

**THE RELATIONSHIP BETWEEN SPORTS INVOLVEMENT ON ACADEMIC
PERFORMANCE FOR LEARNERS IN PUBLIC PRIMARY SCHOOLS IN
BUNGOMA COUNTY, KENYA**

BY

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DECLARATION

Declaration by Candidate

This thesis is my own original work and has not been presented for conferment of a degree in this or any other University.

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DEDICATION

This thesis is dedicated to my family members, my colleagues and my friends whose undying love, encouragement and selfless determination enabled me to be where I am today. To all educationists who ensure that the learners acquire the relevant knowledge, skills and attitude for the development of our society.

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ABSTRACT

Globally, schools are expected to offer sufficient opportunities to nurture holistic character development of learners and to improve academic performance. Schools are key in impacting the formative years of young persons and instilling life skills. However, the Kenya primary educational practices are skewed towards passing the national written examinations; laying less emphasis on non-class activities. Hence, the study evaluated the relationship between sports involvement and academic performance for learners in public primary schools in Bungoma County. The study's specific objectives were to: find out learners' level of involvement in sports, assess learners' perception of the relationship between sports involvement and their academic performance, evaluate the teachers' perception of the relationship between sports involvement and academic performance and investigate relationships between the level of learners' involvement in sports and subsequent academic performance by comparing the academic scores of learners who participate in sports. The study was based on Astin's Involvement Theory whose basic principle is that educational experience ought to consider both classroom and out of class performances in development of a holistic learner functioning physically, emotionally and psychologically. Concurrent triangulation mixed method was used, where both qualitative and quantitative data was collected, analyzed and findings concurrently interpreted was adopted for this study. Purposive and stratified sampling methods were used. Three sub-counties of Bungoma were selected for the study. A total of 54 public schools (33.13%) participated in the study. A sample of 299 respondents participated comprising; 208 learners, 78 class teachers and 21 head teachers. Structured questionnaires, interviews schedules, Focused Group Discussion guide and document analysis guide were used to collect primary data. Secondary data was sourced from published and unpublished scholarly works and relevant governmental reports. Statistical Program for Social Sciences (SPSS) was used to analyze collected data. Descriptive data was presented using frequencies, percentage and charts while chi-square was used to present Quantitative data, qualitative data was arranged based on themes and explained. The study established significant improvement on academic performance for learners who participate in sports with a chi-square result of 112.90 on a 0.000 Probability (P) value. Further, the means score of students who participated in sports was 272.20 which was higher than the 237.74 National results in 2019. The findings indicate that majority of learners who participate in sporting equally perform well in their academics. The study found that learners had positive attitude towards sports and believed that it positively impacted their performance. Further teachers said that involvement in sports improved concentration in class hence improves academic performance. The study recommended schools to solicit stakeholders support to improve sporting facilities, teachers to create time for remedial sessions for learners who skip lessons because of involvement in sports and perception of teachers towards learners' involvement in sports to be boosted. Majority of respondents indicated that learners involved in sporting activities enjoy holistic development hence need for balanced focus on both sports involvement and class performance. The study will contribute towards the improvement in learner participation in sports which from the findings it lags behind.

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ABBREVIATIONS

CBC:	Competence Based Curriculum
CDE:	County Director of Education
FGDs:	Focused Group Discussions
FIFA:	Federation of International Football Association
GDP:	Gross Domestic Product
INSET:	In-Service Training
KCPE:	Kenya Certificate of Primary Education
KNEC:	Kenya National Examination Council
KPSSA:	Kenya Primary Schools Sports Association
KSSA:	Kenya Secondary Schools Association
MOE:	Ministry of Education.
NACOSTI:	National Commission for Science, Technology and Innovation
QUASO:	Quality and Assurance Officer
SEAs:	Structured Co-Curricular Activities
SPSS:	Statistical Program for Social Science
UN:	United Nations
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UNICEF:	United Nations Children Education Fund
US:	United States
WBCSD:	World Business Council for Sustainable Development

CHAPTER ONE

INTRODUCTION TO THE RESEARCH STUDY

1.0 Introduction

Chapter one discusses the background of the study, the statement problem, purposes of the study, objectives of the study; study's research hypothesis, the significance of the study, justification of the study, scope of the study, limitations of the study, assumptions of the study, theoretical framework of study, conceptual frameworks of the study and the operational definitions of terms as used in the research study.

1.1 Background of the Study

Sports is defined as any physical, mental activities or combination of both, done systematically by individuals organized by a group or an individual either for recreational purposes or competitions at amateur, professional or combination of both levels (Kipchumba & Chepyator, 2015; ROK, 2013). Competitive sports are physical activities performed in observance of set out rules on how they are performed and these activities contain elements of; competitions, challenges and equal chances of victory to either side with the objectives of entertaining and attaining physical and mental wellbeing (Zhang, 2008). The advent of sports in Kenya was before the colonial regime where locals were encouraged to engage in sports for political reasons of being kept away from disruptive actions like agitating for self-rule (Kipchumba & Chepyator, 2015).

Hilvoorde, Elling and Stokvis (2010) equate sports at national level to being a source of pride and cohesion to a nation and this can be replicated to individual schools acting as separate entities in having their learners participate in sports. Guest and Schneider (2003) contextualize learner's involvement in co-curricular activities as the individual participant in the co-curricular activity within the distinct social context

where schools assign specific value to numerous activities and prioritize them on the basis of perceived importance, hence schools' intrinsic values, importance and priorities accorded to these activities shape the relations between learners' willingness to participate in co-curricular activities, parents and entire school community and subsequent learners' academic performance.

Zhang (2008) notes that range of competitive sports being offered by any given school depends on individual schools' practical environment and resources required to develop requisite sports' infrastructure hence prevalent disparities in sports infrastructure from one school to another.

Singh (2017) notes that before 1900s, educationists were skeptical on benefits to learners that participated in sports since non-academic activities were viewed as mere recreational activities and detrimental to the academic performances of learners, hence benefits on learners were gauged from the lenses of their academic outcomes.

Zhang (2008) equates competitive sports to individual learners' out of class competencies and aspect of cultural connotation where specific schools are synonymous with excellence in specific sports resulting into individual schools endeavoring to uphold their innate value through sports. Hicks (2018) notes both positive and negative effects of sports on physical and biological wellbeing of college athletes, with factors like gender, environment and nutrition of the learners emerging as key factors in shaping ultimate benefits of sports to individual participants.

Studies which attribute positive benefits of sports on learners' academic performances highlight sports activities as designed with an aim of complementing and expanding on lessons learned in classrooms owing to the design of inbuilt relations between classroom lessons content and sports activity; leading to conclusion that sports play a

vital role in learners' academic performance (The MOE report, 2002). In developed countries, schools provide necessary facilities to learners to participate in various sports customized on the needs of time and place with different objectives; some to maintain a healthy lifestyle while others participate to promote weight loss in participating learners (United Nations, 2003 report). This approach dispels the notion that sports are intensive physical activities based on fierce competition and reserved only for young people in excellent health.

Singh 2017 and Kidokoro, Fuku, Yanagiya, Takeshita, Takaragawa, Annear, Xiaojie, Waiganjo, Bogonko, Isika, Kigaru and Mwangi, (2020) note that learners' involvement in sports has correlations with their academic performance and recommend further studies to assess the effects of the specific co-curricular activities on the academic performances. Darling, Caldwell and Smith (2005), argue that co-curricular activities supplement learners' interactions and experiences that are not incorporated in pure formal parts of academic programs of school days. Broh (2002) relates learners' participations in co-curricular activities to general and holistic improvement since learners' participating in co-curricular activities; posted improved grades, were inspired to further their education, were less likely to be involved in indiscipline issues and unlikely to miss or drop from school.

Guest and Schneider (2003) note that sports motivate and enhance competencies among participants, both factors that are correlated to participants' learning and performance. Marsh and Kleitman (2002) observe that learners exposed to less timeframes for sports record high test scores and better overall academic performances however; when learners are exposed to increased time and frequencies to sporting, they perform poorly in their academics and general work prompting some emotional effects on learners participating in sports. Hicks (2018) says that

participation in sports requires time being set aside for practice and competition leading to cases where learners do not attend classes and in cases where they are not competitive in academics, they are stereotyped as lazy or failures in classes. The US Department of Education report (2001) avers that learner who participate in sports are more likely to achieve good grades than their counterparts who do not participate in sports (Stephen and Schaben, 2002).

McNamee (2005) compares a relationship between learners' participation in the co-curricular activities and learners' connectedness to their respective schools where learners who participate in co-curricular activities are likely to be more connected to their schools and easily bond with others. The findings by Guest and Schneider (2003) note that participants who were engaged in structured co-curricular activities (SEAs) in schools had higher satisfaction of belongingness than their counterparts who were not actively involved in co-curricular activities. Muniu (2009) observes that learners who participate in sports activities enjoy both physical and psychological benefits like easing stress and low number of these participants are likely to suffer from depression and anxiety. Further, Hicks (2018) avers that learners participating in sports have a wider sphere of support from trainers, family, teammates and teachers and as a result they are more advantaged than learners who do not participate in sports and these categories of students are likely to suffer from cases of anxiety.

Guest and Schneider (2003) also observe that participation in various co-curricular activities mold participating learners to be resilient and able to effectively handle adverse encounters in life while in school and long after they have completed schooling. In sporting, resilience is achieved when individual or team of learners compete against others to overcome natural obstacles with chances of emerging victorious being equal to either participating party (Zhang, 2008). The National

Federation of State High School Association (NFHS) report (2002) note that the interscholastic sports help the youths to grow both physically and emotionally, benefits from incentives like offers for citizenships to non-citizens, sportsmanship, teamwork spirits and self-discipline. Hicks (2018) observe that incentives to have learners participate in sports possess both positive and negative outcomes; citing cases of sports scholarships which provides opportunity for less privileged learners to be in class while on the flipside when such benefiting learners post negative grades, they are viewed as being lazy.

Mwihaki (2007), Mwangi, Kamenju and Rintaugu (2013) and Ongong'a, Okwara and Okello (2010) note that intensive participation in sports activities contribute towards the development of positive attributes and virtues of learners who participated in co-curricular activities. Gitonga (1998), observes that athletes were more likely to be disciplined owing to their better school attendance rate, lower dropout rate and fewer cases of indulging in drug abuse as opposed to the non-athletes. However, O'Neil et al (2017) findings contradictorily indicate isolate cases where learners participating in sports end up abusing drugs and drinking alcohol so as to mitigate the emotional stress arising from peer pressure.

Hilvoorde I. V, Elling A. and Stokvis R (2010) also note that involvement in sports builds a sense of belongingness, prestige among the learners participating in sports and the school stakeholders and connectedness to their respective schools. Muniu (2009) avers that sports are forms of therapy to examination-related stress.

While past of the Kenyan studies shows importance of learners' participation in sports, none of them looked at the role of sports involvement on academic performance in Bungoma County.

Schools in Kenya do not enjoy uniformly distributed sporting facilities and equipment hence learners do not access equal opportunities to participate in sports (Mugweru, 2022). Ongong'a, Okwara and Okello (2010) observe that learners' participation in sports supplement classroom lessons content, promote school spirits, enhance learners' loyalty to their schools, develop and maintains spirits of both fair play and develops good sportsmanship learned during sporting activities and events. Mahlmann, Asembo and Korir (1994) gives an example of Mang'u High School in Kenya where most of the co-curricular activities are designed or developed with the aim of complementing and expanding on lessons that were learned in classrooms.

Republic of Kenya (2002) report, emphasizes the need for co-curricular activities in schools and calls on the educationists to develop sports program that endeavors teaching of not only the relevant skills and acquisition of knowledge but also the development of relevant and essential attitudes through viable movements. The primary school (MOE 2002 report) syllabus stipulates that sports should help each learner to develop and realize their potential within their individual capacities for optimum growth. Gitonga (2003) notes that sporting activities aimed at enhancing and harmonizing development of their learners not only physically and intellectually but also socially as well as emotionally including learners with special needs. It has gone ahead integrating sports in the formal curriculum for instance ball games are taught in English in Standard Six and Standard Seven and the examination body acknowledges this through testing in creative writing for example, the theme of 2014 KCPE English Composition was on participation in sports (KNEC, 2014).

The Bungoma County Integrated Development Plan 2018 –2022 (2018) outlines the strategic objective of offering sport opportunities to the youth in Bungoma County by establishing integrated talent academies through the Private Public Partnership

arrangements. The report notes that talent academies nurture talents in sports and skills among them soccer games, volleyball games, media and creative arts and lists the sports facilities in the County of Bungoma as; The Masinde Muliro stadium at Kanduyi, Namutala stadium at Kimilili, Mayuba stadium in Sirisia, Nalondo stadium at Kabuchai, Rai paper stadium at Webuye, Sudi Stadium at Nzoia and the high altitude center at Mt. Elgon. The County's blueprint envisions gradual expansion and modernization of the stadiums in the county into world class modern sports complexes.

Rashid and Sasidhar (2005) findings indicate that despite all the mechanisms placed in place by Kenya and the Ministry of Education to ensure learners are exposed to co-curricular facilities and encouraged to participate, there are cases where in schools more emphasis and focus is accorded to curriculum resulting to the inability of students to harness both their academic and co-curricular excellences. Mahlmann, Asembo and Korir (1994) and Republic of Kenya 2017 report show that teachers in Bungoma county did not permit their learners to actively participate in sports and used games time for remedial lessons, cleaning and assigned learners academic work contrary to the Ministry of Education's directive for teachers to allow every child to be involved in sports.

The report of Republic of Kenya (2017) notes that despite the fact that Bungoma County has high net enrolment rates (95.6 percent) in primary schools, there are low incentives to retain learners in school which resulted to over 3.75% children in primary schools dropping out of school. Gitonga (1998), observes that sporting is one of the measures that create learners' connectedness to their respective schools and a tool to retain them in school. The Republic of Kenya (2017) report recommends the government to expand opportunities for more children to attend school and provide

adequate incentives like sport activities and sporting facilities to enable proper learning.

Learners' involvement in sports within public primary educational system of Bungoma County is an area that has not been uniformly enforced across all schools. The study examined the rationale behind the exclusion of academically marginal students from being involved or participating in sports and other co-curricular activities in learning institutions. The MOE through the department of Quality and Assurance Office (QUASO), a body that administers co-curricular activities in schools in Kenya points out the value of sports to learners as a tool to develop their physique, character, source of relaxation and encourage competitiveness among themselves. The efforts to have learners participate in sports by policy formulators are in place but the disparity lies on the regard of stakeholders in education and implementers giving it deserved priority or more focus is on academic excellence (Rashid & Sasidhar, 2005).

Olwalo (2014) notes that some students, teachers and parents believe that once learners enter examination class, they should be exempted from participating in sports. This is a misguided attitude because sports done in moderation do not contribute to poor performance but instead it enriches the learning environment (Marsh and Kleitman, 2002). This has been attested by some principals from excelling schools in national examination. When 2006 KCSE results were released, an article in the Daily Nation newspaper, titled "School Heads on Their Secret of Success" quoted the principal of Alliance Boys in Kenya that "I do not advocate in confining students to classrooms for a long time during this stage in their lives, our boys need to grow both mentally and physically" (Ngare, 2007). This means that students in such a performing school are involved in co-curricular activities to motivate them.

In 2017, Bungoma County had a total of 759 public primary schools with a population of 353,417 where 49.6% were boys and 50.4% girls (The Republic of Kenya 2017-2018 report). The schools in the County post mixed academic excellences; there are pupils that post high scores in national examination as well as pupils posting below average grades yet these schools embrace sports accordingly and offer opportunities across board but with different regard and at different levels. The Republic of Kenya 2013-2022 report note that after realization that academic performance in national examination was plummeting, Bungoma county formed a task force to mitigate academic decline in the county and the taskforce recommended the county to invest in youth and sports with objective of fully tapping potential talents, promoting good health, realizing personal discipline in the youth populace and fostering leadership and team skills. It is on this background that this study seeks to assess role of sports involvement on the academic performances by learners in public primary schools in Bungoma County, Kenya.

1.2 Statement of the Problem

Societies inherently strive to nurture their young people to produce holistic and responsible citizens for their continuity; the process is multidimensional with involvement in sports and undertaking of formal education serving as one of the medium to impart skills and knowledge to youngsters (Luvizu, 2022). The content of primary school education and resulting learners' interactions with school community is a key foundation in development of life skills ranging from critical thinking, problem solving, social interactions outside family setups and acquisition of essential knowledge that learners use long after they leave formal primary school. Erin and Russel (2012) argue that learners' academic performance remains the key goal of schools and other activities in schools like sports can only be wholly embraced if they

add value to core objective of academic performance. Previous studies' findings indicate non conclusive evidence on relationship between academic performance and involvement in sports.

Some studies show that involvement in sports leads to; enhanced health, building sense of belongings, pride and preparation of learners for future elitist sporting. Mugweru (2022), Zhang (2008) and, Kipchumba and Chepyator (2015) argue that learners' participation in sport activities enhance their development physically, intellectually, socially and emotionally hence learners are enabled to embrace multi-culturist, nurture talents and positive attitude towards healthy living. Kirui et al (2008), Ongonga et al. (2010), Zhao (2019) and Huang et al (2022) also point out that sports create a physically active and healthier population, leading to improved productivity in the nation. Further, Taliaferro et al (2013) note that learners involved in physical activities excel also in their academics.

Other findings point to possible negative relationship between sports involvement and academic performance; where individuals involved in sports were likely not to perform well academically and indulge in activities not accepted in the society. O'Neil et al (2017) and Hicks (2018) cite isolated cases where learners participating in sports end up posting poor academic grades, abusing drugs and drinking alcohol so as to mitigate the emotional stress arising from peer pressure.

This led to some stakeholders putting more focus on academic performance. Erin and Russel (2012) argue that focus on learners' classroom performance had resulted in decreased opportunities for learners to undertake physical activities and active sports. In Kenya, Rashid and Sasidhar (2005) and KICD report (2009) note that the primary school curriculum places much focus on passing of examination as opposed to use of

skills and knowledge acquisition. Njeri (2013) and Olwalo (2014), argue also that some stakeholders like teachers and parents discourage learners from participating in sports and instead encourage them to utilize their time well in books for good grades. This deviates from the envisioned nurturing of a holistic talents of the young citizens at school setting as emphasis is on excelling in academics.

Russel (2012) cautions on overreliance on the findings that sports improve classroom performance of students, pointing of possible consequences arising from cases where learners who were involved in sports post poor classroom performance. The contradicting findings on the relationship between learners' participation in sports and their respective academic performance, Creates the need to investigate the relationship between involvement in sports on academic performance in primary schools in Bungoma County.

1.3 Purpose of the Study

The main purpose of this research study is to evaluate the relationship between sports involvement on the academic performance for learners in the public primary schools based in Bungoma County.

1.4 Objectives of the Research Study

The specific objectives of this study were:

- i. Find out the learners' level of sports involvement in the public primary schools.
- ii. To assess learners' perception of the relationship between sports involvement and academic performance in public primary schools.
- iii. To evaluate teachers' perception of the relationship between sports involvement and academic performance for learners in public primary schools.

- iv. To establish academic scores of learners who are involved in sports in public primary schools.
- v. To investigate the relationships between levels of involvement in sports and academic performance for learners in public primary schools.

1.5 Research Hypothesis

The hypothesis which was tested in this research study was:

There is no significant relationships between levels of involvement in sports competition and the academic performance for learners in public primary schools in Bungoma County.

1.6 Significance of the Research Study

This study focused on the role of sports involvements on learners' academic performance. It anticipated that the findings and recommendations from this research would indeed go a long way in ensuring that there was generation of the much-needed information which can eventually be used by numerous stakeholders in the education sector in improving on the quality status of educational standards and holistic development of school children in the county. Through this research study; it is anticipated that the assessment results from it could be the guideposts which would help both teachers as well as pupils to effectively identify the relevant areas of their strengths as well as weaknesses and thus make necessary or viable adjustments in involvement in the sports competitions. These findings would also be helpful to curriculum planners, parents, educators and the school administrators as they strive in ensuring that there is provision of empirical data regarding the importance of sports upon which to base their future judgments, decisions and making policies on using facilities and equipment used in sports competitions. The study will help learners to relate excellent performance in academics to participation in sports competitions. The

study will help parents, educational managers and administrators to recognize and appreciate the role that sports involvements play on academic performance. In so doing, various aspects related to the involvement in sports competitions that would have been overlooked that contributes to academic performance will be addressed by the stakeholders' thus holistic development of pupils.

1.7 Justification of the Research Study

This study evaluated roles of sports involvement on academic performance among learners in public primary schools. The intention was to find out the mutual role the two aspects play to each other. The study acknowledges the new developments in education particularly in Kenya where the Competency Based Curriculum (CBC) has taken the center role to identify and nurture learners' talents. Sports form one of the crucial employers in labor market and contribute sufficiently to the National GDP.

