 30.5%	34 20.4%	9 5.4%	11 6.6%

4.3.3.Description-on-students-response-based-on-research-question-IV

The research question-4 focuses on answering the adequacy of current time allotment in the secondary school in terms of promoting physical activity in secondary schools. As the assumption of students response on research Question V-(I) about 53(31.8%) of the respondents responded "YES "which revealed that it is impossible to get adequate physical activity in the given period physical Education, and majority of respondents or 113(67.7%)of the respondents said "No" it is not expected to promote physical activity in secondary schools in current time allotment and 1 or (0.6%) responded they have not any idea whether the time allotment is adequate or not. Regarding research question V(II) about55(33%) of respondents respond "YES" which they assumed that it is possible to get positive effect from one period physical education program, but 90(53.9%) of the respondents responded "NO" there is no positive effect expected to get from a single period PE and physical activity and 22(13.2%) were responded as they do not have any idea in the question. based on research question V(III) 62(50.2%) of the respondents answered 'YES' as the time allotment is appropriate, But 95(53.1%) were respond "No" which indicate that the time allotment is not relevant and appropriate with the standard and students developmental level.

Regarding the research question V(V) 100(59.8%) of respondents agreed school and secondary school physical education program should plan extra time to benefit students in physical activity and 66(39.5%) of the respondents were answered "NO" and 1(0.6%) answered as they haven't any idea.

Policy has been identified as a key principle and component of successful implementation of health promotion initiatives in schools (Samdal and Rowling, 2011), including in the implementation of physical activity strategies (Cardon et al., 2012A). Samdal and Rowling (2011) explain that a written policy ensures that priority is given from leadership in terms of facilitation and resource allocation and commits all stakeholders to working towards achieving agreed aims. The research question IV(IV) points MEO responsibility to concern secondary school PE time allotment in the curriculum here 96(52.4%) of the respondents answered "YES" this indicate MEO should concern the secondary school physical education time allotment to implement physical activity in the secondary school ,however 67(40.2%) of answered "NO" to indicate no need of amending time allotment in secondary school in their point of view and 4(2.4%) were said they haven't any idea on the question-v**.**

Table-4.14: students response based on research question-IV

RQ: V-Is current time allotment of PE is adequate to promote PA in secondary schools?							
NO	Question-designed-to-answer-research question –V	Students that Respond "YES"		Students-that respond "NO"		Students respond I haven't Any idea	
		MASP	WMZS	MASP	WMZS	MASP	WMZS
1	Is current time allotment of PE is sufficient-to-promote-PA-in secondary schools?	17 10.2%	36 21.6%	86 51.5%	27 16.2%	1 0.6%	0 0.0%
2	It is possible to get adequate PA from-a-single-period-physical education.	38 22.8%	17 10.2%	56 33.5%	34 20.4%	10 6%	12 7.2%
3	PE time allotment is relevant and-appropriate-when-compared-with-students developmental level.	49 29.3%	23 13.8%	55 32.9%	40 24%	0 0%	0 0.0%
4	Secondary school PE program have-to-plan-Extra-time-to-increase school PA.	57 34.1%	43 25.7%	46 27.5%	20 12.%	1 0.6%	0 0.0%
5	MOE-should-amend-secondary physical education time allotment	60 35.9%	36 21.6%	40 24.%	27 16.2%	4 2.4%	0 0.0%

4.4. Description on interview response of director and PE teachers'

4.4.1. Characteristics of Directors' respondents

The study was employed semi-structured interview both for physical education teachers and school directors. The interview involved 5 directors and 5 physical education teachers each were provided 6 interview questions to respond.

Table-4.15: Show Characteristics of Directors 'interview respondents

School	Sex		Age				Service year				Qualification		
	M	F	< 25	25-30	31-40	40<	≥5	6-10	11-15	16<	Dipl	BA	MA
MSPS	3	-	-	1	2	-	-	1	2	-	-	2	1
WMSS	2	-	-	-	2	-	-	-	2	-	-	2	-

MSPS=Merab abya secondary and preparatorywmss=wajifo Melse zenawi sec school

As the table -18, indicates all the directors' take part in the interview are male.Concerning about professional quality the school princpal 4(80%) have degree and 1(20%)is become master holder.Regarding with the age 4(80%) are in age group under 31-40 years and 1(20%) in the range of age group 25-30 . Concerning work experiance , 4(80%) among respondents have 11-15 years of eperiance.1(20%) of the the intervewer has 6-10 years of work experiance .