From the study, if there is a strong role played by sports involvement on academic performance then the implication towards the education sector practitioners is that there was need to ensure heavy investments in facilities as well as equipment. This will help promotion of sports involvement thus resulting to better academic scores, addressing cases of indiscipline, access and reducing truancy in schools and learning institutions. The data collected and analyzed, is essential to planners, decision makers and developers in recognizing the role of sports involvement play in academic performance and the levels of mix.

The literature review clearly brought out numerous benefits of involvement in sports competition, yet in Bungoma County few learners participate in sports competition compared to the recreational sports activities and this was because of lack of essential facilities, role models, equipment and even financial resources. Few learners who

reached National level of competitions from these schools were usually involved in numerous individual events such as athletics that required minimal or less infrastructure as well as coaching. Furthermore, the academic performance of these learners is fair for some competitors post scores above 300 out of the possible 500, therefore participation in sports competition do not hinder academic performance of learners instead it promotes learning so the fallacy that sports competition compromises academic performance should be removed.

1.8 The Scope of the Study

The research study focused on roles of sports involvement on the academic performance for learners in Public primary schools in Bungoma County. The study addressed the level of learner's involvement in sports competition, the perception of learners and teachers towards involvement in sports competition establish the academic scores of learners who are involved in sports competition and investigate the relationship between levels of involvement in sports competition and in the academic performance for learners in public primary schools based in Bungoma County. The study was conducted between the years January 2017 to the year December 2019.

This county was selected because of the researcher's interest to contribute towards the improvement in the participation in sports activities which according to various findings, was lagging behind other counties in Kenya, as per the document analysis done 2018 county KCPE mean score was at 232.85 and 2019 was at 237.74 out of the possible 500. This research study was conducted in public primary schools only because they guided by a common routine, which contributes to homogeneity of the study. Fifty-four schools out of 163 schools in three sub counties in Bungoma County were involved in the study. The scope in terms of pupil respondents was competitors

from classes 6, 7 and 8, a total of 208 pupils who participated in sports competition were selected, it was assumed that competitors from these classes had fully developed sports related characteristics; in term of other respondent 78 class teachers and 21 head teachers were used. The questionnaires, the interview schedules, the document analysis guide, and focused group schedules were ultimately used in data collection.

1.9 Limitations of the Research Study

The study was confined to the selected schools among many schools in the county. At the same time, only a representative sample of learners and head teachers were involved, therefore the researcher used a large sample for proper representation. It was costly typing, printing and distributing the questionnaire. Therefore, the researcher used cheaper alternatives in printing questionnaires and distribution of the same and controlled all intervening variables that could have influenced the outcome of the results

Respondents might not give genuine information and might be biased in some areas to suit their interests. Therefore the researcher worked on this by, assuring confidentiality for respondents.

1.10 Assumptions of the Research Study

This research study was highly based on the following assumptions-

1. That all learners were given equal chances to participate in sports competitions.
2. All games time was used for sports and learners are trained in sports for competitions.
3. The respondents were willing to participate or engage in the research study.

1.11 Theoretical Frameworks

The theoretical foundation of this study was Involvement Theory whose proponent is Astin (1999). The theory is known to define the quantity of the physical, mental and even emotional energy which students dedicated to any educational programs. The basic principle of Astin's involvement theory is known to stipulate that the educational experiences ought to be duly given consideration in a broader sense which encompassed both the classroom learnings for the academic performances and even the out-of-class experiences for the physical as well as psychological developments. This Theory presents a theoretical basis for investigating of student involvement in educational experiences. The active involvement in academic as well as other co-curricular actions or activities and especially sports were highly related or linked to student learning and both their physical and mental developments. Astin (1999) demonstrated that Involvement Theory was predicted on 5 basic assumptions: i) involvement implies the investment of physical and even psychological energies in various objects; ii) It happens along a given continuum; iii) It has both the quantitative as well as qualitative characteristics; iv) The total amount of student learning as well as personal developments linked with any educational programs was directly proportional to the total quality and quantity of student or learner involvements in such programs; and v) that the success of any educational policies or practices was directly related towards the capacity of such policies or practices to increase the involvement of students.

The theory presents a clear model for the presentation of student involvement in co-curricular activities, and this is through placing of emphasis on the various concepts of both commitment and time taken engaging in such activities. Commitment on the other hand implies to qualitative or content components of involvement, and time on

the other hand refers to quantitative components. Both the quality and quantity involvements are important as involvement as major or main factors in ensuring students are kept in school. This showed that indeed, students needed enough time to ensure they actively participated in various sports activities in school. Learning and developments are primarily the main factors of the degree of effort and energy that is committed by students or learners to given learning experiences. In his views, it was noted that involvement was indeed an active concept which required students to invest both their time and energy. Astin (1999) stated that learners were mostly interested in securing existential benefits of their school experiences, meaning that, among other essential things, the subjective satisfactions that were associated with the co-curricular and even academic involvement, and recreational activities in schools. Students that participated in sports and even other essential co-curricular activities were likely to become satisfied with the school life and hence promote academic performance. The premise supports the importance and significance of sports and co-curricular activities involvement in schools in aiding students develop not only physically but also psychologically.

According to Astin's theory of 1999 serves as a better connector between pedagogy and student outcomes through providing links between variables emphasized in such theories as well as learning outcomes desired by students and their respective teachers. It stated that any kind of program, whether it is academic or even co-curricular, should aim at motivating students to commit both their time and effort towards it. Such programs which motivated students or learners in making such commitments were deemed as being the most successful ones. The major emphasis was on the student and their reactions to such programs, rather than just emphasizing on the program itself. It was noted that even well-funded, modern, sophisticated, and

even co-curricular programs will only be capable of meeting its stated objectives or goals if students are motivated towards committing their times and efforts where necessary for success. His Theory further suggested that students needed to be both active as well as committed participants during learning processes to achieve high grades. This can only be achieved through their active participations in the co-curricular activities and especially sports for there were indeed far many numerous benefits in participating in sporting activities, thus, this research study sought to finding out the roles of sports involvement towards academic performance for learners in public primary schools in Bungoma county.

1.12 Conceptual Framework

The main yardstick used in measuring of academic performance in Kenya are examinations and grades (Kipchumba & Chepyator, 2015). This does not cater for all individual differences and abilities because academic performance should entail both formal performance through academic work and non-formal performance through sporting activities like resilience, teamwork, social and emotional actualization among others for optimum growth. Then academic performance shows a function of how academic sessions should be balanced with the sports sessions. On the other hand, involvement in sports is guided by the perception of both the learners and the teachers, the motivational levels of the learners and the teachers and the availability of the facilities to be used in sports. If these factors are encouraging then participation will be high, and then encouraged the participants to extend the same to learning in classroom situation. This study sought to establish what goes in schools with regard to the learners' involvement in sports competition and the bearing it had on academic performance.

Key words are the relationship, learners' involvement in sports competitions and academic performance. The researcher conceptualized in the study is that active involvement in sports competitions could enrich learning environment and influences learning as passive involvement limits the learners experience and disadvantages them thus affect their academic performance negatively. Therefore, the researcher made attempts to establish how interactions of indulgent or involvement in sports competitions may impact the academic performance as depicted in figure 1 below-

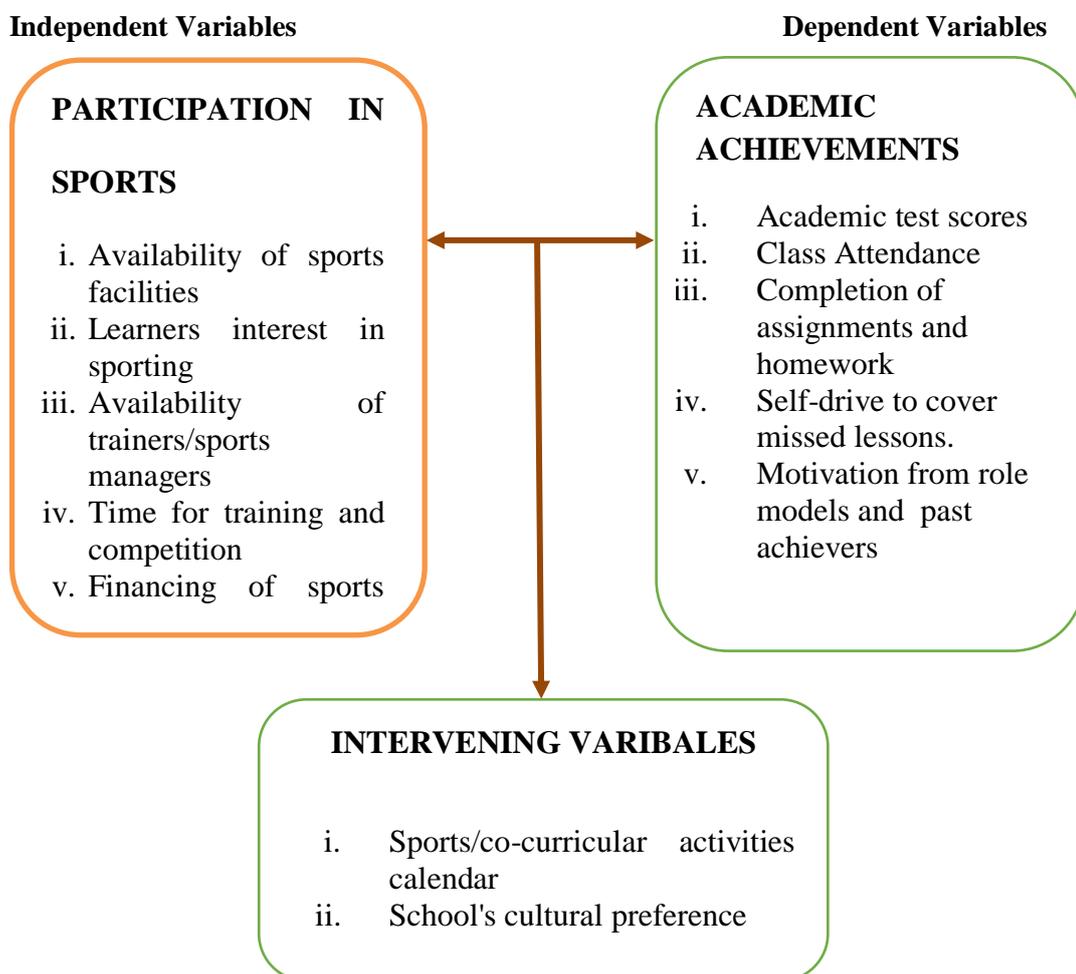


Figure 1: Conceptual Frameworks between Variables

Source: Researcher 2019

As shown in **Fig. 1**, the independent variables are perception of both teachers and learners on sports activities, both intrinsic and extrinsic motivation to the learners (qualitative component of involvement), the availability of sports facilities which dictates the kind of sports that learners will engage in. Also funding of sports competition enables learners to access good training facilities, good trainers and proceeds to the next levels. The dependent variable is academic performance that was measured by analyzing learners' academic scores, Class Attendance, Completion of assignments and homework, Self-drive to cover missed lessons and Motivation from role models and past achievers.

If there is a healthy interaction between the factors that fosters participation in sports competitions, then academic performance should be good and vice versa. To control intervening variables only participants of different sports were used in the study and participants were drawn from public primary schools only, the study was directed by the national sports school calendar.

1.13 Operational Definition of Terms

Academic Performance: Academic refers to learning from books and study, while,

Performance refers to the standard to which someone does something successfully especially using own efforts and skill.

In this study academic performance is indicated by scores marked out of the total mean of academic scores.

Cognition:

In this study Cognition refers to how efficiently learners solved problems, knew about themselves and their behavior, had knowledge, opinion or beliefs about their environment, self and others.

- Competition:** Refers to the willingness to oppose and involve determined by rivalry in the contest to win over others. In the study it refers to formalized physical activities where learners compete in an organized sports program or event.
- Involvement:** Refers to the condition of participating in something. In the study it refers to participating in organized sports program or event.
- Learners:** Refers to pupils and students in educational institution. In the study it referred to learners in public primary schools.
- Learning:** In this study learning is a relatively permanent change in behavior brought about by experience through both formal and informal set up.
- Participation:** This is the act of taking part in an activity or event. In the study participation dwells only on involvement in sports where learners compete and emerge the best.
- Perception:** This is the way a thing or phenomenon is seen, interpreted or understood by somebody or a person from their viewpoint. In this study it refers to the way at which teachers and learners view sports competition and academic performance
- Public Primary School:** In this study it is the learning institutions funded by the government and managed through board of management and parent teacher associations.
- Role:** Refers to a function assumed or part played by a person or a thing in a particular situation. In this study 'role' is the effect that sports have on academics.

Sports: This referred to all forms of physical or mental activity which through training activities, through casual or organized participation, aims at expressing or improving physical and mental well-being, forming social relationships or obtaining results in competition at all levels.

1.14 Chapter Summary

The chapter looked at the background of the study, statement of the research problem; purpose of the study, objectives of the study, research hypothesis, significance of the study, justification of the study, the scope and limitation of the study, Assumption of the study, theoretical framework, conceptual framework, operational definition of terms and the abbreviations. Chapter two deals with literature review and the related studies while Chapter Three looks at the research methodology whereby it describes the study area, the population sample, sampling procedures, research instruments, procedures for data collection and analysis. Chapter Four entails data analysis, presentation and interpretation in relation to the objectives of the study and finally Chapter Five looks at the summary of the findings, conclusions and recommendations according to the objectives of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter discusses the literature review on related studies on the role of sports competitions on academic performance for learners in public primary schools in Kenya and outside Kenya.

2.1 Developments of Sports in Kenya

Kipchumba and Chepyator (2015) argue that sports are fundamental to wellness and prosperity of a nation. Sports are vital to the holistic development of young people through fostering their physical, social and emotional health and resultant benefits stretch beyond the impact on physical well-being hence the value of the educational benefits of sports should not be underestimated (Zhang, 2008). However, a generation of unmotivated, overweight, inactive, delinquents and technological couch individuals is in the offing lest participation in sports is not only in place but is seen to be functional in primary schools.

Sports in Kenya dates as early as pre-colonial regime where the natives were actively involved in traditional sports that formed part of their distinct identities and assimilation of ideas and skills to young generations through activities like dancing, wrestling challenges, hunting expeditions and traditional archery, all that varied from one community to another (Kipchumba & Chepyator, 2015). Initially, the sporting activities were concentrated in the disciplined forces facilities, missionary-run schools followed with development of running tracks passing through the pasture lands in the country and colonial district officers organized regional athletics' competitions with neighboring countries (Republic of Kenya, 2003).

By the time Kenya gained independence, it had sent some participants to represent the country in athletics and boxing at both Olympics games and commonwealth games (Gitao, 2008). Teachers were trained in pre-service courses and physical education in the public teachers training and other private colleges spread across the country. Kenyatta University offered bachelor of education degree in physical education but was scaled down in the late 1990s owing to freeze in employment of teachers (Omoke, 2009). Mahlmann et al., (1994) notes that in 1925, Kenya introduced sports in schools which led to formulation of the teaching syllabus where sports were to be delivered under physical training lessons in schools. Kipchumba and Chepyator (2015) note that sports in schools' setups were initially used by administrators to instill order and discipline in learners with competitions in athletics and football to be among the first to be organized professionally in schools.

Singh (2017) argued that incorporation of physical training in education systems had roots in international recognition of child's human rights where every child had a right to participate in recreational and non-scholastic activities fulfilling same agenda as child's rights to education. In 1978 UNESCO's 1978 charter on 'International Charter of physical education and Sports' recognized physical activities as one of the basic rights to every person since physical activities contribute towards development of individuals' personalities, qualifying sporting as not only a necessity but an entitlement as well.

In 1990s, a trend across developed countries prompted introduction of national assessments for learners and developing of required standards expected of the education objectives and subsequent measurements. The critiques following the introduction of these standards and national assessment procedures led to gradual enhancements leading to, among others, inclusion of sporting in education

institutions. Some head teachers from Bungoma County concur that Kenya recognizes the importance of sports on learners and the country at large going by the support that had been placed in place from before and after independence (Republic of Kenya, 2013-2022). From FGDs, it was observed that in period between (1960-late 1980s) there were very serious inter-class competitions, to them, “what we see now is a recent development where people have become fever pitch with examinations’ performance”.

The Integrated Development Plan 2018 –2022 for Bungoma County (2018) confirms that the County Government of Bungoma has a high-altitude training Centre in Mt. Elgon and the Centre aims at giving high quality athletics training opportunities to young talents in the region.

In Kenya, sports in public primary schools are governed by ‘Kenya Primary Schools Sports Association’ (KPSSA) while ‘Kenya Secondary Schools Sports Association’ (KSSA) governs sports in secondary schools. Also, the government has initiated several organizations following the failure of physical education in schools such as the 1987 ‘Mathare Youth Sports Association’. Similarly, the Non-Governmental Organization and multilateral groups have established youth sports programs in urban informal settlements with high population of children so as to grant them opportunities to sporting competitions to achieve the objectives of access to education and impartation of skills to uplift their lives (Luvizu, 2022)

2.2 Factors that Influence Learners’ Participation in Sports competitions

Dahl (2013) notes that advent of competitive sporting led to realization of several factors that improve individuals’ performance ranging from genetics, emotions, environment and nutrition among others. Pettai (2019) discusses factors that influence

learners' involvement in sports as; motivational and socio-economic factors, environmental psychological and favorable physiological characteristics arising from individual participants' genetics that presents one participant advantage over others.

2.2.1 Motivational and Socio-Economic Factors

Motivation is a premise on which efforts are built and unleashed towards influencing behavior hence, a key factor establishing predisposition to a specific sport and chances of excelling in the same (Kucukibis, 2019). McCombs and Whisler (2017) observes that aspects that influence individuals' participation in sports as motivational and affective influence; individual and environmental differences surrounding where individuals are socialized, their cultural preferences and levels of interpersonal interactions with other individuals.

Gitao (2008) notes that material incentives chart disposition in professional sports as some participants opt for sporting as an escape route from desperate poverty giving an example that; when you are poor, you will stay poor unless you run justifying that 90% of Kenyan athletes competing in international arena are from humble backgrounds but they are motivated to participate in athletics to better their living standards. Entine (2000) argues that poverty is not necessarily the driver to individuals' participation in sports but attributes excelling in sports to a person's ambitions, creativity and intelligence matched with the serendipity of life that makes sports so fascinating.

The Ministry of Education, Science and Technology in Kenya directs participation in sports by providing a national sports calendar for all public educational institutions. Further, the Ministry of Education directs all the head teachers to be aware of all policies that guide the management of curriculum which includes co-curricular

activities integrated into school programs, (MOE 2002; 26) also in MOE (2013) offers directions to the institutions offering basic education at County levels on conducting co-curricular activities in schools, sports education and nurturing and harnessing holistic learners' talents. Despite this, there exists a notion that participating in competitive sports negatively influence academic performance. Chege and Njeri (2013) and MoE (1992) note that more emphasis in learning institutions is given to the formal curriculum and further argue that prevalence of negative attitudes towards learners' involvement in co-curricular activities in schools negates the international, national and MoEs objectives on inclusion of sporting to academic calendars. Both teachers and parents discourage learners from participating in sports and encourage them to utilize their time well in books for good grades (Olwalo, 2014); this is confirmed by the researcher as what is experienced in schools where involvement in sports competitions is at its lowest even in some schools it is not embraced at all. Thus, this study sought to find out if motivational factors influence learners' predisposition to be involved in sports competition in public primary schools in Bungoma County.

2.2.2 Environmental Factors

Dahl (2013) observes that playing and team environments directly contributes to excellence in performing given sport. Participants' access to facilities, wellbeing and respect from the social sense of belongingness prompts learners' skill improvements and performance in sporting activities (Kucukibis, 2019). O'Neil et al (2017) note that environment affects learners participating in sports and their subsequent academics in two ways; negatively, sporting can lead learners participating in it in social ills like drinking alcohol and drug abuse, severe sibling rivalry where parents tend to give more time to siblings participating in sports, bullying from parents of their

competitors in sports and stereotyping by people they interact with in class as learners participating in sporting as inattentive in class. The environmental factors include:

2.2.2.1 Facilities and Sports Equipment

Competing in sports has a potential of developing the intellect of a student, it provides a practical hands-on approach to the student experiences they will face in the outside world and also it caters for the learners' holistic development in entire personality, prompting manifestation of learners' latent powers regarding their individual temperament, complement learners class work and harness both social and learners' civic senses (Schaben and Stephen, 2002). Arising from this perspective, the government decisively put in place efforts towards improving sporting facilities in schools and facilitation of sporting activities through free education, MOE (2015) and also ensuring that teachers are trained in different sports skills. Therefore, there ought to be satisfactory arrangements for INSET of teachers, availability and provision of sports facilities and equipment. It is evident that the schools in the country cannot allow participation in all sports, and that harmonization of different structures right from administration to infrastructure is not up to date. In situations like these, the schools can be grouped according to availability of facilities hoping that the schools involved will be many (Anyango, 2012). Though many schools lack basic facilities such as adequate fields for all game balls, have no sufficient balls to cater for individuals and nets then it proves hard to practice in sports. In addition, some of the available equipment are sub-standard and non-standard which can be dangerous to participants.

Kenyan government recognizes benefits of sporting for both recreational and competition purposes (Republic of Kenya, 2003). Gitonga (2003) argues that the pace of development of sporting in the country had been curtailed arising from shortage of

sporting facilities across the learning institutions and where sporting infrastructures are in place, they are not properly managed as required. Gitonga (2003) envisages mitigation and fostering of prosperity in sporting through improving management of current sporting facilities, formulating and updating sporting policies to reflect inclusion of all persons including; individuals enabled differently, vulnerable groups, gender and marginalized people's participation in sporting and strategize ways of developing more facilities and funding sporting initiatives.

Hardman and Marshall (2006) assert that financial constraints have curtailed provisions of uniform and adequate sporting facilities in all learning institutions catering for both indoor and outdoor activities and employment of more teachers to ensure that all learners have access to facilities and trainers in sports that learners are interested and possess the potential to undertake specific sport. Furthermore, inadequate funding to schools leads teachers to fail to manage sporting facilities in their respective schools and also to develop new sporting infrastructure and procure required sporting materials so as to tap broad talents in learners. Pettai (2019) avers that in Estonia, the major obstacles to having learning institutions put in place adequate and quality sporting infrastructure for learners is the financial resources where sporting equipment and construction materials for sporting infrastructure are expensive.

Though Kenya as a country pays for every child in public primary school a statutory fee to a vote head called activity fee that is expected to develop sports talent in learners, due to low status of sports and veto of head teachers to enact the distribution of school monies through school committee that is less "ignorant" of the importance of participating in sports to academic performance. The status of sports funding in public primary schools is at its lowest because of this (MOE, 2015).

Whilst it could be reasonably argued that there is higher expectation over levels and standards on facilities in developed countries but Hardman and Marshall (2006) comments that the level of sports provision in many English and Welsh schools is grossly inadequate and those playing fields suffer from low levels of maintenance.

The 2005 Kenya Secondary Schools Association (KSSA) Report, identifies inadequate infrastructure, shortage of teachers as some of constrains facing sports at various levels. Larissa (2019) contend that it is the kind of resources available, which have great implications on what goes on in schools today. They note that resources materials and facilities used need not only be available but also be in right quantities. Therefore, learners are limited in the sporting activities they involve in, should this be the limiting factor to involvement in sports competitions in schools?

2.2.2.2 Adequate Training Sessions

Training is very important in enhancing sports performance. Even if a person has the right muscle type, the right diet, right motivation and the right environment without training they would not achieve much. Training prepares the body to tolerate the changes that occur during exercise that they do not cause premature fatigue and it improves body system so that more intense levels of exercise can be performed at reduced levels of stress. Adaptation of the body that follow general training include large and stronger heart, increased stroke volume and cardiac output, growth of more blood vessels in and around muscles, improved ability of blood to transport oxygen and improved ability of the body to recruit more muscle cells, to produce more muscle cells and to produce more strength when necessary (Davis et al, 2007).

Figure 2 below shows that the amount of fat and muscle tissue in a body is affected by the nutrition program and the level of exercise. Similarly, the ability to exercise is affected by the body composition. These three vital components of success are closely inter-related and all have an effect on performance. Changes either positive or negative on any one of the three affect the other.

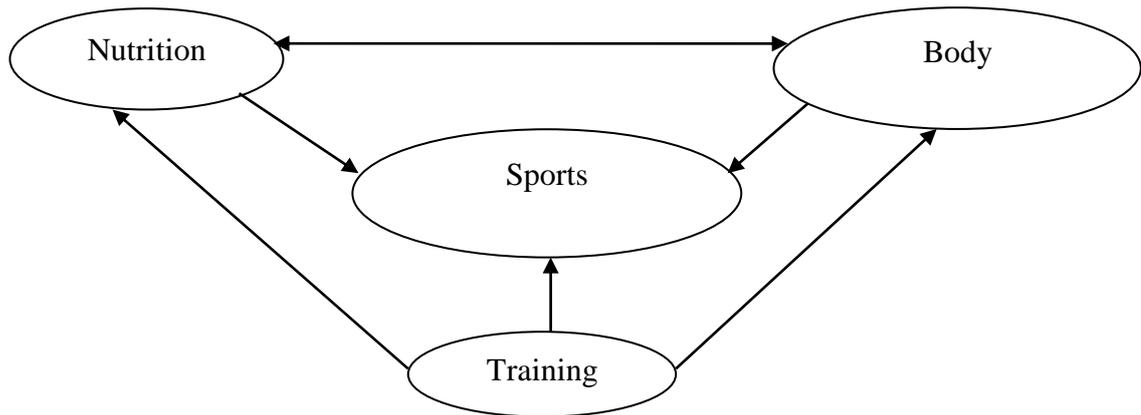


Figure 2: The Relationship Between Nutrition, Body Composition and Training

Source: Physiology of Sports Participation by Davis et al, 2007

The study found that, if learners put aside sufficient time for practicing and learning new skills in sports they do it in the best way possible, however in Kenyan primary schools the only time provided for sports are the two breaks, lunch time and games time which could have been enough but this is the time when learners clean classes, finish teachers work and teachers use for remedial, also the curriculum calendar is packed that leaves no time for practice of sports in ambitions of mean scores (Mahlmann et al., 1994). One is bound to ask if the education stakeholders help learners to link excellence in academics to involvement in sports competitions.

2.2.2.3 Culture and the Influence of Significant People in sports in the Life of a Learner

McCombs and Whisler (2017) notes that culture and people that the child interact with determines the likelihood of their participation in sporting activities and subsequent excellence. Miller et al (2005) argue that a learner interacts with teachers all the days of their school days and teachers determine the learner's way of life. Most teachers in primary schools are often incompetently prepared to train sports. Russell, Peter, Donald, and Robert (2000) puts it that teachers, like the artist, can only perform their work adequately if they feel to be directed by an inner creative impulse but not dominated and fettered by an outside authority. Bulinda (2017) note the its difficult to get such teachers in Kenya owing to challenges of routine, work overload, broad range of educational goals and expectation in academia world coupled with the ambivalence of youth towards the value of sports. Anyango (2012) cites that there is a higher demand on the time of teachers and those committed to sports often feel exhausted and burned out and others feel isolated on absence of official support. The study set to find out if this is also experienced in Bungoma County.

Lei, Cui and chiu (2018)advocates for teacher-support programs which depend on whether they will be working in isolation or exchanging ideas, support and positive feeling about their work. Kirui et.al. (2008) and Miller et al (2005) propose teachers to put in place transformative oriented programs in sports that focus on personal and social change in student as learners should be transformed through interaction with teachers. Coakley and Dunning (2000) argues that teachers need monetary, time, material, human, peer and agent (QUASO, Head Teacher, Curriculum Support Officers (CSO) and board of management support. The County Government of Bungoma (2018) report asserts that there is low involvement of primary school pupils

in sporting activities and attributes the trend to some parents who are against their children participating in sports and recommends involvement of education stakeholders to sensitize learners and allow them participate in sports competitions.

According to Broh (2002), lifestyle habits practiced by learners pose significant consequences in learner's lives, therefore it is paramount for teachers and general stakeholders to create an environment where learners are provided with decision making opportunities regarding their individual lifestyle choices to enable them develop into responsible citizens. It is the patriotic duty of the sports teacher in primary schools to educate their learners about the importance of engaging in regular physical activities, encourage them to select sports for lifelong participation and enjoyment, provide challenging opportunities to develop strength of character and respect for the environment to foster positive socialization in order to cultivate their holistic development and nurture them into upstanding citizens of the country (Bulinda, 2017).

There is unclear understanding of sports where most teachers lack knowledge and skills, inadequacy of relevant infrastructure, school administration, management not willing to support and teachers, parents plus learners' attitude towards participation in sports competitions is not positive, in the long run learners are being shortchanged (Kirui et. al., 2008). Thus the study sought to find out if the culture and influence of significant people in a pupil life motivates them into participation in sports competitions, is there anyone who they would emulate, are they encouraged to participate in sports competitions?

2.3 Benefits of Involvement in Sports competitions

A physical active population is a healthier population, improved productivity of its workforce and increasing the economic output; sports provide one of the most cost effective forms of preventive medicine, with the potential to dramatically cut health care costs (UN, 2003). The National Education Association of American quotes Coakley and Dunning (2000) that: the great thought of sports and physical education is not the education of the physical nature but the relation of the physical training to complete education and then the effects to make the physical contribute its full share to the life of the individuals. The benefits of learners taking part in sports competitions range from health benefits, emotional benefits, social benefits and cognitive benefits.

2.3.1 Health Benefits

Kirui et al (2008) observes that every generation has a name; there was the 'now' generation, the 'me' generation, the 'flower child' generation and now there is the 'o' generation where 'o' stands for 'obese' because of a high percentage of the population being obese due to lack of physical exercises and poor nutritional habits. McNamee (2005) observes that; schools are ideally placed to have the most significant impact on the physical activity and the future lifestyle decision made by children. According to a recent health report commissioned by the World Business Council for Sustainable Development (2006), up to 80% of the world's cases of the heart disease, 90% of type 2 diabetes and a third of cancer could be prevented through healthy diets and exercise. The World Business Council for Sustainable Development (2006) report, titled a healthy tomorrow, states that, worldwide-more than 2 million deaths every year are attributed to physical inactivity and 13% of global fatalities are caused by high blood pressure.

This observation gives credibility to the use of sporting activities as a therapy by health care providers. Kirui et al (2008) concurs with other studies that health benefits accrue to one from moderate participation, improved strength and endurance, healthier bones and muscles, weight control, reduced anxiety and increased self-esteem and often improved blood pressure and cholesterol levels. Sports are the major vehicle for improving the health and fitness of participants to achieve lifelong goals (Zhao, 2019).

Sports as seen through a Christian perspective has many elements to how God created each person definitely then it is important for individuals to know their body, the way it functions, how to take care of it (International Bible Society, 1984). Sports enrich learning environment for they offer opportunities to practice further what is learnt in classroom (Ongong'a, Okwara & Okello, 2010). Sports inculcate the sense of patriotism and national pride; they create awareness on matters of national interest and create awareness on the benefits of regular participation in sports for healthy living (Republic of Kenya report, 2013).

In Kenya, there is need of support from every discipline in the educational system to recognize the need for exercise so as to be able to swing the tide of this horrific epidemic seen on television programs where Kenyans compete in slim possible to lose weight and keep a healthy body. We learn that if one does not learn how to properly take care of his or her body and die from heart attack at the age of 40, what good are they; to their family, their profession and their society? Did the academic performance help much if this occurs? Thus the study intended to establish the role of sports involvement on academic performance in learners' life.

2.3.2 Sports and Social Development

Teaching of core skills during sports is essential for peaceful coexistence such as teamwork, leadership, discipline and the value of effort, it provide young people with a constructive activity that helps reduce levels of juvenile crime and anti-social behavior. Some of the adjectives that can be used in sports would be leadership, teamwork, physical wellness, stress relief, time management, social interaction and self-esteem, Blair et al (2003) reported that young overweight and out of shape children viewed their quality of life as low as those children who were dying from terminal illness.

Teamwork is also fostered through sports. Sports teach learners the importance of working together as a team towards a common goal. It is important at a time where even in the world of academic; corporate learning is being encouraged as opposed to individualized instruction (Republic of Kenya 2018). It fosters good sportsmanship and teamwork amongst the youth but in schools' learners get their own grades for their own benefit instead of others, therefore the government of Kenya intends to mainstream and integrate sports into main learning discipline under CBC (Republic of Kenya 2019). Larissa, (2019) argues that participating in sport and physical activity provides students with new opportunities to interact and engage with one another through which they promote strong friendships and contribute to making classrooms into positive space for learning.

Sports provide safety, navigate and negotiate between right and wrong as they interact (Taliaferro et.al, 2013). He found that youth who are highly involved in sports are more psychologically resilient and protect against social isolation. The research found that increased energy level and time outside of the classroom is both by-product of

playing sports, give relief from boredom and result in higher attention span during class time.

It appears among children and youth who are experiencing appropriate forms of leadership such as captain and have the potential of being leaders if they fully participate in sports (Omoke 2009). This is because participation in sports develops characters that need to be embedded in the fabric of education in order to assure the long-term value of education. Sports teaches learners to manage team emotions and improve team discipline(Ongonga et al., 2010) argue that being a sports person teaches learners important qualities of discipline which act as a self-boost in life; mental, physical and tactical discipline is acquired that enable learners accomplish their full potential and realize their goals. Motah (2019) notes that learners who engage in sports acquire virtues and positive attributes such as team work, self-discipline, increased self - esteem, hard work and determination. Sports also create a good platform for learners to get education scholarship to achieve their career goals. Thus, the study sought to find out if these social benefits are mirrored in learners in public schools in Bungoma who participate in sports competitions.

2.3.3 Sports Relieve Emotional Stress

Blair et al (2003) argues that sports are the best way to decrease emotional stress and distress occasioned by the many cares of life in school-overloaded curriculum, family expectations, lack of school fees, marital problems back home amongst others which leads to some learners resorting to use alcohol and other drugs to relieve emotional stress. Kirui et al (2008) cites that issues that pose a challenge to all sports teachers include discipline problems, student drug abuse, violence, insufficient resources, and lack of parental support for education, large classes and teachers' burnout. International Council of Sport Science and Physical Education (2001) notes that,

investment in sports will result in a significant reduction in juvenile delinquency, violence and social costs.

Bailey (2006) cites that, depressed people who participated in structured sporting activities for four months were more likely to report minimal or no depressive symptoms than comparative groups who either took medicine for depression or who used both medicine and exercise. Sports, from jogging to playing football, serves as exercise and exercise in turn serves as a stress reducer (Cheshire, 2007).

Bernstein (2010) observes that, Physical activities such as sports cause the brain to release neurotransmitters known as endorphins that create feelings of euphoria and reduce stress. Playing sports also raises your body temperature, which may exert calming emotional effects. One of the physical benefits of participating in sports is losing weight and gaining muscle that usually makes one look better. Ongonga et.al (2010) noted that playing sports can enhance child self-esteem and confidence which help them learn to welcome constructive criticism and work on their weakness till they see improvement or success. It helps them develop right mind-set, respecting authority decision and accepting failure. Larissa (2019) Integrating sport in education can also help to reduce levels of anxiety, stress and depression. Physically active students commonly have higher levels of confidence, self-esteem and self-worth. The study investigated if these emotional benefits got through sports have an impact on academic performance of learners in public primary schools Bungoma County.

2.4 Sports and Economy

The development of a positive disposition to physical activity and sports is an educational and lifelong process. Anyango (2012) notes that participation in sports is beneficial to both the individual and the country since it translates to reduction in the

cost of healthcare to treat lifestyle diseases and enhanced productivity levels of individuals who enjoy good physical health and great performance. The United Nations report (2003) notes that on the African continent, there was increased use of sports to foster development among the youth and spark positive social change has gained significant momentum in the African community in the past decade. Kipchumba and Chepyator (2015) argue that in 1970s and 1980s donors financed development of sports like athletics and crickets and these financing motivated growth in professional sporting and sporting as a mitigating response to unemployment.

Kipchumba and Chepyator (2015) note that in Kenya, various sporting activities are embraced as an avenue towards engaging and empowering youth; resulting to incidences where corporate organizations with known innate values in specific sports sponsoring sporting competitions as part of their corporate social responsibilities to the community and use such activities and opportunities to create awareness and sensitize the community on social issues affecting the society like HIV/AIDS, cancer screening, responsible utilization, management and conservation of natural resources, preaching peace in the community and general mobilization for funds to be channeled towards mitigation of a problem in the society. Republic of Kenya (2018) gives examples of annual Mater Heart run competition whereby the public fundraise funds that are later utilized towards meeting medical costs for children suffering from heart related health issues and Safaricom's Lewa marathon competitions where funds are fundraised towards conservation efforts of the wildlife.

Gitao (2008) notes that Kenya's sporting domination and presence of athletics training facilities have propelled the country into a sporting tourism destination which translates to profits for locals and the country. The country earns from the visas and

general expenditures by visiting athletes and their coaches in the country while locals access employment opportunities through provision of services and goods to visiting delegations. Kipchumba and Chepyator (2015) avers that sports like athletics have been packaged for corporate world consumption with major objective of drawing profits, not only for promoting agents but also local participants.

According to United Nation (2010) Office on Sport for Development and Peace report on Sport for Development and Peace International Working Group, sports in Nigeria has grown from a humble beginning as an entertainment and recreational past time for young people to a prominent phenomenon whose influence is felt in all facets of lives of the citizenry. Therefore, sport is a vehicle for social change among the youth for promoting positive social change among the youth with a view that the expansion of sport as a new engine that complements development assistance in being able to reach areas that traditional development agency has had difficulty reaching. The study sought to find out if these economic influences affect involvement in sports competition in public primary schools in Bungoma County.

2.5 Sports and Gender Parity and Environmental Awareness

It is an alternative platform for gender action. In co-educational institutions, girls are incorporated into the play as opposed to reducing them to spectators. In some sports like volleyball and soccer, it encourages parity and gender respect when learners play together. Gitonga (2003) notes that sporting may help manage and relieve stress in cases where girls tend to be shy, inhibited, and unwilling to discuss their problems openly hence vulnerable to indiscipline cases arising from bottled up frustrations, Sporting also enhances teamwork, resilience, cooperation and spirit of togetherness whereas inadequate sports lead to alternative energy release avenues like coupling and pregnancies leading to drop outs. Taliaferro et.al (2013) argue that sporting reduces

the risk in youth's suicidal cases and further observe that in comparison, males are less suicidal and have relatively low levels of hopelessness than the female, concluding that when female engage in sports there is notable improvement in their moods and this alleviates many forms of depression.

Given the support for the physical and psychological contributions of exercises along with the health risks associated with inactivity, it is clear that regular participation in sports plays a crucial and unique role in each child's cognitive, psychological and physical development, thus the study.

2.6 The Role of Sports competitions in Academic Performance

Academic performance is a process a child makes in school as measured by grades achieved. Larissa, (2019) observes that learners' involvement in sports fosters their educational outcome; this includes encouraging better academic performance, ensuring greater inclusivity and participation in the classroom, as well as improvements to student health and preparedness for the future. Coakley and Dunning (2000) show existence of a distinct relationship between academic performance and participation in sports in California's public schools' students. Learners achieve best when they are physically fit and to deliver on educational outcomes, sport and physical activities need to be intentionally designed and effectively implemented (Larissa, 2019).

Ongonga et al. (2010) argue that a student should be physically fit, emotionally healthy and study focused to perform well in their academics; thus, inclusion of sports activities in the curriculum can help learners to achieve in academics. Onywera, Muthuri, Hayker, Wachira, Kyallo, Mang'eni, Bukhala and Mirer (2016) aver that physically active individuals are likely to be attentive in class and perform well

academically therefore children and youth should be allowed and supported to be physically active for good health and long life.

Huang et al (2022) confirm the association between physical activity, cognitive performance and brain health with individuals who are involved in physical activities likely to enjoy enhanced cognitive function like memory, mastery of language, enhanced attention and judgment.

Their findings provide the following applications that could increase cognitive performance;

- Challenging motor tasks before the age of ten increase cognitive ability due to a heavier more dendrite-rich brain
- Aerobic exercises that improve cognitive functioning by increasing the number of capillaries serving the brain through delivery of more oxygen and glucose and removal of carbon dioxide
- Cross-lateral movements increase the communication ability between the brain's hemispheres.
- Sports reduce the production of stress chemicals that inhibit cognitive processing. Therefore, through these principles we can conclude that involvement in sports enhance academic performance.

Larissa, (2019) notes that sport and physical activity positively impacts academic performance as it encourages the enhancement of brain function and cognition through increasing blood flow to the brain; increasing levels of nor epinephrine and endorphins; and increasing growth factors that help create new nerve cells and support synaptic plasticity.

According to UNESCO (2003) school sport programs motivate children to enroll in and attend school therefore lowering absenteeism which in turn improves academic performance. According to Anyango (2012), participation in sports has been linked directly to higher academic performance for children under the age of 18. This is because both sports and academics require discipline, time commitment, motivation and a desire for success.

Additionally, UNESCO (2003) noted that participation in sports activities contributes to the acquisition of virtues that are considered healthy in any educational program such teamwork as well as increasing the confidence level of the students and hence leads to promoting school attendance. Participation in sports decreases dropout rate and give students an opportunity to build a positive attitude towards school. In schools, Physical Education is a key component to quality education and can be used to promote schooling among young people.

Bailey (2006) found that engagement in sports activities promotes academic performance of the participants and there is a relationship between participation in sports and academic performance. Similarly, in their studies Huang et al (2022) found that participation in both sports and physical activities enhanced the cognitive role in the brain. Bailey (2006) further established that males and females who participated in sports performed well in Mathematics, English as well as in science subjects. This shows that participants perform better due to their effort, hard work and discipline gained through sports participation.