4.4.2. Description on directors' semi structured interview response

Five woschool administrators took part in the interviews who are working in Wajifo Melese Zenawi secondary and Merab Abaya secondary and preparatory schools on the study intitteld effect of physical activity on students acadamic achievment in secondary schools, on the relvance of current time allotment of Physical education in secondery school to promote physical activity, the frequancey of studentes participation in PA in the secondary schools , the degree of sport club contribution interms of participating students in different co-curricular activity frequently, motivation from the side of physical education that bring students to involve in daily PA.thetrend of students participation in physical activity in the school and out of the school and the major challangesto promte physical education and physical activity in the secondary schools.

All the interviewers replied that the current time allotment of physical education is not relevant to provide adequate physical activty and even according to the subject methodlogical hint it is inpractable. All interviewers said that based on their school context the the students contact only a single period of phsical education and in the time of paractical session they probabily take part in 10-20 minutes PA from alloted 40 minutes. This discontinuous period is difficult to improve their performance or skill either practical or theoretically,from the above context it is possible to juage the time limite on physical education programe adversilly affected the chance of positve gain that students attain from school based physical education. On the notion of school sport club contribution to that of facilitating and involving students in co-curricular activity all interviewer stated that there is short coming to incouarage co-curricular activity in the schools.

Concering the support of professinal teacher in incouraging scondary school students to be active participant In regular physical activity 100% of the interviewer said PE education teachers they are not devoted and commited to motivate students and they are not role model

as personale. In terms of students life style and their attitude in participating in physical education and physical activity in the school and out of the school majority of the interviewer imformed as it was unusual practice because the facility of the school,the school schadule and the invironment in which they live ,social affaires were not invite them to involve in physical activity in theschool and out of the school. Regarding about major challanges to deliver physical education and physical activity in the school allmost all the interviewer affirmed that the major challanges in their respective school to promote physical education and physical activity were ,financial resource,school facility ,time allotment of the curricullum ,lack of support from stoke holders, commitment of the teachers and students prespective onthe importance of physical activity.

Finally the interviwers were imformed defferentsorts of challanges about physical education and physical activity in the scondary school and they also forwarded some solution to improve practice of physical activity in the secondary school. Some of those imformed solutions were theMOE should amned existing time allotment to involve students in wide range of physical activity,the physical education teachersshould provide educational access in many benefits of physical education,physical education should integrated In school improvement programs and school physical education should gain social base i.e.should supportby communities, student parents, concerned individuals, NGO and by the government itself.

4.4.3. Characteristics of teachers' interview respondents by sex, age…

Table-4.16.Characteristics of teachers'respondents

School	Sex		Age				Service year				Qualification		
	M	F	<25	25-30	31-40	40<	≥5	6-10	11-15	16<	Diploma	BA	MA
MSPS	4	-	-	1	3	-	-	1	2	1	-	4	-
WMSS	1	-	-	-	1	-	-	-	1	-	-	1	-

MSPS=merab abya secondary&preparatorywmss=wajifo melse zenawi sec. school

As shown on table -18, in terms of the sex of the teachers all are male and no female PE teachers.Concerning professional quality all of the teachers are degree holders. Regarding with the age 1 PE teachers (20%) are in age group under 25-3o years whereas 4 PE teachers

(80%) are in age group under 31-4o. Concerning work experiance , 3(60%) have between 11-15 years of eperiance.1(20%) of the the teacher accounts 6-10 years of work experiance and also 1(20%) accounts above 16 years of work experiance.

4.4.4. Description on teachers' semi structured interview response

Interview was conducted with all physical education teachers who are teaching in Wajifo Meles Zenawi secondary and Merab Abaya secondary and preparatory schools in Gamo gofa Zone, Merab Abaya woreda.The teachers' interview responseis summarized in the following section. All the teacher interviewers confirmed that availabilityof school facilities on the way to promote physical activity in secondary school was success factory.The response of the second interview question of both school PE teachers' affirmed that engagement of students in regular base and the practice of joining PA in the school and out the schoolis unusual at all in secondary schools because school based physical education program was not encouragelearners to engagement in PAmore based on reason ofsingle period PE program and school schedule.