Similarly, Khan (2018) studied the association between participation in sports and academic performance of college students. His study found that participation in sports improves students' grades, academic performance and raising their educational

aspirations as well as keeping them in colleges and schools. Moreover, their Grade Point Average (GPA) in class tests results improves and they acquire the ability to succeed academically as well as enhancing their academic mission of colleges.

Choi et al., (2014) suggested several reasons why sports may promote academic performance. One of those reasons was increased interest in school. The other included the need to maintain good grades to staying eligible. Finally, there is the increased attention from adults like teachers and coaches, and other students who are academically- oriented, and have expectations to join the school team. They observed that students' participation in extracurricular programs like sports serves two important functions for schools. The generation and reinforcement of educational goals through a network of social relations, serving to attach the student to the school and its norms, and the facilitation of achieving such goals by empowering students with personal resources, such as interpersonal skills and self-confidence.

Fuller, et al (2011) completed numerous longitudinal studies on sports involvement and learning experiences. They utilized the High School and Beyond (HSB) study (U.S. Department of Education), by looking at the influence of sports involvement on various educational programmers' and the academic results for male and female students. They reported that except for a few groups' sports involvement is not related to educational accomplishment. Additional findings from Hardman and Marshall, (2006) who conducted a longitudinal study of the HSB data supported, Fuller et al (2011) results. Hardman and Marshall, (2006) found that active involvement in sports activities in secondary schools had no positive influence on students' grades as well as test score in the overall student population. Conversely, other studies that have gathered information on more current longitudinal data have given evidence that involvement in sports promotes academic performance for instance, Miller et al(2005)

in their studies revealed a positive impact of sports and physical activities on education and also in the academic enhancement of its participants. They maintained that absorption and better academic outcomes are usually proportional to commitment and time spent in sports activities.

Other historical anecdotes of world most profound thinkers' augur with most research findings –as Socrates who stressed that poor health can contribute to grave mistakes in thinking. Comenius noted that intellectual progress is conditioned at every step by bodily vigor. Rousseau observed that an enfeebled body enervates the mind and included a rich program of sporting activities for Emile. Psychologist Jean Piaget found that a child's earliest learning is motor in nature and forms the foundation for subsequent learning, Dale (2012). A number of studies (Wamala 2019; Kitui 2015; Mukhaye 2018) show that once sports are introduced pupils' attendance increase, it acts as a magnet or can be a repellent, sports activities act as a gateway to drawing learners to school. For example, Dewey, Dale (2012) argues that sports reunite body, mind and spirit in order to fulfill the human potential. He states that idea of the well-trained and vigorous body will be maintained with that of well trained and vigorous mind as the two coequal halves of higher education for men and women alike. Choi (2014) believes that both sports and education can be mutually beneficial to enable students succeed in all aspect of their lives.

Zhao (2019) notes that whereas sporting in schools is geared to impart knowledge and skills to learners towards promotion of health and fitness activities since sports can be a source for relief to fatigue, therapy to body, mind and act as anti-depressant, the same can be a preparation of lifelong sporting skills. Learners who are actively involved in sports, are motivated, have access to success stories of other learners who

participated in similar sports and can likely opt to pursue same sports as their lifelong careers.

Similarly, learning through coaching, Bailey et al (2013), explains that teachers should teach, assess performance, structure the learning environment and provide social support. In research by Rashid and Sasidhar, (2005) in Malaysia, it was found that the participation of students in co-curricular activities was not up to mark, with only 56% of secondary schools' students involved in uninformed activities, which is the same case in our secondary school where secondary schools offers a very extensive co-curricular programs and all students are encouraged to participate.

For instance, well performing schools in National Examination to some degree acknowledge the place of sports when the 2006 KCSE result were released, an article (Daily Nation, March 1, 2007) by Ngare, titled schools' heads on their secret of success, school heads of some of the top performing schools in this country like Khaemba of Alliance boys' said students are also involved in sporting activities to motivate them. He quipped: "I do not advocate in confining students to classroom for long period of time. During this stage in their lives, our boys need to grow both mentally and physically". In the same article, Otula of Maseno School on receiving the results said that: "and as much as the school stresses on academic progress, extracurricular activities are also given emphasis". The article quoted Mugambi of Starehe Boys Centre saying the school concentrates on academic work, character formation and co-curricular activities. Mahlmann et al., (1994) note that Kamusinga High school is both an academic giant and learners of Kamusinga equally excels in co-curricular activities".

Gatobu patron of Drama and Music Club in Nkuene School in 2013 notes that students who are members of the club must show ability to balance their effort in academic work and co-curricular activities without comprising any. However, researches done in Kenyan primary schools, (Anyango, 2012 and Kirui et al, 2008) show the contrary since the opportunities are limited even though someone wonders whether the perception of individual pupils contributes to participation and in turn to academic performance.

Hicks (2018) cautions that sometimes learners participating in sports do not take their academics seriously arising from being stereotyped as being lazy in class by people in their lives, leading to these learners to give up on academics and display characteristics of being inattentive in class as pre-judged. O'Neil et al (2017) observe that learners participating in sports suffer from fatigue, limited time and catching up on missed class lessons so as to balance both sports and class performance.

The study recommends that more time should be allocated for sports, sports should be compulsory in schools, teachers should be trained to expertise in the field of sports and sports levels should be used as entry criteria to higher levels of education. Therefore, we should encourage the learner to strive for personal excellence; to progress through the school, they have a growing range of options to suit their interest and needs. Mang'u High School leads in extra-curricular activities such as drama, music and mainly sports; it strives to produce well-rounded gentlemen (Mahlmann et al., 1994). These sports are spread across the three terms of the school year which is a case in all Kenyan secondary schools. Therefore, it gave this study a bearing in the sense that the researcher wished to know whether the same situation existed in primary schools, and whether there existed a relationship and if not, what could be the cause.

The challenge that awaits this nation is to find a way to balance classroom experience and involvement in sports so that our educational goals can be realized. Huang et al (2022) liken physical activity to one's movement of the body resulting from skeletal muscles which increases consumption of energy in the process enhancing immune of the person undertaking the physical activity, increase of the metabolism, regulate internal brain environment and strengthen cardiovascular system. In line with sporting as a physical activity, the movements are well coordinated to match the laid down and measurable standards to gauge success and improved functioning of the brain of individuals involved in sports hence the maxim-reading, writing, arithmetic and running as physical activity boosts the brain function. Sports is fundamental to the early development of children and youth and skills learnt during sports contribute to the holistic development of young people, Republic Of Kenya (2019). Large volumes of empirical evidence show that, sports have positive benefits on education but does it inherently provide positive educational outcomes? Therefore, the study set out to find out if there is a role that sports play on academic performance.

Darling (2005) claims that several educational psychologists including Dewey, Stanley G. Hall and Edward Thorndike, supported the important role of children's play in a child's life is a child's ability to learn. However, Coakley and Dunning (2000) argued against this expanded role of sports arguing that it emphasizes the development of skills and the maintenance of the body.

According to Broh, (2002), American children were far less fit than their counterparts across the world. This study resulted to the president's council on physical fitness to establish a committee to help combat the failing fitness levels of America's youth. Internationally, Hardman and Marshall, (2006) affirm that sports have been pushed into a defensive position, suffering from decreased time available, budgetary

constraints and low status. The survey advocated for increased action-oriented partnership of all concerned organization and agencies to enable compliance with UNESCO's (1978) advocacy statement espousing the principle of sports as a fundamental human right. In Kenya, Task Force on Student Discipline and Unrest in Secondary Schools of 2000 MOE, (2001) reports that the causes of indiscipline and unrest include environmental hazards within both the school and its environs, which makes school unattractive to learners and hence making it difficult to retain and offer quality learning. This recommendation could easily be addressed through being involved in sports.

It further recommends that the MOE bans holiday, weekend and after school tuition for all primary and secondary schools because the MOE was contemplating using the performance of each student in both academic and co- curricular activities for placement. Chesire (2007) looked at the attitude of university students towards sports participation in the school of medicine (Moi University), the study only based its research on the medical and attitude point of view on participation and not on how participation influence academic performance, the study looked at the role of sports involvement on academic performance for learners in public primary schools.

Kidokoro et al. (2020) in their study in school of population health, cites that sports have positive impact on children's physical and mental health. Unfortunately, with increased pressure of academic success, this is pushed down, it appears that time spent in sports during the school day is diminishing. Vast majority of research indicate that replacing academic learning sessions with physical activity does not have a detrimental impact on school grades.

A research by Onyango (2012) found out that the more pupils participated in co-curricular activities, the more their academic performance deteriorated and recommended that schools should ensure that they monitor the involvement of the learners in academics and co-curricular activities to guard against doing one aspect at the expense of the other. Physical exercise and a combination of football drills make it easier for them to grasp content on complex and sensitive topics like sexual reproductive health among other topics thus can be adopted by other sectors to promote specific learning objectives, such as science, technology, engineering and mathematics, subjects that people presume can only be handled by genius students (Motah, 2019)

In a commentary by The Daily Nation of Saturday 7th March 2015, Waceke Nduati Omanga asserts that the real world is all about application and action, not just cramming, concluding that formal education glorifies studying, yet you only build valuable experience through applying the skills that you are good at. Ongonga et al, (2010) argues that sports are important in educational institutions in virtually all parts of the world on the other hand, research has shown that excessive and intensive training for sports can act as an obstacle to fulfilling educational and academic pursuits among learners. However, Motah (2019) quotes Nelson Mandela, who once said, sport has the power to change the world. When used effectively, sports do not only help us achieve Global Goal 4; Quality Education but also act as a powerful tool in achieving the other 16 SDGs. It has the power to transform and nurture talents, promotes team work and enhances togetherness. Thus, the study sought to find out if there is a role that sports involvement play to academic performance in learners in public primary schools in Bungoma County.

2.7 Related Literature Review

Kidokoro et al. (2020) Kenya is experiencing rapid life-style changes resulting in unhealthy eating habits and reduced physical activity. Hypokinetic and non-communicable conditions such as cardiac heart disease (CHD) obesity, hypertension (high blood pressure), diabetes, arthritis, low back pain (LBP), and several forms of cancer, all associated with unhealthy eating habits and lack of physical activity, are becoming the leading health problems in the country. County Government of Bungoma (2021) on 2020 KCPE analysis, the county realized a mean score of 237.31, with a candidature of 54818, whereby 20102 pupils scored below 200 marks, it was noted that pupils did not engage in any form of sports due to Covid -19 outbreak. Could this have contributed to poor performance?

Jakoyo (2016) quoted teachers service commissioner, Cleophas Tirop, who said that teachers should nurture intelligence which each student is blessed with instead of emphasizing on only linguistic and logical intelligence. He said that an ideal education should provide opportunity for exercise and not academic enterprise.

Larissa,(2019) notes a common perception that devoting curriculum time to sport and physical activity negatively impact students' academic performance; taking away time from 'important' subjects. However, participation in sport competition and physical activity, both inside and outside the classroom, positively impacts students' and efficiency. On the other hand, Motah (2019) cites that sports plays a bonding role which help students to acquire important social skills; it has both physical and psychological benefits to learners hence contributing towards achieving Sustainable Development Goal 4; Quality education and that those who participate in sports have higher school grades and record better school attendance.

Onywera et.al., (2016) argue that although Kenya is a sporting nation having achieved considerable success in athletics and rugby, only about half of schools studied offered organized sports that allow children's participation. Provision of sufficient sports facilities both in school and at the community level is key, as facilities normally attract children and youth to participate in sports competition. They further note that, physically active children and youth have better academic performance, body image, leadership qualities, and an element of team spirit than those who do not participate in sports competitions and that involvement in sports competitions also develops the spirit of give and take and hence inculcating the spirit of fair play.

Motah (2019) is of opinion that sports when not controlled, sports women and men may feel misused and wasted when they spend most of their time travelling from one region to another to participate in ball games and other organized sports activities. This might result in limited study time resulting in poor performance in their education. To avoid this in the future, learning institutions can adopt a workable plan to ensure that students who are involved in sports competitions are allocated extra time for tuition and revision that will enable them catch up with others. Mentorship and motivational talks should also be held to sports people to help them realize role of sports to academic performance.

Khan (2018) notes that participation in sports competitions improves students' grades, academic performance and raising their educational aspirations as well as keeping them in colleges and schools. Moreover, their Grade Point Average (GPA) in class tests results improves and they acquire the ability to succeed academically as well as enhancing their academic mission of colleges, therefore sports competitions play a vital role in academic performance, thus, the current study sought to find out if the same is mirrored for learners in public primary schools in Bungoma County.

2.8 Chapter Summary

This chapter while reviewing both the empirical and propositional literature related to the study has revealed that competing in sports is paramount to individual development. This review also identified that learners in primary schools are at a critical stage in their growth and the behavior they pick at this time would be carried onto adult life. The study looked at development of sports in Kenya, factors that influence learner's involvement in sports competition; on this: motivational and socio-economic factors, environmental factors, cultural and role modeling factors were looked at, benefits of involvement in sports competitions including social development, healthy benefits, emotional relieve, economic benefits and bringing about gender parity, role of sports competitions in academic performance were discussed. Despite the benefits of sports involvement, there is a low participation in sports competition in public primary school in Bungoma County thus the study; the role of sports involvement in academic performance. Chapter three looks at the research methodology whereby it describes the study area, the population sample, sampling procedures, research instruments, procedures for data collection and analysis. Chapter four looks at data analysis, presentation and interpretation in relation to the objectives of the study and finally chapter five looks at the summary of the findings, conclusions and recommendations according to the objectives of the study.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

The Chapter discussed the; research design, study area, target population, sample size and sampling techniques, research instruments, procedures for data collection and analysis.

3.1 Research Design

Creswell and Creswell (2018) notes that research design is ‘an outline or a plan used to generate answers to research problems. Kisilu and Tromp, (2011) adds that ‘research design is the glue that holds all of the elements in a research project together’. The study used concurrent triangulation mixed research method which provided a detailed and rich database for further investigation and writing. Both qualitative from descriptive survey and quantitative data from statistics were collected, analyzed and results concurrently interpreted.

Descriptive survey was appropriate for this study because the respondents described their perception of the role of sports in academic performance in their schools and information collected was from those with practical experience with the problem under study, therefore it was the most ideal for the kind of data that was collected. Creswell (2012) state that at times descriptive survey is the only means through which views; opinions, attitudes and suggestions for improvement on educational practice, instructions and other data can be collected. Quantitative data was from the statistics on students’ academic performances of learners involved in sports, therefore, the study adopted both qualitative and quantitative research methods.

3.2 Study Area

The study was carried out among public primary schools in Bungoma County. The County borders Kakamega County to the South and South East, Trans-Nzoia County to the North and North East and Uganda to the West and North West respectively. The research area, Bungoma County, like any other county in Kenya fields participants at regional level, every sub county has equal chance to fill slots available to represent the county. The county has given sports priority; there is evidence of sports clubs, high altitude training center at Mt Elgon Sub County and also there are many schools that post above average scores in national examination, learners are also actively involved in sporting activities.

3.3 Target Population

According to Babbie (2016) target population is a group of people to whom the researcher wishes to generalize the results of the study.

In the study, the target population consisted of pupils from public primary schools in Bungoma County, who had participated in sports competition in athletics and ball games from zonal, sub-county, county, regional and national level, class teachers and head teachers in public primary schools where the pupil participants were selected from. The County comprises of nine sub counties with 759 public primary schools, 353,417 learners and 9,967 teachers. The participants of the study were drawn from the three sub-counties that had a higher representation at the regional level of participation in sports as per the records at the county Quality Assurance and Standards Office.

The three sub counties were selected through purposive sampling whereby those first three that had more participants representing the county at regional level were

selected; these sub counties were Bungoma East, Mt Elgon and Cheptais. The three selected sub counties have 163 public primary schools, 75,469 learners and 2,119 teachers. Learners who participate in sports competition from STD 6, 7 and 8 totaling to 697. From this, 208 participants were chosen as respondent because they were majority that had been involved from zonal to regional sports competition therefore through them the researcher was able to collect data, interpret and draw conclusion. Class-teachers were chosen because they keep progress records of the learners and also know better their abilities and motivate learners to be involved in various sports. Lastly, the head teachers of the participating schools were chosen because they facilitate and coordinate the sports in their various schools. Public schools were chosen since they participate in sports competitions and offer common routine.

3.4 Sample Size and Sampling Technique

According to Kisilu, et al (2011) a sample is a set of respondents selected from a large population for the purpose of a survey and research conclusion and generalization.

Since it is practically impossible to involve the whole population in the study, only a representative sample was used. A sample was used as means of providing reliable and detailed information and to save time, effort and finance (Koul 2008) Purposive sampling was used to select the research site because it bore representative of the learners who are involved in the sports in the county and it has sports facilities that could easily attract learners to participate in sports competition as per the QUASO reports in Bungoma County Education Office. Purposive sampling was used to select 3 out of 9 sub-counties of Bungoma that is; Bungoma East, Mt. Elgon and Cheptais sub-counties that had higher representation at the regional level of involvement in sports competitions. A total of 54 out of 163 public schools with 18 in each sub-county participated in the study. The sample was stratified as the respondents drawn

from the three sub-counties of Bungoma County were further selected on the criteria of either; learners, class teachers or head teachers. In schools where learners were less than 3 that met above criteria, all were considered. In schools where learners were over 10 in number that met the criteria, they were clustered according to their classes and lottery sampling used to get at least 3 from each class. A sample of 299 respondents participated comprising; 208 learners, 78 class teachers with at least a representative from all 54 schools and 21 head teachers serving in some of the above schools which had more than 5 sampled participants A total of 208 learners were picked from a population of 697 learners who participated in sports at regional level from STD 6, 7 and 8 which was 29.8% of the targeted population for according Kerlinger (1984) 10% to 30% is a fair representative sample from which findings can be drawn about a given population.

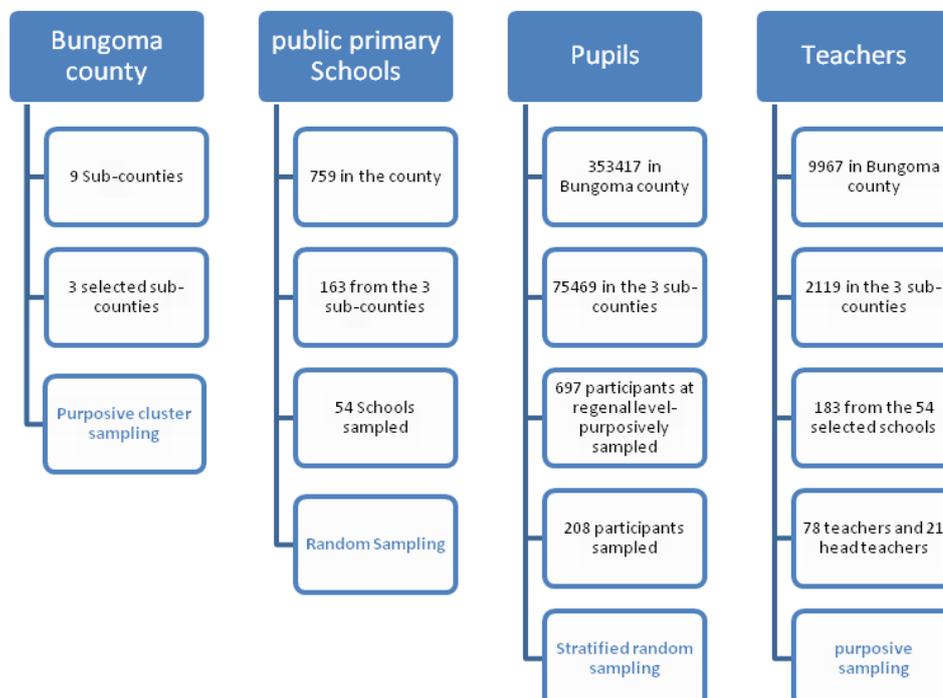


Figure 3: Sample Size and Sampling Technique

Source: **Researcher 2019**

3.5 Research Instruments

A research instrument is a tool used to collect, measure and analyze data related to your research interests as said by Cohen (2013).

Four research instruments were used to obtain the data for the study. These were questionnaires, interview schedule, Focused Group Discussions guide and document analysis guide.

3.5.1 Questionnaires

In research, a questionnaire is described as the most popular instrument particularly in cases of big inquiries Kothari and Garg (2014). It is an instrument used to obtain primary data about any conditions and practices and to inquire into opinions and attitudes of an individual or a group. It gathers data over a large area sample (Cohen et al 2013).

Questionnaires also facilitate easy and quick information collection within a short time. In the study, a questionnaire was used to collect information from learners and teachers on their perception of the relationship between sports involvement and academic performance for learners in public primary schools. It was also used to determine the level of participation in sports of learners in Public Schools Bungoma County. The section A of the questionnaire comprised of both open ended and closed ended questions, which sought demographic data from the pupils and teachers. Section B of the instrument consisted of both open and closed ended questions of the independent variables. Section C contained attitude rating scale on dependent variables. Data was coded and analysed using a five-point likert response scale.