As stated by Higginson the social background the learners and availability of opportunities influence the students decision to be involved in sport and PE or not .Based on the given interview responses, all physical education teachers from Wajifo Melese zenawi secondary, Merab Abaya secondary and preparatory schools said that, the contribution of school PE and sport club interms ofproviding opportunities of participating in deferentco-curricular activitiesthe sport club was less supportive to provide co-curricular activities as much as possible due to the rational of school facilities and equipments, single period PE, lack of school support and school schedule. According to the interview response based on providing information about the benefit of PA for secondary school students as the interviewer admitted there is short coming. So that we assume it is one of the factor (challenge) in the secondary schools which hamper the promotion of PA activity in the school.

CHAPTERFIVE:SUMMARY,CONCLUSIONS,RECOMMENDATION

This chapter presents the summary of the major findings, the conclusions and the recommendations that are considered to inform the effect of Physical activity on students' academic achievement on rural public secondary schools of Merab Abaya woreda in Gamo Gofa zone of SNNPRS.

5.1. Summary

The main purpose of this study was to assess the effect of physical activity on academic achievement of students in rural public secondary schools of Merab abaya woreda. The study also attempted to assess those challenges to promote physical activity and suggest ways for effective implementation of physical activity in secondary schools. In order to attain these objectives, the following basic research questions were raised and answered in the course of the study.

1. How much physical activity is needed and how extent the school providing to effect academic achievement of students?
2. What are those challenges to promote school physical education and physical activity?
3. Is there relation between physical activities performance with academic achievement of the student.
4. Is the current time allotment of PE is adequate for secondary school to promote PA?

To deal with the research questions, quazi-experimental design was employed. In providing relevant data two secondary schools five P.E teachers, five school principals, 160 students and a total of 170 respondents were involved. Questionnaires, interviews and 2010 E.C school document analysis (as post and pre-test) were used as instrument of data collection of the study. The obtained quantitative data were analyzed by independent T-test ,paired T-test ,correlation coefficient of Pearson product moments as well as frequency, and percentage were analyzed following the discussion of quantitative data. After the completion of data analysis and interpretation the following major findings were drawn.

Regarding the characteristics of respondents, the 100% of school principal and the subject teachers were first degree holders and all were male in sex. Also regarding students

respondents in terms of sex, 56.3% were male and 43.8% were female and all of them become grade 9th. In terms of age of students respondents had range 15-≥ **20**years totally 29.4% were accounts age of fifteen, 35.2% accounts sixteen year, seventeen year accounts 17%, age of eighteen accounts 13.4% and of nineteen accounts 4.8% whereas the age ≥20 accounts 4.8%.

As indicated in students questionnaires response concerning the back ground knowledge of students on importance and many benefits of physical activity intervention on students' academic achievement all of the respondents had the relatively similar attitude about it. With respect to education accesses for students on many benefits of physical activity PE teachers have short coming in providing the effect of physical activity.

5.2. Conclusions

Based on the major findings of the study, the following conclusions were drawn. Physical activity promotes children's and young people's health and well-being in many ways. It has also been noted to have a positive effect on learning and cognitive functions, such as memory and executive functions and, as a result, possibly on academic achievement. On the whole, the arguments for promoting Students' physically active to achieve academic achievement are so convincing. Thus, Secondary Schools should offer good opportunities to increase students' physical activity performance to support their learning.However, increasing physical activity during the school day calls for creativity and flexibility as well as commitment from different parties, such as teachers, students and decision-makers. Researchers recommend that adding physical activities appropriate for pupils' age and developmental levels to school days as recommended label is school mandate. Such physical activity supports students' physical, psychological and social growth and development, while also promoting health, well-being and learning.

To promote physical activity and PE in secondary school the current time allotment was`` note sufficient. Due to educational access the attitude of students about the importance of PE and physical activity low. Physical education teachers even cannot encourage for the physical activity session cannot motivate students and were not perceived to be good role models for their students in terms of participation and promoting physical activity.

As a result, students in the study area were not provided with meaningful physical activity prescribed for the level. Moreover, the majority of the sample schools were had sport clubs in the school. Yet, they were not active so that, students can explore and develop their talent as the means of participating in school physical education club. Therefore, the implementation of PE and physical activity in secondary schools was below the expectation .This is implies that the existing secondary school leaders and teachers seemed to be performing the day to day routines rather than being strategic who lead the process of instruction or teaching learning of Physical education and physical activity properly.

5.3. Recommendations

Based on the major findings of quantitative data of the study and conclusions drawn, the following recommendations are forwarded on the effect of Physical activity intervention on academic achievement of students of secondary schools, educational access on many benefits of physical activity for secondary school youth and to suggest those challenges to promote physical activity in the sample setting.

1. According to the investigation a single period physical education delivery in the sample secondary schools was adversely affected the chance of students' participation in physical education and physical activity.Thus made impact on academic lesson and academic achievement in average in the sample schools. However, it was tried to overcome those challenges through vigorous physical activity intervention conducted in the course of the study for 60' three day per a week which prolonged for three month. So it was recommended that physical education should be given at least 3 days (period) per a week for 6o' work outin order to enhance students academic achievement through physical activity in the context of secondary school.
2. As professional responsibility the physical education department and subject teacher should work accordingly in order promote physical activity in the secondary schools that ensure the welfare of participants to enjoy mandated physical education throughout the school day.
3. As it assessed there was lack of educational accesses (information) in many benefits of physical education and physical activity. So physical education teachers in secondary schools should accept to provide information in daily base about the role of physical activity.

4. Policy has been identified as a key principle and component of successful implementation of health and wellbeing promotion initiative in the school and including in the implementation of physical activity strategies (Cardon et al.,2o12). MOE should amend the existing physical education curriculums design in terms of a single period allotment in national level to benefit students from school based physical education program.
5. The school physical education club was short coming in involving secondary school Youth in co-curricular activities and students were so inactive .The students to be active and better learner the school administrators' should facilitate material and support the club to provide physical activity option in the school setting.
6. Finally, the researcher would like to recommend educational sector and other responsible organizations and individuals to conduct deep and wide research work in the area of the effect of Physical activity on students' academic achievement in the secondary schools to investigate better solutions in terms of learning out come.

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Appendix– I: Experimental group-1

Students participated in physical activity intervention in Merababaya Secondary and preparatory school.



Appendix-II:Experimental group -2

Students participated in physical activity intervention in Merab abaya Secondary and preparatory school.



Appendix-III: Experimental group-3

Students who participated in physical activity intervention in WajifoMeles Zenawi Secondary school



Appndix-IV: Subject of the study in wajifo Melese Zenebe after physical activity



Appendix-V:Informants consent issue

Informed consent for participation in physical activity intervention program.

Title of the study :Effects of physical activity on academic achievement on secondary school students.You are invited to participate in this research. Your participation is voluntary. Please take as much time as you need to read the information sheet. You may also decide to discuss it with your family or friends. You will be given a copy of this form.

Purpose of the study

I am asking you to take part in this research study because I am trying to find out the effect of physical activity on academic achievement of secondary school students.

Procedures

In this study, you will take part in physical activity intervention programs for twelve weeks in order to asses if physical activity involvement will improve an academic Achievement in secondary school students or not. The experimental measurement is used to measure wether physical activity intervention will have effect on Academic achievement or not. The experimental measurement is conducted as a test before physical activity participation and after physical activity participation.

Potential risks and benefits

The risk of being participating in this study is very minimal, but only taking some minutes from your time. There would not be any direct payment for participating in this study and again you will not pay for your participation. But the findings from this research may reveal important data for the investigator.

Confidentiality

Any that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. The information collected about you will be coded using a fake name and numbers. The information which has your identifiable information will be kept separately from the rest of your data.

Participation and withdrawal

You can choose whether to be part of this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you are reluctant to answer and still remain in the study.

The investigator may withdraw you from this research if circumstances arise which warrant to participate so.

Contacts address:

If there is any questions or enquires atany time about the study or the procedures, please contact: Marked manebo at (+251913416946), Email address markamanebo12@gmail.com

Major- advisor Dr.mekibebAlmu , Email address mekibebAlmu@.y.mail.com

Co-advisor .ass.pro WondimuTadesse , Email address Wondimu,Tadesse39@yahoo.com

Declaration of informed voluntary consent: have read this informed consent form, fully understand its terms, understand that I have given up substantial rights by sign it, and sign it freely and voluntarily, without inducement.