3.5.2 Interview Schedule

Creswell(2012) state that interview guide allows a researcher to gain rich and detailed data from participants own words and expressions, which reveals their feelings, motivations and meanings.it enables the researcher to create rapport and trust with participants which can enhance the quality and depth of the data. (Fraenkel & Wallen 2018). They consider interviews as most effective means of eliciting cooperation from repondents, as rapport can be established between the researcher and the interviewee Though the respondent may be cautious of the answers given in closed ended questions, also it can be time consuming due to open ended questions and analysis of the data might be difficult. Therefore, only 21 head teachers were interviewed to provide information on the relationship between involvement in sports and academic performance for learners in public primary schools. Interviews were preferred because they allowed pursuance of in-depth information around a topic and were useful follow ups to certain respondents and further investigated their responses and served the purpose of triangulation

3.5.3 Focused Group Discussions guide

In a focused group discussion, people from similar background or experience gather together to discuss a specific topic of interest, where the moderator asks about a series of questions (Fraenkel & Wallen 2018). In this case, six teachers of the sampled schools who were willing and available formed a group, the researcher arranged for the meeting and facilitated them, and the teachers heard one another's responses to the questions. In most cases, they offered additional comments beyond what they originally had to say, once they heard the other responses, they either agreed or disagreed as the moderator or assistant moderator recorded, after that all points were listed and analyzed then interpreted. This was because the main objective was to get

the perception of teachers towards the relationship between involvement in sports and academic performance in learners of public primary schools in Bungoma County, it was also used to collect data on the academic performance of participants.

In a social context where the respondents could hear the views of others and therefore considered their own accordingly. Though it was evident that participants could not voice their opinion freely especially on the subject of support from the school administration it was hard to get their honest opinions, also there was a tendency of some members likely to dominate the discussion though this was controlled by the moderator by allowing all members agree or disagree on an issue.

This method was preferred because it saved time than if an individual teacher had been interviewed. It also allowed a wide range of views collected hence helped in dealing with the problem of inadequate, inaccurate and unclear responses on the role of sports involvement on academic performance.

3.5.4 Document Analysis guide

According to Babbie (2016), document analysis is the study of recorded human communications, such as books, websites, paintings and laws. It is a method of data collection which involves analysis of content from written documents in order to make certain deductions based on the study parameters.

Information was obtained from pupils' progressive records. It helped the researcher to get the progression of events and information from the past. Records of school team were used to obtain the pseudonym of learners who had participated from zonal to the national levels. Progress records in academics were obtained from class teachers to get the academic scores of the sampled learners and analyzed to find out if there are

roles that sports play in academic performance for learners who participate in sports competitions.

3.6 Pilot Study

According to Creswell (2012) a pilot study is a procedure in which a researcher makes change in an instrument based on feedback from a small number of individuals who complete and evaluate an instrument.

The researcher carried out a pilot study where at least two schools from Busia County which had same characteristics; relatively similar climate and representation were selected, because all schools in Bungoma County had equal chance of selection to participate in the study, they were served with the research questionnaires, interview and focused group discussion was arranged and carried out; this helped the researcher to establish and know challenges not anticipated and test on reliability and validity of research instruments to be used. To ensure that the study task is reliable, the researcher used a test-retest method. As a result, the study task was administered twice to same pupils belonging to schools that were not involved in the study. Kisilu and Tromp, (2011) note that it is rarely possible for the researcher to foresee all the potential misunderstandings or biased effects of different questions and procedures therefore a need for pilot study.

3.7 Validity of the Research Instrument

A valid instrument is that whose content is relevant to the purpose of the study. It is a statistical or non-statistical method used to validate the content of the research instrument. Creswell (2018) a process of steps used to collect and analyze information to increase the understanding of a topic or an issue observes that it enables the researcher to judge the adequacy of the test in measuring what it has been designed to

measure. The researcher developed questions to be used to examine whether the changes that could be observed in dependent variable is indeed caused by a corresponding change in hypothesized independent variable or the other extraneous variables. The researcher thereafter assessed whether the observed associations could be generalized from the sample population to the whole population or other people thus testing the internal and external validity of the study. Then examination on how well the measurement scales was measuring the theoretical construct that it was expected to measure and lastly, the extent to which conclusion could be derived using the statistical procedure was valid.

To achieve the content validity of the instruments, which was required to lead to various inferences as in a score of the test, three things were done. Firstly, the questionnaire was subjected to the scrutiny of the supervisors, who evaluated the appropriateness of the research task, and gave suggestions, which were followed in making corrections in the study task and its implementations. Secondly, a mock interview and focused group discussion was carried out to provide data from which validity was inferred. Evidence from the data was to indicate whether or not the study task measured what it was designed for. The teachers were asked to provide progress records of learners who participate in sports to obtain information on their performance and check if they correlate with their level of participation in sports. Finally, appropriate corrections were made to ensure that the instrument is valid.

3.8 Reliability of the Research Instrument

A pilot study was carried out to test the reliability of the instrument. An instrument is considered reliable when it is able to elicit the same responses each time it is administered (Koul, 2008). Koul further observes that reliability refers to administering a test to the same candidates on two different occasions to assess the

stability (consistency) of the research instrument. If the students score is approximately the same, then it may be said that the test is reliable. For the pilot study, a sample of 20 respondents comprising of 14 participants, 4 teachers and 2 headteachers, raw data was collected twice whereby, test and re-test was done after two weeks, the data collected were subjected to Pearson product moment correlation coefficient (r) formula for ungrouped data to judge the reliability of the instruments. A value of r of 0.8324 was found thus making the study reliable for the according to the Pearson's correlation r value of 0.70 represents a very strong positive relationship. For interviews and focused group discussions mock interview and focused group discussion was repeated on the sample used in piloting.

3.9 Data Collection Procedures

After obtaining introductory letters from the school of education of Moi University, the researcher sought permission to carry out research from the NACOSTI, after getting the permit the researcher visited the county and sub county education offices. Then visited the head teachers of the sampled primary schools and thereafter, self-administered questionnaires to pupils and teachers after explaining to them the purpose of the study ,the researcher gave them one day to fill the questionnaires then collected them, interviewed the relevant head teachers after briefing them on the purpose of the study and booking an appointment with individual head teacher, organized for focused group discussion of teachers sampled at a given date in a common venue for neighboring schools and asked for relevant documents from schools.

3.10 Data Processing, Analysis and Interpretation

Data obtained from questionnaires and document analysis was entered and managed in Eiffel 16 database which makes it easier to find and retrieve data when required, until analyzed. Statistical Program for Social Sciences (SPSS) was used for data analysis in this study. Data was presented in percentages, frequencies and tables. Chi-square tests (χ^2) were performed to check whether there was any significant relationship in responses on the basis of learner's perceptions, allocation of enough time for sports, the support of the administration and academic performance. The qualitative data collected through interviews and focused group discussion was categorized, cleaned, interpreted and analyzed the pattern of data obtained under their respective themes, explained the information and then chi-square test was run. This was used to support findings obtained through quantitative data analysis. The analysis steps were systematically and consistently done for each one of the objectives of the study.

3.11 Ethical Consideration

A permit was sought from the office of National Commission for Science and Technology upon production of a letter from the school of education, Moi University, to allow the researcher proceeds with the research. After securing permit, the researcher proceeded to the County Director of Education Bungoma County to officially be allowed to do research in the county and paid a courtesy call to the Bungoma County Education Office, Bungoma sub-county education offices and requested for access to any relevant data in the office.

The researcher visited only sampled schools, explained the purpose of the research in advance as purely academic to the respondents to gain informed consent. The

researcher further explained that participation in the study was voluntary and any participant was at liberty to opt out if they feel so.

Thereafter, the researcher administered questionnaires to the respondents after seeking their informed consent. The questionnaires were completed anonymously by not indicating their names or schools to ensure confidentiality of the information received and also to conceal their identity to protect from any harm. Pseudonyms were used in document analysis. For interviews and focused group discussions respondents were briefed of the purpose of the study, asked to uphold the principal of respect, promised privacy and commit to confidentiality of the discussion/interview.

3.12 Chapter Summary

The chapter highlighted the methodology and procedure that were followed in carrying out the study which involved study area, population sample, sampling procedure, research instruments, procedure for data collection and data analysis.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.0 Introduction

Chapter four presents the analyzed data, how it was presented and its interpretation in relation to the objectives of the study. According to Mugenda and Mugenda (2003), data analysis helps in structuring the findings from different sources of data, where a macro problem is broken into micro parts as well as acting like a filter when it comes to acquiring meaningful insights out of huge data set. The following research objectives were the guidelines of the chapter;

- i. To find out the learners' level of involvement in sports competitions in public primary schools
- ii. To assess the learners' perception of the role of sports involvement on their academic performance in public primary schools.
- iii. To evaluate the teachers' perception of the role of sports involvement on academic performance for learners in public primary schools
- iv. To establish the academic scores of learners who are involved in sports competitions in public primary schools.
- v. To investigate relationship between the level of involvement in sports competitions and academic performance for learners in public primary schools.

4.1 Response Rate

The study sampled 208 pupils however, it managed to obtain responses from 202 of them which represented 97.1% response rate. On the other hand, 78 teachers were sampled and the response rate was 75 which represent 96.2%, out of the 21 head

teachers sampled only 16 were interviewed which represents 76.1% response rate. The response rates were considered subsequent for analysis and making conclusions for the study. Babbie (2016) explains that a 50% response rate is adequate, 60% good and above 70% very good. This is similar to Mugenda and Mugenda (2003) recommendation of a response rate of 50% based on the rule of thumb. Therefore, this study considered the response rates sufficient for analysis and generalization since it exceeded the minimum recommendation.

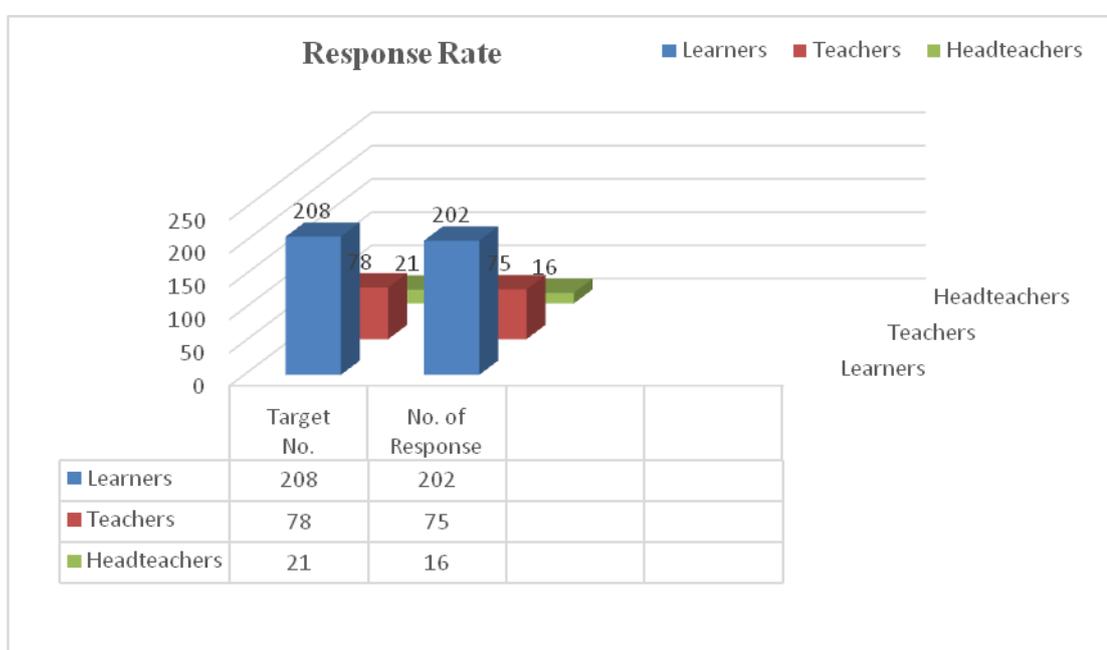


Figure 4: Response Rate

Source: Researcher 2019

4.2 Respondents' Background Information

Demographic characteristics of the respondents were of importance to this study. This included gender of pupils, age of pupils, class in which the pupils learn, teaching experience for teachers and teachers' period of service in their present schools. The findings are presented below.

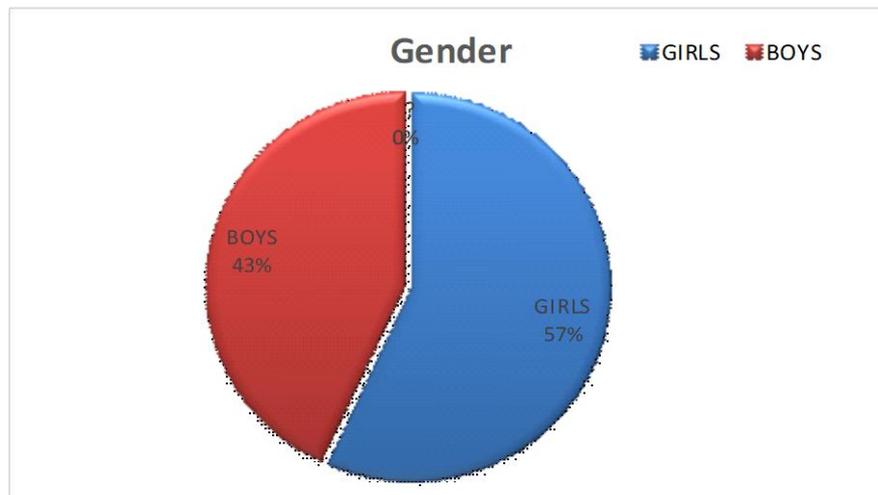


Figure 5: Gender of participants in sports competitions

Source: **Researcher 2019**

Results in Figure 5 show the gender of pupils from the selected sample. The findings on gender of pupils reveal that most of the pupil respondents 115 (56.9%) were girls while 87 (43.1%) were boys. It implies that the majority of the pupils who were selected during sports competitions at various levels in the County were girls and that girls were more involved in sports than boys from the three sub counties. This could be due to the fact that girls were motivated to take part in sports competitions which in the past were dominated by boys (McNamee 2005). As the United Nations' agency in charge of physical education and sport, <https://en.unesco.org>, UNESCO, promotes the values of sport and its role in forging more inclusive societies has been advocating more girl participation in sports. For instance, it signed the Football for Schools partnership in Davos in 2019 with FIFA in supporting women's football, thus serve as a powerful lever for the empowerment of women and girls, making our societies more inclusive. Sabo (2008) argues that in suburban areas, 81% of girls compared to 89% of boys involved in youth sports, while in rural areas 73% of girls participated compared to 69% of boys, in addition, girls are exploring a wider array of sports and

exercise activities than boys do, including traditional, recreational and newly emerging sports such as cheerleading, dance, double dutch and volleyball. Whereas, boys focus more on traditional sports and exercise activities, which, most often, take the form of organized school and community sports (Sabo & Veliz, 2008). Most of the head teachers in the study area affirmed that most NGOs support girls who excel in sports competitions by giving them scholarship for high school education. It's also evident in the study area that individuals, County Government and some non-governmental organizations are sponsoring sports with a great bias to girls as reported from most of the head teachers interviewed.

The findings reveal that girls in public primary schools in Bungoma County are more involved in sport competition than boys because both have equal opportunities to compete from school level to the national level.

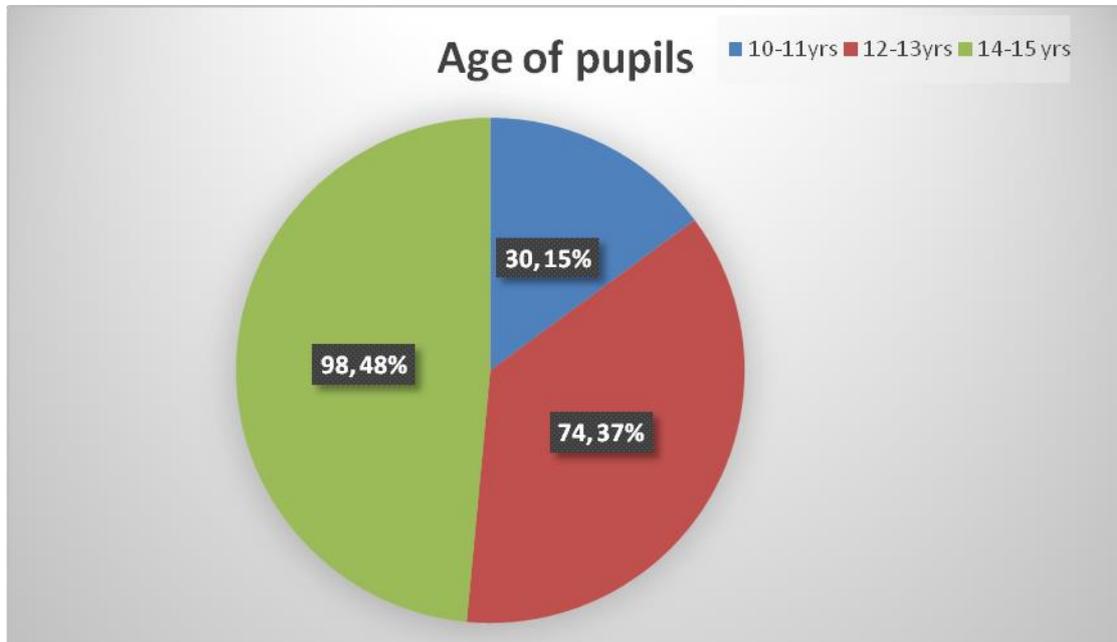


Figure 6: Age of pupils

Source: Researcher 2019

Results in Figure 6, shows age of pupils. Results reveal that majority of the pupil respondents 98 (48.5%) were aged between 14 and 15 yrs. followed by those aged between 12 and 13 yrs. constituting 74 (36.6%) and the minority 30 (14.9%) were aged between 10 and 11 years. This implies that pupils who participated in sports competitions were between 12-13 years. It was noted that pupils in the upper classes associate meaningful roles with opportunities which could have greatest impact on talents exhibited at lower levels to maturity and reach its full potential. At this level, the participants might have had a lot of exposure to sports, and also, they have been in school for long for their capability to compete to be noted by teachers to include them in the first team of the school. The findings agree with (Bulinda, 2017) who observed that children improve on their performance depending on their experiences and age. Also, at this age the learners have developed the right muscles and stamina to endure the training and competition.

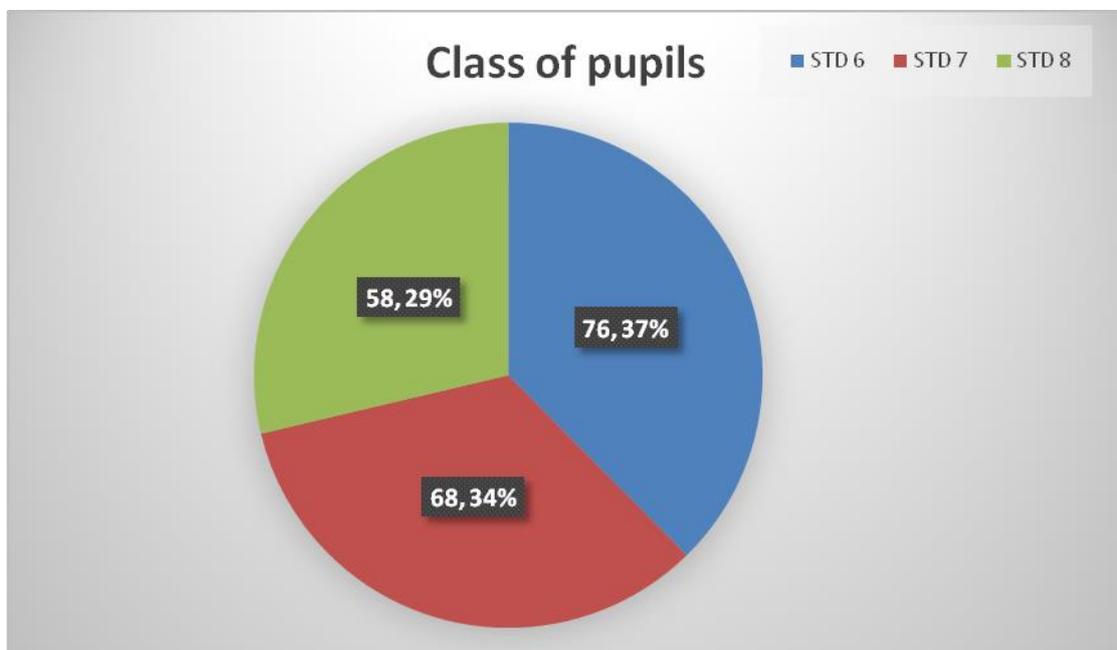


Figure 7: Class of pupils

Source: **Researcher 2019**

Results in Figure 7 shows class of pupils who participated in sports competition, Findings showed that, 76 (37.6%) confirmed to be in class six (6), 68 (33.7%) said they were in class seven (7) and 58 (28.7%) said they were in class eight (8). Therefore, majority of the pupils were in class six while the minorities were in class eight. This implies that pupils in sports competition are majorly those in non-examinable classes compared to those in class eight who are concentrating on national examination. It is in these classes that learners are more mature and easier to handle, also where the talent potential of a participant reaches full potential. The findings agree with Entine (2000) who observed that learners improve on their performance depending on their experiences and age.

Hilvoorde, Elling and Stokvis (2010) noted that co-curricular activities help students to relate well with their teachers as well as learning important skills to help in socialization and at this age pupils value identity and knowing their potential. School administrators, teachers, subordinate staff, parents, guidance and counseling department and coaches should often encourage students not only to excel in co-curricular activities but also to focus on academic performances, Hilvoorde I. V, Elling A. and Stokvis R (2010). Thus, involvement in sport competition often means exposing pupils to a supportive and friendly environment that enriches both their love for their respective sports as well as their interest in school.

Table 1: Teachers' background Information

	Teacher F	Experience %
15 yrs.& above	39	52.0
10-14 yrs.	22	29.3
5-9 yrs.	6	8.0
1-4 yrs.	8	10.7
	75	100

Source: Researcher 2019

Results in Table 1 on teachers' experience showed that; 39 (52.0%) have a teaching experience of 15 years and above, 22 (29.3%) have a teaching experience of between 10-14 years, 6 (8.0%) have experience of between 5-9 year and 8 (10.7%) had a teaching experience of between 1-4 years. It was observed that majority of the teachers (81.3%) had their teaching experience of between 10-15 years while the minority (18.7%) had teaching experience of between 5-9 years. This implies that teachers from the sampled schools were experienced enough in that field and could therefore provide sufficient and reliable information needed for the study.

Table 2: Period of service for teachers in their current schools

Period of service in current school		
	F	%
≥ 1 yr.	8	10.7
1-3yrs	7	9.3
4-6 yrs.	19	25.3
7-9 yrs.	25	33.3
≤10 yrs.	16	21.3
	75	100

Source: **Researcher 2019**

Results on teacher's period of service in their current school show that, 8 (10.7%) had been in their current school for a period less than a year, 19 (25.3%) had been between 4-6 years, 25 (33.3%) had been in their current schools between 7-9 years, 16 (21.3%) had worked in their current schools for over 12 years and 7 (9.3%) had worked between 1-3 years. Majority have been in their current schools for a duration of between 7-12 years. This means that the teachers sampled had vast knowledge on all the necessary information about their schools which was an added advantage to the study.

4.3 Learners' levels of Involvement in Sports competition

Sports are very essential to the holistic development of young people, fostering their social, emotional and physical health; the benefits of sports competition reach beyond the impact on physical well-being and the value of the academic benefits of sports should not be underestimated (Bernstein 2010). The study therefore sought to find out various aspects in relation to pupils' involvement in sports competition as shown in the subsequent section.

4.3.1 Types of Sports

The study sought to find out the types of sports learners took part in and also to find out from the teachers the types of sports their pupils participated in. Results are shown in Table 3 and 4 below.

Table 3: Types of Sports Pupils Participates in as indicated by Pupils

	Pupils	
	F	%
Football	68	33.7
Volleyball	18	8.9
Netball	14	6.9
Athletics	78	38.6
Handball	11	5.4
Leg ball	13	6.4
Total	202	100.0

Source: Researcher 2019

Findings from Table 3 show that 68 (33.7%) of the pupils participated in football, 18 (8.9%) participated in volleyball, 14 (6.9%) were involved in Netball, 78 (38.6%) took part in athletics, 11 (5.4%) were involved in handball and 13 (6.4%) played leg ball. Majority of the pupils participated in athletics and football unlike other sports. This is attributed to the fact that athletics and football can be easily managed,

facilitated and trained, in that the rules governing the two sports are not hard to grasp, they are common in the country and practiced on day-to-day basis. For instance, balls for football can be improvised with waste papers, strings, goal posts with even stones, any little space can represent field and in athletics running can be done anywhere on the way going to/from school.

Table 4: Type of Sport Pupils Participates in as indicated by Teachers

	F	%
Football	6	8.0
Volleyball	3	4.0
Athletics	24	32.0
Handball	12	16.0
Leg ball	21	28.0
TOTAL	75	100

Source: Researcher 2019

On the other hand, Table 4 indicates, 3 (4.0%) of the teachers said their pupils took part in volleyball being least in participation by pupils, 24 (32.0%) said the learners participated in athletics being the majority. From the table we can conclude that most of the sampled pupils were active in different types of sports. Further, on this issue the 16 head teachers affirmed that most sports trained at schools are football, leg ball and athletics because their facilities can be improvised easily therefore every child can try playing and training. For instance, in football/leg ball, balls made from waste paper can supplement the leather ball, any space can represent a field, same to athletics where races can take place anywhere on the compound unlike games that need nets, posts, balls that bounce and rings which are expensive to purchase and to maintain the available ones for instance the tennis lawn, balls, tables and the expertise. It was in agreement with Mwihaki (2007) who found that availability of facilities for sports and equipment has a big impact on learners' participation in sports. Oketch and Asiach

(1992) note that the kind of facilities and resources available has eminent implication on what happens in schools.

Teachers also attributed lower participation in other sports activity to lack of interest and some to the academic workload that overwhelms them, Russell et al (2000) puts it that teachers can only perform their work satisfactorily if they feel to be influenced and motivated by an inner creative impulse. Chege and Njeri (2013) noted that more emphasis has generally been placed on the formal curriculum; they further argue that attitudes towards participation in sports competition are contrary to the emphasis of the MoE (2002). Both teachers and parents discourage learners from being involved in sports competition and encourage them to utilize their time well in books for good scores (Olwalo 2014).

Taliaferro et al (2013) asserts that participation in sports produce a lot of benefits which are not autonomous, independent or disconnected, but instead reinforce each other. The benefits of involvement in sports directly influence learning experiences which produce better academic performance. Larissa (2019) cites that participation in sports fosters educational outcome these includes fostering better academic performance, ensuring greater inclusivity and participation in the classroom, as well as improvements to learners' health and readiness for the future. Thus, sports competitions play a vital role in academic performance.

4.3.2 Learners' Preparation Time for Zonal Competitions

It was of essence to determine the learners' preparation time for zonal competitions from both the teachers and students this is because training sessions at other levels are same and guided by the sports calendar scheduled by the Ministry of Education. Findings are shown in Table 5 and Table 6 below;

Table 5: Learners' Preparation Time for Zonal Competitions

	Pupils	
	F	%
One month	12	5.9
Three weeks	41	20.3
Two weeks	65	32.2
One week	63	31.2
Less than a week	21	10.4
Total	202	100.0

Source: Researcher 2019

Findings on learners' preparation time for zonal competitions reveal that 12 (5.9%) of the pupils said they did their preparations for a period of one month, 41 (20.3%) said they prepared for three weeks, 65 (32.2%) for two weeks, 63 (31.2%) for one week and 21 (10.4%) for less than a week. Most of the pupils said that they did their preparations for zonal competitions for one-two weeks as observed in the table.

Table 6: Learners' Preparation Time for Zonal Competitions as indicated by teachers

	Teachers	
	F	%
One month	6	8.0
Three weeks	15	20.0
Two weeks	17	22.7
One week	24	32.0
Less than a week	13	17.3
Total	75	100

Source: Researcher 2019

Teachers' responses showed that 6 (8.0%) said preparation time for zonal competitions took one month, 15 (20.0%) said three weeks, 17 (22.7%) said two weeks, 24 (32.0%) said one week and 13 (17.3%) said less than a week. Most teachers 54.7% affirmed that preparation time for zonal competitions took one-two weeks

which go in line with what 63.4% of the pupils said. This implies that not much time is given to prepare for zonal competitions.

‘yet the pupils programs/routine have some time slotted for extra-curricular activities which in most cases are used for completion of teachers work, remedial lessons and cleaning of the school instead of training the pupils in various sports’. Alluded one of the interview respondents

Therefore, teachers need to be sensitized on the importance of the sports involvement which ensures pupil’s holistic growth and help them relate the excellence in academics to involvement in sports competition so that they fully support these young ones in training and thus use the stipulated time accordingly.

4.3.3 Pupils’ Highest level reached in sports involvement

In Kenya, competition in sports activities begins from selection of school teams, zonal level, Sub- County level, County level, regional level and finally ends up at the National level. If a participant is eliminated at any of the levels, they wait for the next edition of the annual competitions. The study needed to determine the highest-level pupils had reached while competing in their respective sports competitions. As shown in Table 7 below:

Table 7: Pupils’ Highest Level Reached in Sports competitions

	F	Percent
Zonal	90	44.6
Sub-county	60	29.7
County	38	18.8
Regional	10	5.0
National	4	2.0
Total	202	100.0

Source: Researcher 2019

Results reveal that majority 90 (44.6%) had participated in sports competitions up to the zonal level, followed by 60 (29.7%) who had gone to the sub-county level. 38

(18.8%) said they had participated up to the county level, 10 (5.0%) to the regional level and 4 (2.0%) to the national level. It is evident that pupils in the sampled schools had participated in sports competitions mostly up to the zonal, sub-county and county levels. Minority had gone up to the regional and national levels. Perhaps this is due to tight competition at higher levels of participation and head teachers alluded to it by saying that the way in which sports are organized in primary public schools don't encourage more participants. They expounded that at the primary level they only need one team in each game, participants selected from the many primary schools in the county for instance in football a team needs only eleven players, with this most pupils are cut out from competition. Most head teachers recommended that Kenya Primary School Sports Association (KPSSA) should restructure the games to be played in tournament where a whole team of the school that wins is selected and proceeds to the next level in so doing maybe teachers and learners alike will be motivated to compete. In addition, evident from FGDs, lack of sufficient facilities, equipment and finances to employ professional coaches in various sports lead to low involvement in sports competitions. The few who reached national competitions from the participating Sub-County schools participated in individual events like athletics which requires little infrastructure, mentoring and coaching. According to Anyango (2012), the nature of our schools in the country, whereby, only a few participants are selected to represent entire region, cannot allow involvement in all sports. In addition, Republic of Kenya, (2003) points out that the Kenyan government recognizes the importance of recreation and sports; Gitonga, (2003) notes the shortage of sports facilities and neglect of the existing ones that has slowed down development of sports. This study notes that if only the education stakeholders value the role sports involvement play on academic performance, then participation and competition at school level could be embraced

because involvement in sporting activities should be a day-to-day event in our schools.

4.4 Learners' Perception of their Involvement in Sporting on Academic Performance

This study sought to determine the perception of learners involved in sporting and their academic performance in regards to whether they equally excelled in both sporting and academics, particularly if they came in top or led in examinations. This information was specifically obtained from the teachers and learners involved in sporting as summarized in Table 8 below;

Table 8: Pupils' Perceptions on the Role of Sports involvement on Academic Performance

STATEMENT	SA		A		UD		D		SD	
	F	%	F	%	F	%	F	%	F	%
My grades improve when I am involved in sports competitions	109	54.0	90	44.6	0	0	3	1.5	0	0
When I participate in sports competitions there is still enough time for academic work	54	26.7	128	63.4	17	8.4	3	1.5	0	0
Participation in sports competitions does not stop completion of my class assignment	73	36.1	109	54.0	6	3.0	10	5.0	4	2.0
Participation in sports competitions improves my concentration in class.	55	27.2	126	62.4	12	5.9	3	1.5	6	3.0
Taking part in sports competitions makes school more enjoyable	143	70.8	32	15.8	11	5.4	13	6.4	3	1.5
My friends think that when I participate in sports competitions it affects my class work	33	16.3	77	38.1	14	6.9	33	16.3	45	22.3
My parents think that when I take part in sports competitions	18	8.9	14	6.9	12	5.9	100	49.5	58	28.7
I will perform poorly Some teachers think that when I take part in sports competitions my learning in school is affected	3	1.5	8	4.0	11	5.4	107	53.0	73	36.1

Source: Researcher 2019

Table 8 on pupils' perception on whether their grades improved when they engage in sports competitions showed that, 109 (54.0%) strongly agreed, 90(44.6%) agreed and 1(1.5%) disagreed. This therefore reveal that majority of the pupils were in agreement that their grades improved when they get involved in sports competitions. The proverb "all work and no play make Jack a dull boy" is one indication that pupil's involvement in sport or extra-curricular activities makes them more active. According to (Choi et al, 2014) Children's engagement in sports competition is known to contribute to the developmental outcomes for a healthy lifestyle, where children learn about physical, social and cognitive skills. More broadly, engagement in physical activity is also recognized to contribute a range of positive outcomes, specifically; physical and mental health, social wellbeing, cognitive and academic performance (Taliaferro et al, 2013).

Further head teachers in their interview believe that involvement in sports competitions improves academic performance, one head teacher opined the fact that each child possesses a unique set of gifts and intelligence that is realized through school work and later in careers and future life. He said it is unfortunate that primary schools place emphasis on only two types of intelligence: linguistic and logical while scant attention is paid to musical, bodily, personal and kinesthetic intelligence. A large number of pupils fall in this latter category. From the FGDs, it was concluded that even though the influence of sports competitions on academic performance can't be quantified or immediate, its benefits are far much higher to individual pupils therefore all learners should be given opportunity to be involved in sports competitions.

On whether sports competitions affect learners study time and completion of assignment, Table 8 shows 4 (5.3%) of teachers strongly agreed that sports

competitions do not affect learners study time since they complete their assignments on time, 27 (36.0%) agreed, 2 (2.7%) were undecided, 34 (45.3%) disagreed and 8 (10.7%) strongly disagreed. It is evident that most teachers agreed that sports affected learners' study time. (Olwalo 2014) noted that both teachers and parents discourage learners from participating in sports competitions and encourage them to utilize their time well in books for good grades; this could be a contributing factor for low participation. In addition 12 out of the 16 head teachers attributed the low and dismal representation in sports competitions to following factors; first, participation slots are limited because only a handful participants are chosen from a large number that schools present at the inter schools' level. This discourages learners willing to participate to perfection at a higher level and teachers to devote their efforts in training pupils. Second, financial constraints, they said that the amount allocated for sporting activities is insufficient to organize and facilitate sports competition, lastly they attributed lack of sporting facilities to low participation.

Whereas, in Table 8 on whether learners participating in sports competitions still had enough time for academic work, 54 (26.7%) strongly agreed that despite participating in sports they still had enough time for their academics, 128 (63.4%) agreed, 17 (8.4%) were undecided and 3 (1.5%) disagreed. Hence, majority of the pupils agreed that they still had enough time for their academics despite being in sports competitions. Kidokoro et al. (2020) explains that physical education (PE) in schools is an ideal vessel that promotes physical activity due to its availability to all children. Furthermore, teachers also have the opportunity to cooperate this into the overall education process so as not to interfere with academic work and time. Majority of them say there is plenty of time that is wasted by their colleagues in idling and they choose the time for sports the majority cited that people need just to organize

themselves and have a timetable which they should be disciplined to follow to the latter.

Looking at whether school attendance is high during sports season, particularly for learners in sports competitions, Table 10 indicates that 21(28.0%) strongly agreed, 21 (28.0%) agreed, 2 (2.7%) were undecided, 25 (33.3%) disagreed and 6 (8.0%) strongly disagreed. Majority of the teachers agreed that school attendance is high during sports season, the teachers cited that, there is actually an improvement in school mean scores during sporting term for almost all learners attend school and this increase their conduct time with teachers.

This was supported by findings in Table 8, on whether taking part in sports makes school more enjoyable, 143 (70.8%) strongly agreed, 32 (15.8%) agreed, 11 (5.4%) were undecided, 13 (6.4%) disagreed and 3 (1.6%) strongly disagreed. Majority concurred with the fact that taking part in sports competitions makes school more enjoyable. Synder and Spreitzer (1990) found out that participation in sport competitions improves academic performance as participants have a lot of interest in school. This implies that sports competitions break the monotony of academic work which is very demanding and cognitively taxing. Sports remain the only healthy outlet of academic pressure on pupils. Out of 16 head teachers, 14 commented that participation in sports competitions is a thing they wish to embrace for it promotes talents and facilitates competition in academic performance. One head teacher said that sports competitions give learner's opportunity to use their talents and can be used as a substitute to those who are poor at academic performance. They attributed sports competitions to as a relief from hard academic work in class, this was gauged from the moods in school during competition week, and from the FGDs it was observed that pupils really enjoy going out and competing against other schools.

Study findings on whether learners participating in sports competitions attend to class and lessons regularly, 32 (42.7%) agreed, 10 (13.3%) were undecided, 17 (22.7%) disagreed and 16 (21.3%) strongly disagreed. This was supported by findings from group discussion who cited that participants miss a lot while on the field while their colleagues were in class learning, saying it calls upon individual hard work and commitment on pupils' side who mostly lag behind and need to catch up with others who have been in class all through.

Findings on whether learners who participate in sports competitions are more attentive in class show that, 1 (1.3%) of teacher strongly agreed, 25 (33.3%) agreed, 20 (26.7%) were undecided, 28 (37.3%) disagreed and 1 (1.3%) strongly disagreed. Majority disagreed while minority agreed. However, a significant percentage of the teacher respondents were undecided giving mixed reactions on the issues, teachers said that attention is a complex issue and is influenced by a lot of factors that are a teacher's duty to ensure pupils are attentive in class. This goes in line with Guest and Schneider (2003) who believed that each learning institution and community assigns a particular value to the various sports activities; putting more attachment on some over others, this in turn affects the relationship between given activities and therefore, the involvement.

Furthermore, Table 8, results on whether participation in sports competitions improves pupils' concentration in class showed that, 55 (27.2%) of the learners strongly agreed that sports improved their concentration, 126 (62.4%) agreed, 12 (5.9%) were undecided, 3 (1.5%) disagreed and 6 (3.0%) strongly disagreed. Most pupils were of same opinion that participation in sports competitions improved their concentration in class, which they feel energized, fresh and not fatigued and noted that most teachers encourage them to be active in the field for the same.

Results on whether learners who participate in sports competitions work independently in solving academic problems reveal that, 28 (37.3%) of teacher respondents agreed that learners engaging in sports do work independently in solving academic problems, 8 (10.7%) were undecided, 27 (36.0%) disagreed and 12 (16.0%) strongly disagreed. Most teachers disagreed that learners participating in sports could not work independently in solving academic problems for they need close monitoring and supervision.

Results on whether learners taking part in sports competitions were lazy in class work, 4 (5.3%) of teachers strongly agreed, 15 (20.0%) agreed, 8 (10.7%) were undecided, 34 (45.3%) disagreed and 14 (18.7%) strongly disagreed. It is observed that majority of the teachers disagreed to the fact that learners participating in sports competitions were lazy in class work.

In addition to the analysis on whether participation in sports competitions hinders completion of pupils' class assignments, 73 (36.1%) strongly agreed that participating in sports does not affect the completion of class assignments, 109 (54.0%) agreed, 6(3.0%) were undecided, 10 (5.0%) disagreed and 4 (2.0%) strongly disagreed. Most learners upheld that participating in sports competitions did not hinder them from completing their class assignments. Normally in Kenyan primary school's sport and any other co-curricular activity is conducted at a time distinct from the normal class time. Sports are conducted during physical education time or games time which is in most cases at the end of class period, they said classwork should be done in the stipulated class time and there is time for assignment which can be created and done, the only time though they experience challenges were when they miss lessons which need their sacrifice to catch up with others. Most head teachers affirmed the fact that

learners who participate in sports competitions are hardworking and an interesting group to deal with.

Study findings on whether parents complain about their children involvement in sports competitions show that, 12 (16.0%) of the teachers strongly agreed that parents of learners participating in sports competitions complained of their children's involvement, 43 (57.3%) agreed, 15 (20.0%) disagreed and 5 (6.7%) strongly disagreed. It is apparent that majority of the teachers agreed that parents complained of their children's participation in sports. This implies that most parents are inclined to academic results than the holistic development of their child. This goes in line with (Marsh & Kleitman, 2002) that in early years co-curricular activities were looked at as being recreational and detrimental to academic performance, therefore were discouraged.

Further, looking at whether parents think that when their children take part in sports competitions they will perform poorly, 18 (8.9%) of the pupils strongly agreed that their parent thought that taking part in sports competitions will make them perform poorly, 14 (6.9%) agreed, 12 (5.9%) were undecided, 100 (49.5%) disagreed and 58 (28.7%) strongly disagreed. Majority of the pupils disagreed to the fact that parents think that taking part in sports competitions makes the pupils perform poorly.