Participant`s Signature: _____

Participant`s Name: _____

Witness`s Signature: _____

Date: _____

APPENDIX- VI: Physical Activity Schedules

Physical Activity training

Season length_____12 weeks

Hours per week_____3

Session per week_____3

Session length _____60 minutes

Training contents

- **Cardio Vascular Endurance Activities**

Jogging

Running

Running on the spot

keeping rope

- **Macular Endurance Activity**

Squat trus

Push up

Sit up

Jump and toe touch

- **Muscular Strength Activities**

Knee bent

Side leg left

Frog jump

- **Flexibility exercise**

Sit and toe touch

Stretching activities

Appendix- VII
ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES

DEPARTMENT OF SCIENCE AND MATHEMATICS

Questionnaire to be Field by Secondary Schools' Students

Introduction

Dear respondents! My name is Marked Manabo .I am collecting data for a thesis entitled "The effect of Physical activity on academic achievement of students in public Secondary Schools of Merab Abaya Woreda in GamoGofazone"in partial fulfillment for Ms in physical education. The information collected through this questionnaire will be treated confidentially and be used only for academic purpose. So I thank a lot for your genuine contribution that will be greatly essential for the success of the study. Thus, you are kindly requested to fill the questionnaire carefully and honestly.

General Directions:*Dear respondents, please note that:*

1. No need of writing your name on any page of the questionnaire.

2. For those alternatives show your response by putting"√" in the space

Provided or circles it.

3. Write your opinion of the open ended questions in the space provided.

Thank you in advance for your cooperation.

Part-I.Bio graphical information of respondents

1. Name of school_____

1.1. Sex male _____female___

1.2. Age _____years old

1.3. Your grade level: _____

1.5. Choice of your future stream: natural science _____social science____

Part- II. How much PA is needed and how extent does the school providing you?

2.1. Please show your response to the questions based on your opinion by circling on the given choice that represents your view.

1. Does school PE provide you physical activity minimum 3 day per week?

A, Yes B, No C, I don't have any idea

2. Have you often participate at least 30 minutes daily PA schedules.

A, Yes B, No C, I don't have any idea

3. Does school PE club often provides and involves you in co-curricular activity?

A, Yes B, No C, I don't have any idea

4. Is school physical education program is convenient to enjoy in PA breaks.

A, Yes B, No C, I don't have any idea

5. Have you ever participate in PA before and after school time?

A, Yes B, No C, I don't have any

Part– III. What are those challenges to promote school physical activity?

6. Do you think that there is sufficient facility in the school to promote physical activity?

A, Yes B, No C, I don't have any idea

7. In your opinion does P.E teacher provide you adequate information on the benefit?

Of PA?

A, Yes B, No C, I don't have any idea

8. Does the school have policy in the school level to promote physical activity?

A, Yes B, No C, I don't have any idea

9. Is period allotment of PE is adequate to promote PA in secondary school?

A, Yes B, No C, I don't have any idea

10. Do you think that the school given emphasize for PA as academic learning?

A, Yes B, No C, I don't have any idea

Part-V- There is relation b/n PA performances with academic achievement Performance.

11. There is observable change in academic achievement post and pre- PA intervention.

A, Yes B, No C, I don't have any idea

12. Is there any mood change that you sense due to participating in physical activity?

A, Yes B, No C, I don't have any idea

13. Is there any change in your concentration level due to physical activity participation?

A, Yes B, No C, I don't have any idea

14. There is less boredom in lesson after physical activity intervention.

A, Yes B, No C, I don't have any idea

15. There is no change in academic achievement before and after the intervention?

A, Yes B, No C, I don't have any idea

Part-IV. Is current time allotment of physical education is adequate for secondary school?