On whether some teachers ridicule pupils in class especially those who excel in sports and don't do well in academics, 8 (10.7%) strongly agreed, 26 (34.7%) agreed, 11 (14.7%) were undecided, 17 (22.7%) disagreed and 13 (17.3%) strongly disagreed. The manifestation is that most teachers agreed that they ridiculed pupils who did well in sports competitions and poorly in academics. This is due to the fact that the current society expects student to perform well in class rather than in sports. Academic

excellence is accorded prestigious status while sports excellence is viewed as insignificant. Further in a school environment, when pupils perform well academically the teacher or teachers pin the success to their efforts unlike sports excellence which goes unnoticed in most cases. It was revealed from the FGDs that pupils who excel in academics are rewarded by incentives whereas those who do well in sports competitions are only clapped for or even they go unnoticed then most of them don't see the need of taking part in sports competitions which seems insignificant in schools. In support to this, majority of the head teachers (11 out of 16) asserted that their teachers regard participation in sports competitions as a waste of time for academics, they referred it best for academic failures and not the bright pupils. These teachers feel that participation in sports competitions affects academic programs which the head teacher was of contrary opinion citing that the teachers take these chances to get allowances and token from administration in order to support the pupils in sports which should not have been the case.

On Table 8, other pupils views on whether participating in sports competitions affect class work showed that 33 (16.3%) of the pupils said their friends strongly agreed that their participation in sports affects their class work, 77 (38.1%) agreed, 14 (6.9%) were undecided, 33 (16.3%) disagreed and 45 (22.3%) strongly disagreed. Most pupils were in agreement that their friends thought that their participation in sports competitions affected their class work negatively. Which seem to be supported by teachers who ridicule participants who excel in sports and do not perform the expected score in academics.

Findings on whether learners taking part in sports competitions were poor in academic work, 4 (5.3%) teachers strongly agreed, 14 (18.7%) agreed, 7 (9.3%) were undecided, 38 (50.7%) disagreed and 12 (16.0%) strongly disagreed. Most teachers

said that learners engaging in sports were not poor in academic work in fact they ascertain that they are the most interesting group to deal with, they are disciplined, resilient and ready to be corrected, values of a good sportsmanship.

Furthermore, Findings on Table 8, on what the teachers thought about the learner's participation in sports competitions and whether it affected their learning in school showed that, 3 (1.5%) strongly agreed, 8 (4.0%) agreed, 11 (5.4%) were undecided, 107 (53.0%) disagreed and 73 (36.1%) strongly disagreed. Most learners affirmed that their teachers don't think that participation in sports competitions do not affect their academic and learning in school. It therefore concludes that teachers encouraged learners into participating in sports competitions and according to FGDs which opined that the government should support schools in implementing the laid policies; for sports creates a child friendly environment in school which in turn fosters learning and academic performance.

4.4.1 Performance of Learners Participating in Sports competitions.

According to Darling et al (2005), sports/physical activities have a positive impact on education and academic improvement. He further observes that absorption and better academic outcomes are directly proportion to time spent in sports activities. In addition, Hollard and Andre (1987) argue that participation in sports competition was correlated with great self-esteem, involvement in social and political activities, lower delinquency rates, academic capabilities, grades, educational aspirations and performance.

Thus, the study sought to find out there is a correlation between participation in sports and academic achievement according to the teachers as shown in the table 9 below:

Table 9: The correlation of Performance for Learners Participating in Sports

	F	Percent
Yes	36	48.0
No	39	52.0
Total	75	100.0

Source: Researcher 2019

Results show that 36 (48.0%) of teachers agreed that performance of learners taking part in sports is good and they were leading in their respective classes while 39 (52.0%) said they did not come at the top of their classes in examinations. Majority of the teachers upheld that pupil participating in sports competitions did not come at the top of their classes in examinations with a slightly lower percent admitting that the learners did actually lead in examinations. This therefore implies that some teachers linked active participation in sports competitions with good performance while other did not. Majority of the head teachers reinforced that performance of most of the participants is impressive even though they don't lead in their respective classes and also they are all round pupils in the schools, most of them hold leadership positions in schools. (Darling et al, 2005) found that participation in sports competitions is related to positive academic outcomes including high grades, few disciplinary cases, low absentee rates, increase in retention rate, high commitment to the school, being on the track in coursework, taking more challenging academic work and better job opportunities. In addition, Miller et al (2005) and Darling et al (2005) cite a positive impact of sports and sporting activities on education and also in the academic performance of its participants.

The analysis from FGDs show that there are two main causal factors in which participation in sports competitions influence academic performance for learners in public primary schools, which are internal and external factors. The external factors

emanated from the competitors' school environment. The most eminent of the external factors are teaching and instruction experience of teachers, length of service of teachers in the station currently staffed and level of learning for learners. Other external factors are current practices in education, school culture and low value put on sports by the school where the competitor attends. The predominant external factors is instruction and experience in which 62.5% head teachers and 52.0% of teachers agreed to it.

4.5 Academic scores of learners involved in sporting

There are conflicting findings on the nexus between academic performance and learners involved in sporting. Hicks (2018) findings note both positive relations with learners involved in sporting equating excelling in class but there were also cases where learners involved in sporting posted poor academic results leading to such learners being labelled as lazy and failures. This study sought to find the relationship from the grades posted by learners involved in sporting against their counterparts who are focused on only academics.

4.5.1 Performance Ratings of Learners in Sports competitions

The respondents were asked to comment on how learners who participate in sports competition perform in their academic tasks; this was looked at in relations to class work, weekly assessments, end term examination and end of year examinations.

Table 10: Performance Ratings of Learners who participate in Sports

Assessment Period	V. good		Good		Fair		Poor		V. poor	
	F	%	F	%	F	%	F	%	F	%
Daily class tasks	1	1.3	32	42.7	42	56.0	0	0	0	0
Weekly tests	0	0	27	36.0	44	58.7	4	5.3	0	0
End of term examination	0	0	15	20.0	46	61.3	14	18.7	0	0
End of year examination	0	0	14	18.7	47	62.7	14	18.7	0	0

Source: Researcher 2019

Findings in relation to daily class tasks reveal that most teachers 42 (56.0%) regarded the performances of learners participating in sports competitions as fair followed by 32 (42.7%) of teachers who regarded it as good. Minority 1 (1.3%) regarded it as very good and no teacher viewed the pupils' performances as poor. This therefore implies that participating in sports competitions does not affect daily class work. Guest and Schneider (2003) reveal that sports have a positive influence on how children perform academically. The way young ones choose to spend free time affects academic performances since it is not simply traditional in-class instructions which impart learning. Stephen & Schaben, (2002) carried out a study for the US department of education which revealed that learners who participate in sports competition are more likely to attain good grades than those who do not take part in sports competition.

Results on weekly tests show that most teachers 44 (58.7%) regarded the performances of pupils participating in sports competitions as fair, 27 (36.0%) regarded it as good and the minority 4 (5.3%) regarded it as poor. This means that the pupils involved in sports competitions have average performance which in most cases is good since the students have a balance between extracurricular activities and academics. This goes in line with Broh (2002) who states that participation in sporting activities in general is associated with improved grade; high educational aspirations; increased attendance and reduced absenteeism.

On end term examination, 15 (20.0%) of the teachers viewed the performances of pupils participating in sports competitions as good, 46 (61.3%) viewed it as fair and 14 (18.7%) said it was poor. Majority regarded it as average while the minority said it was poor. This is in line with the findings of a study by the US department of education, which reveals that pupils who participate in sports are more likely to have good grades than those who do not participate in sports (Stephen & Schaben, 2002).

This therefore shows that sports have varying outcomes on pupils' performance depending on various factors.

Findings on end year examination reveal that majority 47 (62.7%) of teachers said that the performance of pupils who participate in sports were fair while 14 (18.7%) said it was good and 14 (18.7%) said it was poor respectively. This implies that participating in sports competitions does not hinder learner's performances. Ongonga et.al (2010) argues that sports are important in educational institutions in virtually all parts of the universe. However, from the FGDs sessions, it was noted that excessive and intensive training for sports competitions can act as a hindrance to attaining educational and academic pursuits among learners, this could explain why there is variation in perception of performance from daily class tasks and end term examination since those learners who spend most time in sports participation is those at advanced levels like regional and nationals and tend to miss most class sessions. Therefore, if learners are guided to balance between participation in sports competitions and academic pursuits, they will benefit a lot.

4.6 Teachers Perception of the Role of Sports involvement in Academic Performance

Teachers' perceptions on the role of sports competitions in academic performance were sought. Statement was used to gauge their perceptions and they in turn were expected to rate the statement. The findings are shown in Table 11.

Table 11: Teachers' Perceptions of the role of Sports competitions in Academic Performance

STATEMENT	SA		A		UD		D		SD	
	F	%	F	%	F	%	F	%	F	%
When learners participate in sports competitions, their academic performance improves	14	18.7	30	40.0	3	4.0	27	36.0	1	1.3
Participation in sports competitions doesn't affect learners time for study because they complete their assignments in time	4	5.3	27	36.0	2	2.7	34	45.3	8	10.7
The school attendance of the participants of sports competitions is high during the season of sport	21	28.0	21	28.0	2	2.7	25	33.3	6	8.0
Participants of sports competitions attend to class and lessons regularly	0	0	32	42.7	10	13.3	17	22.7	16	21.3
Learners who participate in sports competitions are more attentive in class	1	1.3	25	33.3	20	26.7	28	37.3	1	1.3
Learners who participate in sports competitions work independently in solving academic problems	0	0	28	37.3	8	10.7	27	36.0	12	16.0
Learners who participate in sports competitions are lazy in class work	4	5.3	15	20.0	8	10.7	34	45.3	14	18.7
Parents complain about their children involvement in sports competitions	12	16.0	43	57.3	0	0	15	20.0	5	6.7
Some teachers ridicule pupils in class especially those who excel in sports competitions and don't do well in academics	8	10.7	26	34.7	11	14.7	17	22.7	13	17.3
Those learners who participate in sports competitions are generally poor in academic work	4	5.3	14	18.7	7	9.3	38	50.7	12	16.0

Source: Researcher 2019

4.6.1 Teachers perception on learners involved in sporting and academic performance

Perception on Teachers' perceptions on whether learners' academic performance improve when they participate in sports competitions shows that 14 (18.7%) strongly agree, 30 (40.0%) agree, 3 (4.0%) were undecided, 27 (36.0%) disagreed and 1 (1.3%) strongly disagreed. The findings revealed that majority of the teachers agreed that learners' participation in sports competitions improves learners' academic performance. According to Huang et al (2022), there is an association between

physical activity, brain health and general cognitive functioning and physical activity can be through among others exercises and sports. They further aver that there is improved learning from physical exercise which boosts the brain and promotes the maxim-reading, writing, arithmetic and overall performance. From the interviews most head teachers expressed that, learners who participates in sports have a good memory and they stay focused in their studies and learn skills such as coordination, multi-tasking and situational awareness which enhances learning skills.

4.6.2 Sporting on school attendance

Majority of the respondents at 33.3% disagreed that school attendance of learners involved in sporting activities was high during sporting season while 28% strongly agreed and another 28% agreeing, sporting may be one of the factors that determine learners school attendance. The finding confirms Gitonga (1998) finding that learners involved in sporting recorded high rate in school attendance. 33.3% or respondents who disagreed may signify the fact that learners involved in sporting may attend school regardless of the season, probable other factors that motivate learners to attend school. From discussions, respondents whose views indicated that sporting motivated learners' school attendance cited that sporting provided an opportunity to socialize and explore outside school and home environments. One respondent said learners involved in specific sporting like athletics and volleyball are likely to be in school for competition as it's viewed as a realistic opportunity to join professional and well-paying athletics and make a life career. The finding affirms Gitao (2008) findings that material incentives may motivate learners to be involved in sporting hence they are likely attend school during sporting seasons so as to pursue sporting careers and escape poverty.

4.6.3 Sports involvement on learners' class attendance

A total of 42.7% of respondents agreed that learners involved in sporting attend classes regularly while a combined 44% either disagreed or strongly disagreed. Learners involved in sporting attend lessons regularly pointing an aspect of discipline

in balancing both academics and sporting. One of the interview participant said that although learners involved in sporting may miss some of lessons conducted while the learners are out of classroom setting for sporting preparation and participation, the school management had devised ways on offering remedial lessons and help such learners catch up on missed lessons. Most of the schools also schedule sporting trainings and preparations of learners involved in sporting to run concurrently with times when other learners are in games, hence none of them misses out on class lessons. Nevertheless some learners involved in sporting fail to attend classes and even in cases where there are arrangements for remedial lessons. Four of respondents interviewed indicated that some of their learners involved in sporting are not keen to complete the assigned given to other learners and rarely consult subject teachers on areas that such learners need some help. An observation was also made where such learners are seen in school mostly during their sporting of liking seasons and disappear at the end of such seasons.

37.3% of the respondents agreed that learners involved in sporting were not attentive in class. The finding is similar with Hicks (2018) who argues that some learners involved in sporting fail to take their academics seriously whereby they are inattentive in class. One of the interview respondent argued that some of the learners involved in sporting are not actively involved in class as compared to their involvement in sports where they appear to display their prowess in sporting.

4.6.4 Parents' role on learners' involvement in sports

The findings indicate that majority of the respondents at 57.3% indicated that the parents are likely to complained when their children are involved in sporting. This may result from stereotyping of sporting learners when they are viewed that they

waste time to sporting instead on concentrating on class work. Hicks (2018) also notes instances where learners involved in sporting are labelled as failures in class arising from their lower competitiveness in class work. Substantial size of respondents at 20% notes that some parents can encourage their children to be involved in sporting with caution that they need also to remain focused on their classwork, hence balancing both sports and academics. An interview participant noted of isolated cases where the parents supported their children involvement in sports even when they do not post good grades in class and both parents and learners know that sporting may be an avenue for the learner to either further his career outside school setting or get or sponsorship to further their academic ventures.

4.7 Relationship Between the Level of Involvement in Sports Competitions and Academic Performance for Learners

The relationship between learners' involvement in sporting and their subsequent academic performance was pegged on both internal and external factors of the learners involved in sporting. The learners' perception of sporting and academics as internal factor is key as well as teachers and parents' perception and resulting support.

4.7.1 Analysis of academic performance of learners involved in sporting

The results in Table 12 and Table 13 shows result on the role of sports on academic performance as per the document analysis.

Table 12: Document Analysis on Average Scores

Year	Class	Number of participants.	Term	Mean score Of participants	schools mean score	
2019	6	76	1	232	224	
			2	270	257	
			3	250	234	
					250.7	238.3
	7	68	1	245	260	
			2	290	254	
			3	270	261	
					268.3	258.3
	8	58	1	275	246	
2			320	243		
				297.5	237.74	
TOTALS		202				

Source: Researcher 2019

Table 12 shows the analysis on average scores of pupils for the three classes during the year 2019. From the scores, participants in class 6 scored an average of 250.7, participants in class 7 scored an average of 268.3 and participants in class 8 scored an average of 297.5 as entry score. The analysis shows an upward trend in performance. In comparison to the KCPE performance of the whole county 2018 which was at 232.85 and 2019 which was at 237.74, the mean score of participants who are in standard 8 is higher, 297.5, this implies that pupils who participate in sports competitions do better in their examination as compared to the average mean score of the whole class from schools that participants were drawn. This performance can be attributed to the level of maturity and the value attached to academic and sports.

These findings are amplified by studies done by Bernstein (2010) who concluded that generally, young people who exercise more often are proven to be more academically inclined between the ages of 11 to 16. From the table the study concludes that high involvement in sports can increase academic performance scores for all pupils across the three classes under study are relatively high than the average scores of the whole

class. To further understand individual performance, the researcher conducted document analysis on class position whose findings are indicated in Table 13 below;

Table 13: Analysis of Class Positions of learners involved in sporting

Year	Class	No.	Position Ranges	F.	%
2019	6	76	1-20	18	23.7
			21-40	25	32.9
			41-60	23	30.3
			Above 60	10	13.1
	7	68	1-20	16	23.5
			21-40	23	33.8
			41-60	21	30.9
			Above 60	8	11.8
	8	58	1-20	13	22.4
			21-40	19	32.8
			41-60	18	31.0
			Above 60	8	13.8
TOTALS		202		202	

Source: Researcher 2019

Table 13 shows that on average competitors perform better across all classes under study. The findings were that 18(23.7%), 16(23.5%) and 13(22.4%) came in first 20 position in standard 6,7 and 8 respectively, 25(32.9%), 23(33.8%), 19(32.8%) were in positions ranging from 21-40 in standard 6,7 and 8 respectively, 23(30.3%), 21(30.9%), 18(31.0%) were in positions ranging from 41-60 in standard 6,7 and 8 respectively and 10(13.1%), 8(11.8%),8(13.8%) were in positions ranging from 60 and above in standard 6,7 and 8 respectively. Majority of competitors were between positions 1-40(56.6%) in standard 6, 57.3% in standard 7 and 55.2% in standard 8. From the findings only 26 learners out of the 202 sampled performed poorly in their academics and there could be other factors that contribute to this not involvement in sports competitions. Studies have shown that participating in sports competitions has been known to improve the cognitive and memory functions of the brain, helping kids perform better in assessments and academics (Bernstein 2010). He further says that sports promote traits such as good morals, better character, self-control, discipline and

endurance which play an important part in better academic performance. Therefore, sports competitions play a vital role in academics.

4.8 Testing of Hypothesis

The researcher also sought to find out if there was any statistical relationship between the level of participation in sports competitions and academic performance for learners in public primary schools. Chi-Square test was done and the table 14 below shows its findings:

Table 14: Chi-Square test on the Relationship between Level of Participation in Sports and academic Performance according to teachers

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	112.901	36	0.000
Likelihood Ratio	93.954	36	0.000
Linear-by-Linear Association	0.376	1	0.540
N of Valid Cases	75		

Source: **Researcher 2019**

Table 15: Chi-Square test on the Relationship between Level of Participation in Sports and Performance according to learners

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	117.809 ^a	22	0.000
Likelihood Ratio	84.984	22	0.000
Linear-by-Linear Association	0.249	1	0.617
N of Valid Cases	202		

Source: **Researcher 2019**

On carrying out the association between the level of participation in sports competitions and academic performance, results from the table 14 above shows the chi-square statistic obtained as 112.901 and a probability P value of 0.000 which is less than 0.05, which is significant level. From table 15 the chi-square statistic

obtained were 117.809 and a probability P value of 0.000 which is also less than the 0.05 significant levels. This therefore shows that in both cases there is a positive association, that is, participation in sport competition influences academic performance. Therefore, we reject the null hypothesis that states that there is no statistically significant association between the level of participation in sports competitions and academic performance and accept the alternative hypothesis that there is statistical relationship between the two variables. We conclude that level of participation in sports competitions indeed enhances academic performance and that the two variables are dependent of each other.

4.9 Chapter Summary

This chapter has looked at data analysis, presentation and interpretation in relation to the objectives of the study, it looked at introduction, response rate of the respondents which exceeded the minimum recommendation. Background information of the respondents and the findings were; on gender the majority of the pupils who participated in competitive sports at various levels in the County were girls, that pupils who participated in sports competitions were between 12-15 years of age and majority of the pupils' were in class six while the minorities were in class eight. Types of sports learners participates in and it was found that most of the sampled pupils were active in different types of sports. The time learners take to prepare for zonal competitions the finding was that not much time is given to prepare. Learner's level of sports participation it was evident that pupils in the sampled schools had participated in sports competitions mostly up to the zonal, sub-county and county levels. The academic performance of learners who participates in sports it was found that if learners are guided to balance between participation in sports competitions and academic pursuits, they will benefit a lot. Perceptions of both teachers and learners on

the role of sports competitions on academic performance; for sports creates a child friendly environment in school which in turn fosters learning and academic performance. Lastly, analyzed the document of academic scores of those learners who participated in sports competitions at various levels which revealed that high involvement in sports can increase academic performance for only 26 learners out of the 202 sampled performed poorly in their academics.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The purpose of this study was to investigate the relationship between involvement in sports and the academic performance for learners in public primary schools in Bungoma County. This chapter of the study contains summary of the main findings, conclusions and recommendations.

5.1 Summary of the Findings

The study sought to establish the relationship between sports involvement and academic performance for learners in public primary schools in Bungoma County. The study was guided by five objectives that focused on determining the learners' level of participation in sports competitions in public primary schools; to assess the teachers' perception of the relationship between involvement in sports and academic performance for learners in public primary schools; to evaluate the learners' perception of the relationship between involvement in sports and their academic performance in public primary schools; to determine the academic scores of learners who participate in sports in public primary schools and to evaluate the relationship between the level of participation in sports and academic performance for learners in public primary schools.

On the learners level of sports involvement most of the sampled pupils participated actively in different types of sports. However, this dependent on the availability of the facilities and equipment for sports.

Most of the learners participated up to Zonal level.as they advanced, the number reduced due to high competition

Low participation was attributed to insufficient facilities, equipment, finances and mode of team selection which discourages both learners and teachers to devote their time and efforts.

On perception of learners on the relationship between sports involvement and academic achievement

Most learners reported that engaging in sports helped them improve in their academic. Even the head teachers were in agreement with learners' perception

On teachers perception on the relationship between involvement in sports and academic achievement

Generally all teachers were in agreement that the scores of pupils participating in sports were above average.

A large percentage of teachers said sports did not negatively affect the performance.

They opined that pupils who participated in sports are all round pupils in the schools, most of them hold leadership positions in schools.

There was variation in perception of performance from daily class tasks and end term examination since those learners who spend most time in sports participation is those at advanced levels like regionals and nationals and tend to miss most class sessions though this does not affect academic performance.