16. Is current time allotment of PE is sufficient to promote PA in Secondary schools?

A, Yes B, No C, I don't have any idea

17. It is possible to get positive effect from single period physical activity involvement.

A, Yes B, No C, I don't have any idea

18. PE time allotments of secondary school is relevant when compared with primary PE.

A, Yes B, No C, I don't have any idea

19. Secondary schools PE have to plan extra time to increase school physical activity.

A, Yes B, No C, I don't have any idea

20. MOE should amend secondary school PE time allotment to benefit students in PA.

A, Yes B, No C, I don't have any idea

Appendix -VIII

አዲስአበባ ዩኒቨርሲቲ ትምህትና ስነ-ባህር ጥናት ኮሌጅ

ሳይንስና ሒሳብ ትምህርት ክፍል

የድህረ ምረቃ ፕሮግራም

በሁለተኛ ደረጃ ተማሪዎች የሚሞላ መጠይቅ

የዚህ መጠየቅ ዋና አላማ በሰውነት ማጎልመሻ ትምህርት የተግባር እንቅስቃሰን አዘውትሮ መስራት የተማሪዎችን ውጤት ከማሻሻል የሚኖረዉን ፋይዳ ለመዳሰስ በተመለከተ መረጃ መሰብሰብ ነው። ስዚህ መጠይቁን በጥንቃቄ እንዲሞላልኝ በትህትና እጠይቃሁ።

ስለሚደረግልኝ ትብብር በቅድሚያ አመሰግናለሁ።

ትዕዛዝ፡- 1. ጥያቄውን በሚሰሩበት ጊዜ መልሱን ያክቡት።

2. **በመጠይቁላይስማችሁንመጻፍአይጠበቅም።**

የት/ቤቱስም----------ጾታ---------- ዕድሜ---------- ክፍል----------

<u>ጥያቄ</u>

1.በሰውነትማጎልመሻትምህርታችሁበሳምንትሶስትጊዜተግባርትምህርትይሰጣሃል/ሻል/ ?

ሀ) አዎንለ) የለምሐ) ምላሽየለኝም

2. በየቀኑሰውነትማጎልመሻእንቅስቃሰንፕሮግራምላይትሳተፋለህ/ለሽ/።

ሀ)አዎንለ) የለምሐ) ምላሽየለኝም

3.የትቤታችስፖርትክበብበተለያዩስፖርታዊውድድሮችበስፋትያሳትፋሃል/ሻል/

ሀ)አዎንለ) የለምሐ) ምላሽየለኝም

4. የሰውነትማጎልመሻትምህርትበተለያዩእንቅስቃስእንትሳተፉምቹሁኔታአለዉ?

ሀ)አዎንለ) የለምሐ) ምላሽየለኝም

5. በት/ቤትናከት/ቤትዉጭየሰውነትማጎልመሻእንቅስቃስሁሌትስራለህ/ሻል/?

ሀ)አዎንለ) የለምሐ) ምላሽየለኝም

6.ት/ቤቱየተግባርእንቅስቃስለማበረታታትማዘዉተተሪያናየቁሳቁስችግርየለዉም።

ሀ)አዎን ለ) የለም ሐ) ምላሽየለኝም

7. የሰውነትማጎልመሻመምህራችሁስለሰውነትማጎልመሻእንቅስቃስፋይዳበቂግንዛቤይሰጣል?

ሀ) አዎይሰጠኛልለ)አይሰጠኝምሐ) ምላሽየለኝም

8. ት/ቤታችሁየሰውነትማጎልመሻእንቅስቃስየሚያበረታታዉስጠደመብአለዉ?

ሀ)አዎንለ) የለምሐ) ምላሽየለኝም

9. አሁንየሚሰጣችሁየሰዉነትማጎለመሻክፍለጊዜለ2ኛደረጃለተግባርእንቅስቃሰበቂነዉ?

ሀ)አዎንለ) የለምሐ) ምላሽየለኝም

10. ት/ቤታችሁበሰውነትማጎልመሻለተግባርትምህርትልዩትኩሬትየሚሰጥይመስላሃል/ሻል/

ሀ) አዎንለ)የለምሐ) ምላሽየለኝ

11.የሰውነትማጎልመሻእቅስቃሴፕሮጀክትተሳትፎወድህበበፊቱበትምህርታችሁለዉጥአለዉ?

ሀ)አዎን ለ)የለምሐ) ምላሽየለኝ

12. በሰውነትማጎልመሻእንቅስቃሴፕሮጀክትበመሳተፍህ/ሽ/ ስመተዊለዉጥታይተል፡፡

ሀ)አዎን ለ)የለምሐ) ምላሽየለኝ

13.በሰውነትማጎልመሻእንቅስቃሴፕሮጀክትበመሳተፍህ/ሽ/
በክፍልትምህርቱክትትልየታየለዉጥአለወይ?

ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

14. በሰውነትማጎልመሻእንቅስቃሴፕሮጀክትከተሳትኩወድህትምህርትስማርስልችትየለኝም፡

ሀ) አዎን ለ)የለም`ሐ) ምላሽየለኝ

15.
በሰውነትማጎልመሻእንቅስቃሴፕሮጀክትበፊትሆነበሓላበትምህርትዉጤተመሻሻልአልታየም፡፡ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

16. አሁንበ2ኛደረጃያለዉየሰውነትማጎልመሻክፍለጊዜለተግባርትምህርትበቂነዉ?

ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

17. በአንድ ክፍለ ጊዜ ከሚሰጠዉ የሰውነት ማጎልመሻ ትምህርት ከተግባር እንቅስቃሴ አዎንታዊ ጠቀመታ ማግኘት ይቻላል፡፡

ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

18.1ኛደረጃየሚሰጠዉየሰውነትማጎልመሻትምህርትክፍለጊዜከ2ኛደረጃጋርስናነጻጽርየ2ኛደረጃዉ ተግብነትአለዉ፡፡ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

19. 2ኛደረጃት/ቤቶችየተግባርእንቅስቃስንአጠናክረዉለመስጠትተጨማሪሰዓትማቀድአለባቸዉ፡፡
ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

20.ትምህርት ሚንሰተር 2ኛ ደረጃ ት/ቤቶች የተግባር እንቅስቃስን ተጠናክሮ እንዲሰጥ የሰዉነት ማጎለመሻ ክፍለ ጊዜ ግድ ማሻሻል ይጠበቃል፡፡

ሀ) አዎን ለ)የለምሐ) ምላሽየለኝ

APPENDIX-IX : ***Interview Questions for Secondary Schools' Directors***

Introduction

Dear interviewee! The purpose of this interview is to collect data about "The effect of Physical activity on academic achievement of students on public Secondary Schools of Merab Abaya Woreda" The type of information that you will provide determines the quality of the study. So that; please be sure that the information you will forward is used only the aforementioned academic purpose. You are, therefore, kindly requested to be genuine and honest in providing the factual information in the course of the interview.

Thank You in advance for your cooperation.

1. Background information

1.1. Name of School_____

1.2 .Sex _____

1.3. Age _____years old

1.4. Years of experience _____years

2. Would you think that the current single period allotment of P.E is relevant to secondary school?

3. To benefit from physical activity students should involve at least 3 day per Week.

How extent does the school PE providing it.

4. How do you express contribution of school sport club in involving students in extracurricular activity?

5. Do PE teachers encourage their students to participate in regular physical activity?

6. How do you express the participation of students in physical activity in the school and out of the school?

7. What are the major challenges to promote school physical activity?

APPENDIX-X: Interview Questions for Secondary Schools' physical education teachers'

Introduction

Dear interviewee! The purpose of this interview is to collect data about "The effect of physical activity on academic achievement in public Secondary Schools of Merab Abaya Woreda" The type of information that you will provide determines the quality of the study. So that; please be sure that the information you will forward is used only the aforementioned academic purpose. You are, therefore, kindly requested to be genuine and honest in providing the factual information in the course of the interview.

Thank You in advance for your cooperation.

1. Background information

1.1. Name of school_____

1.2. Sex _____

1.3. Age _____years old

1.4. Years of experience _____years

2. How do you express the degree of school facility to promote school based PE?

3 .To benefit learners from physical activity secondary school students should involve daily PA .How extent does PE provide it?

4. How do you express contribution of school sport club in involving students in extracurricular activity?

5. Have you ever providing information about many benefits of PA integrating with daily lesson.

6. How do you express the participation of students in physical activity in the school and out the school?

7. What are those major challenges to promote school physical activity?

Declaration

Effect of physical activity :on students academic achievment on secondary shcools students.

I the under signed, declare that this thesis is my original work under the guidance of my advisorand that all sources of materials used for this thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for an advanced MED degree at the AddisAbaba University and is deposited at the University Library to be made available to borrowers under rules of the Library. I formal declare that this thesis is not submitted to any other institution anywhere for the award of any academic degree, diploma, or certificate.

Name:_____

Signature:_____

Date of submission_____

This thesis has been submitted for the examination with my approval as a university advisor

Name:_____

Signature:_____

Date of approved:_____