Also, teachers are inclined to academic results than the holistic development of their children.

Also, some teachers said that participation in sports competitions affect and interfere with academic programs, at same time participants who excel in sports competitions

are not given incentives unlike academic giants who are given prizes this discourages the morale of participation in sports

On the academic scores of learners who participates in sports competition

Their scores were above average

Their academic performance was fair.

On the relationship between involvement in sports and academic achievement

Head teachers reported that participation in sports competition has positive impact on memory and cognitive functioning of the brain.

The findings revealed that learners' participation in sports competitions improves their academic performance. Since, participation in sports competitions does not affect learners study time and completion of assignment, school attendance is high during sports season this increase the contact time of learners with teachers, learners who participate in sports are more attentive and hardworking in class. It was ascertained that learners who participate in sports competitions are the most interesting group to deal with, they are disciplined, resilient and ready to be corrected. From the majority of the respondents, Participation in sports improved learner's concentration in class, which they felt energized fresh and not fatigued and noted that most teachers encouraged them into participation in sports competitions.

The results of the study show that sports competitions act as a relief from hard academic work and schedules, it creates a child friendly learning environment that fosters learning and in turn academic performance. It further revealed that if learners are guided to balance between academic pursuits and participation in sports competitions, they will realize their educational goals.

5.2 Conclusions of the Study

The conclusion in this section is based on the five objectives of the study; to determine the learners' level of participation in sports competitions in public primary schools; to assess the teachers' perception of the role of sports competitions in academic performance for learners in public primary schools; to assess the learners' perception of the role of sports competitions in their academic performance in public primary schools; to determine the academic scores of learners who participate in sports competitions in public primary schools and to assess the relationship between the level of participation in sports competitions and academic performance for learners in public primary schools. In relation to the first objective the study revealed that most of the pupils who participated in sports competitions were girls. It was also noted by the majority that the most pre-dominant sport activity that pupils were involved in was athletics followed by football and the least sport activity was handball.

Research on the second objective of the study showed that most of the teachers believe that participating in sporting activities affects positively the academic performance of the participants. This was in line with the perception that the learners had in the third objective; where they believed that participating in sports competitions had more benefits than challenges such as increased concentration in class and improved grades. This shows an agreement on the perceptions that the pupils and teachers have regarding the impact of sports on academic performance. Majority on the second and the third objectives accepted that taking part in sports competitions have a positive impact on memory and cognitive functions of the brain which helps an individual to stay focused in their studies and learn skills for instance

coordination, multi-tasking, problem solving and situational awareness which improves academic skills.

The fourth objective revealed that the pupils who take part in sports competitions in public primary schools perform fairly well in examinations by appearing at the top of their respective classes. However, some teachers feel that this trend of performance is only manifested during the sports season. From the majority's perceptions the study concludes that participation in sports competitions indeed enhances academic performance. The fifth objective level of participation in sports competitions and academic performance of pupils in public primary schools. The majority said that participation in sports competitions does not affect learners study time and completion of assignment. In addition, there is a lot of benefits that learners get from participating in sports competitions which gears towards holistic development. The study concludes that equilibrium is required between participation in sports competitions and class performance.

5.3 Recommendations of the Study

Sports continue to play an integral part in holistic development of learners. This stand is affirmed by the government in the Circular MOE.HQS/3/4/15/Vol.II/ (239) – competency based curriculum has considered talent development as important component that will enable learners realize holistic education by developing key value and knowledge that will apply in real life situation and become productive members of society-. However, the government allocates only Ksh. 20 per pupil as at 2019 on capitation towards co-curricular. This amount is not sufficient to cater for sports to the highest levels.

On the first objective, this study recommends sufficient allocation towards sports in form of grants, capitation and scholarship to help competitors proceed to highest levels of sports and learning altogether. The study further recommends changes to constitute team model as opposed to selection model where some deserving competitors are unfairly left out due to biasness and corruption. This will motivate more participants and teachers to take part.

On the second objectives, the study recommends a lot of sensitizations, awareness creation and advocacy on the linkage between sports competitions and education is highly required in primary school. This can be carried on by government and non-government actors on sports to help pupils realize the positive relationship between sports competitions and academic development.

On the third objective, the study recommends that teachers should be sensitized on essence of sports involvement, taken to sports clinics and motivated in implementing the co-curriculum. Participation in sports competitions in primary schools should be made more serious through provision of more sport facilities and equipment to enable more pupils participate. This can be done through private and public partnership, mentoring, scholarship, innovation in sports, construction of modern sports facilities and research in sports.

On the fourth objective, teachers should organize for remedial lessons for participants who misses out lessons. Learners who participate in sports and are slow learners should also be given remedial / individual academic assistance.

On the fifth objective the study recommends that for sports to contribute sufficiently towards improved academic performance, the two must be balanced. Motivation for both teachers and competitors need to be initiated to reward achievers in both sports

and academics. Collaboration and cooperation among individuals, national and international agencies, NGOs must come forth to foster this relationship.

5.4 Suggestion for Further Research

Based on the findings of this study and gaps found, this study recommends a study on the relationship between level of participation in sports competitions and academic performance on learners in public primary schools.

- i. The study suggests for research on the effect of perception towards involvement in sports and academic performance for learners in public primary schools.
- ii. A study on the comparison between the academic performance of learners who participate in sports competitions and those who do not participate in sports competitions in public primary schools
- iii. The study suggest that similar study needs to be done on other areas to compare with the findings of this study.

REFERENCES

- Anyango, V. (2012). *Influence of co-curricular activities on academic achievement of public primary school pupils in Kisumu Municipality*. University of Nairobi: unpublished master's thesis.
- Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development* , 40(5), 518-29.
- Babbie, E.R (2016). *The practice of Social Research.14th edition* . Boston : Cengage Learning.
- Bailey, R. (2006). Physical Education and Sports in School: A Review of Benefits and Outcomes, *Journal of School Health* 76(8), 397-401.
- Bernstein, L. (2010). *A growing body of evidence links exercise and mental acuity*; . Washington DC: Washington Post.
- Blair, S. K. (2003). Physical Fitness and all-Cause Mortality: Perspective Study of Healthy Men and Women, . *Journal of the American Medical Association*, 262(17).
- Broh, B. A. (2002). Linking Extracurricular Programming to Academic Achievement: Who Benefits and Why? (Electronic Version). *sociology of education*, 75, 69-96.
- Bulinda M. H. (2017). Unbundling the Kenyan Sports Act: Role, Challenges and Opportunities in the Kenyan Sports Act 2013; *European Journal of Physical Education and Sport Science*. Volume 3- Issue 10 - 2017.
- Bungoma County Government (2018). *Bungoma County Integrated Development Plan 2018 –2022*. Bungoma, Kenya: County Government of Bungoma.
- Bungoma County Government. (2021). *Reports; Department of Education* . Bungoma, Kenya: County Government of Bungoma.
- Chege, E., & Njeri (2013). *Implementation of co-Curricular Activities in Secondary Schools; a Case of Kikuyu Division Kiambu County, Kenya*. Kenya: Unpublished Project; Kenyatta University .
- Cheshire, J. (2007). *The Attitudes of University Medical Students towards Sport Participation: a case of Moi University*. Eldoret, Kenya: Unpublished Masters' thesis, Moi University .
- Choi, H.S., Johnson, B., & Kim, Y.K. (2014) . Children's Development through Sports Competition:. *Derivative adjustive, Generative, and Maladaptive Approaches. Quest*, 66 (2) , 191-202.
- Coakley, J., & Dunning, E. (2000). *Hand book of sports study in California State*. California: SAGE Publications,
- Cohen L., Manion L., & Keith, M. (2013). *Research Methods in Education* 8th ed. Abingdon, Oxon; New York: Routledge.

- Creswell, J. W. (2018). *Research Design: Qualitative, Quantitative and Mixed methods approaches*. Los Angeles: Sage.
- Creswell, J. W. (2012). *Educational research: planning, conducting, evaluating, qualitative and quantitative research (4th ed.)*. United States of America: Pearson education Inc.
- Dahl K. D. (2013). *External Factors and Athletic Performance*. Unpublished Project Liberty University.
- Dale. H. S. (2012). *Learning Theories: An Educational Perspective*.: 501 Boylston Street, Boston, MA: Pearson Education, Inc., publishing as Allyn and Bacon,
- Darling N, Caldwell, L.L., & Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *J. Leisure Res.* 37, 51-77.
- Davis, C. L., Tomporowski, P. D., Boyle, C. A., Waller, J. L., Miller, P. H., & Algieri, J. A. (2007). Effects of aerobic exercise on overweight children's cognitive functioning: A randomized controlled trial. *Research Quarterly for Exercise and Sport*.
- Entine, J. (2000). *Taboo: Why Black Athletes Dominate Sports. And why we are afraid to talk about it*. New York: public Affairs.
- Fraenkel, R.J., Wallen, E.N., & Helen, H. (2018). *How to Design and Evaluate Research in Education*, 10th ed. McGraw-Hill: Boston.
- Fuller. D., Sabiston, C., Karp, L., Barnett, T., & Oloughlin, J. (2011). School Sports opportunities influence physical activity in secondary school and beyond. *in journal of sports health. Volume 81*: pg 445-450.
- Gitao, F. (2008). *Development of sports entrepreneurship in the North Rift Region, Kenya*. Eldoret, Kenya: Unpublished MA Thesis Moi University.
- Gitonga, E. (2003). *The Effects of Participation in Competitive Sports on Academic*
- Guest, A., & Schneider, B. (2003). Adolescents' Extracurricular Participation in Context: The Mediating Effects of Schools, Communities, and Identity . *Sociology of Education*: 76(2)89 .
- Hardman, K., & Marshall, J.J. (2006). The State and Status of Physical Education in Schools in International Context. *European Physical Education Review*, 6(3)203-229.
- Hicks, K. (2018). *The Postive and Negative impacts of Sports on College Student*. Liberty University
- Hilvoorde I. V, Elling A. and Stokvis R (2010). How to influence national pride? The Olympic medal index as a unifying narrative. *International Review for the Sociology of Sport* 45(1) 87–102. DOI: 10.1177/1012690209356989

- Huang Q, Zhao J, Jiang W, Wang W. (2022). The Association between Physical Activity and Cognitive Function: Data from the China Health and Nutrition Survey. *Behav Neurol.* 2022 Jun 20; 3438078. Doi: 10.1155/2022/3438078. PMID: 35769517; PMCID: PMC9236826.
- International Council of Sports Science and Physical Education. (2001). *World Summit on Physical Education*. Berlin, Germany.
- Jakoyo.G.S (2016, May 29). We must stop viewing education purely as an academic venture. *Sunday Nation*, p. 16.
- Khan, S. (2018). Sports Media, Marketing and Management: Breakthroughs in Research and Practice. *journal of marketing management*, 36(2)173-187.
- Kidokoro, T., Fuku, N., Yanagiya, T., Takeshita, T., Takaragawa, M., Annear, M., Xiaojie, T., Waiganjo, L.B., Bogonko, L.F., Isika, J.K., Kigaru, M.D., Mwangi, F.M. (2020). Physical Activity and Sedentary Behaviour Patterns among Kenyan and Japanese Children: A Comprehensive Cross-Country Comparison. *Int. J. Environ. Res. Public Health* 17, 4254; <https://doi.org/10.3390/ijerph17124254>
- Kipchumba B., & Jepkorir, R. C. (2015) Sports policy in Kenya: deconstruction of colonial and post-colonial conditions, *International Journal of Sport Policy and Politics*, 7:2, 301-313, DOI: [10.1080/19406940.2015.1023823](https://doi.org/10.1080/19406940.2015.1023823)
- Kirui, J., Kipkoech, L.C., & Simotwo, S. (2008). Analysis of the Extent of Students' Involvement in Sports Activities in Secondary Schools in Uasin Gishu County, Kenya. *Emerging Trends in Educational Research and Policy Studies*, vol.4 (2).
- Kisilu, D.K., & Tromp, L.A. D. (2011). *Proposal and Thesis writing: an introduction*. Nairobi Kenya: Paulines publications Africa.
- Kitui, B. M. (2015). *Factors influencing access to technical and vocational Education and training in Bungoma East Sub-County County*. Nairobi: Masters of Education University of Nairobi.
- KNEC (2014, November 25,Tuesday). Kenya Certificate of Primary Education English Examination: Section B. *composition Writing*, 1-4. Nairobi: KNEC.
- Kothari C.R., & Garg G. (2014) *Research Methodology: methods and techniques*. New Delhi:New Age International Pulishers.
- Koul, L. (2008). *Educational Research and ensuring quality standards*.*Ejournal of all-india association for educational research*, <http://w.w.w.ejournal.usiaer.net/vol20208/5 htm>.
- Kucukibis H. F. (2019). Study on Sports High School Students' Motivation Levels in Sports by Some Variables. *Universal Journal of Educational Research* 7(3): 839-847. <http://www.hrpub.org> DOI: 10.13189/ujer.2019.070325 accessed on 2/5/2022.
- Larissa, T (2019). *The positive impact of sport on education:ChildFund Rugby Australia*. Australia: 162 Goulburn St Surry Hills.

- Luvinzu, A. (2022). Education can Produce good Citizens for a better Society. *Standard Newspaper*
- Mahlmann, P., Asembo, J. M. and Korir, M. (1994). A target oriented analysis of sport in Kenya. *Journal of Eastern African Research and Development*, 24: 102-117.
- Marsh H.W., & Kleitman S. (2002). Extracurricular activities: The good, the bad, and the nonlinear. *Harvard Educational Review*, 72,464-515.
- McCombs, B.L., & Whisler, J.S. (2017). *The learner-centered classroom and school: Strategies for enhancing student motivation and achievement* . San Francisco: CA: Jossey-Bass.
- Mcnamee, M. (2005). The Nature and Values of Physical Education . In Green, K. and Hardman, K (Eds) *Physical Education* (pp. pp 1-20). London Sage : Essential issues.
- Miller, K. E., Sabo D.F., Farrell, M.P., Barnes, G.M., & Melnick, M.J. (2005). Sports, sexual behavior, contraceptive use, and pregnancy among female and male high school students: Testing cultural resource theory. *Sociology of Sport Journal*, 16, 3.
- Ministry of Education, Science and Technology (2001). *Report of the Taskforce on Students discipline and unrest in secondary schools*. Nairobi: Government Printer.
- Ministry of Education, Science and Technology (2002). *Primary Education Syllabus*. Vol.1 page 166 -190
- Ministry of Education, Science and Technology (2013). *Basic Education Act*. Government Printer; Nairobi
- Ministry of Education, Science and Technology (2014). The Republic of Kenya Co-Curricular Activities Calendar 2015. *A circular letter Ref. No.-QAS/M/1/91*
- Ministry of Education, Science and Technology (2015). The Republic of Kenya Co-Curricular Activities Calendar 2015. *A circular letter Ref. No.-QAS/M/15/VOL 11*. Nairobi: government printers.
- Ministry of Education, Science and Technology (2017). *KCPE analysis for 2016* . Nairobi: Government Printer.
- Ministry of Education, Science and Technology State Department of Education. a. (2019). *Disbursement of 2019 FPE Funds. Circular Letter Ref. no.MOE/DBE/6/2*. Nairobi: government printers.
- Motah, J. (2019). *The power of sports in promoting quality education-Moving The Goalposts Kilifi*. Kenya: sportanddev.org.
- Mugenda, O., & Mugenda, A. (2003). *Research Methods; Qualitative & Quantitative Approaches*. Nairobi: African Center of Technology Studies Press.

- Mugweru, M. (2022). Institutional Determinants of the implementation of Inclusive Physical Education and Sports Programs in Public Schools in Nairobi City Council, Kenya. Unpublished Masters Project, University of Nairobi.
- Mukhayе, L. O. (2018). Behavior modification techniques used by teachers to change maladaptive behaviours of secondary school students during games in Kimilili Bungoma County. Kenya: unpublished masters Thesis Kenyatta University.
- Muniu, R. K. (2009). *Sports participation and examination-related stress among selected Kenyan secondary school students*. Nairobi, Kenya: Unpublished Ph.D Thesis, Kenyatta University .
- Mwangi, M., Kamenju, W., & Rintaugu, G. (2013). The Educational Role of Kenya Teachers Colleges Sports Association (KTCSA). *International Journal of Education and Research* , 1 (7).
- Mwihaki, M. G. (2007). *The Psycho-social factors affecting Participation in Swimming in Nairobi Secondary Schools*. Nairobi, Kenya: Unpublished M.Ed thesis, Kenyatta University.
- National Federation of State High School Association (2002). *The case for high school activities*. Chicago: NFHS.
- Nduati, W. (2015, March 7). Standard Nation News Kenya March 7, 2015 pg 14. *Starndard Newspaper*, p. 14.
- Ngare, K. (2007, March 01). School heads on their secret of success. *Daily Nation*, pp. 6-7.
- O'Neil, M. M., Calder, A. A., and Hinz B. (2017). Student-Athletes in my Classroom: Australian Teachers Perspective of the Problems faced by student-Athletes balancing School and Sports. *Australian Journal of Teacher Education*, 42 (9). Accessed 26/6/2021
- Olwalo, D. (2014, August 18,). Candidates excluded in sports. *Standard Media*, p. 8.
- Omoke, J. (2009). *The Role of Co-curricular Activities in Social and Academic Development of Student in Suneka Division of Kisii South District*. Nairobi, Kenya: Unpublished Research Project, the Catholic University of Eastern Africa.
- Ongonga, J. O. Okwara, M.O and Okello, T.M. (2010). Sports and secondary school Education in Kenya. *Journal of Educational Research*, 1(11) pp. 609-617.
- Onywera, V.O., Muthuri S.K., Hayker S., Wachira L.M., Kyallo, F., Mang'eni R.O., Bukhala, P., & Mirer, C. (2016). Results From Kenya's 2016 Report Card on Physical Activity for Children and Youth. *Journal of Physical Activity and Health*, (13) (Suppl 2), S195 -S200 <http://dx.doi.org/10.1123/jpah.2016-0359>.
- Pettai, M. (2019). *International school sport federation*. Centre-Euractiv: international Press .

- Rashid, A.S., & Sasidhar, B. (2005). Teacher's Perception on the Effectiveness of Co-Curricular Activities; a Case study of Malaysia Schools. *Uniter e-journal* , vol. 1 no.1.
- Republic of Kenya (2003). *Kenya National Sports Policy*. Nairobi: Government Printer.
- Republic of Kenya (2013). *The Sports Act (No.25 of 2013)*. Nairobi: Government Printer.
- Republic of Kenya (2017). *2015 Kenya National Adolescents and Youth Survey (NAYS) National Council for Population and Development*., Nairobi, Kenya: Government Printers.
- Republic of Kenya (2018). *National education sector strategic plan 2018-2022*. Nairobi, Kenya: Government Printers.
- Republic of Kenya (2019). *Early Years Education Training Curriculum Facilitators Manual on Competence Based Curriculum*, Nairobi, Kenya: Government Printers.
- Russell, N.C., Peter, C., Donald, F.D., & Robert, C. R. (2000). *Extracurricular involvement in high school produce honesty and fair play needed to prevent delinquency and crime*. chula vista: Education.
- Sabo, D., & Phil, V. (2008). *Progress without equity; the provision of high school athletic opportunities in U.S.A*. East Meadow-New York: womens sports foundation.
- Singh, A. (2017). Effect of co-curricular activities on academic achievement of students. *IRA international journal of education and multidisciplinary studies* (ISSN2455-2526)6(30)241-254. doi:<http://dxdoi.org/10.21013/jems.v6n3.p4>.
- Society, International Bible. (1984). *New international Version (NIV). 3rd edition* . Colorado: Colorado Springs .
- Stephen, L., & Schaben, L.A. (2002). The Effect of Interscholastic Sports Participation on Academic Achievement of Middle Level School Activities. *journal of sports*, Volume: 86 issue: 630, page(s): 34-41.
- Taliaferro, L. Rienzo B., Miller, M. Pigg, R. and Dodd, V. (2013). High school youth and suicide risk: exploring protection afforded through physical activity and sport participation . *J School Health*, 78(10):545-553.
- UNESCO. (1978). *International Charter of Physical Education, Physical Activity and Spor*. Geneva: UNESCO.
- UNESCO. (2003). *Education Policy Analysis Archives*. Geneva: UNESCO.
- UNICEF (2010). *Marketing in Sports*. New York; Elsevier Ltd
- United Nation (2010). *Sport for Development and Peace report on Sport for Development and Peace International Working Group*. New York: UN.

- United Nations (2003). *Sports for development and peace: Towards Achieving the Millennium Development Goals; Report from the United Nations Inter-Agency Task Force on Sport for Development and Peace* . New York: UN.
- United Nations. (2001). *Learning for a future:Refugee Education in Developing Countries*. Geneva: UNHCR.
- Wamala, A. M. (2019). *Determinants of the implementation of Inclusive Education in public schools in Bungoma County*. Kenya: unpublished masters Maseno University.
- WBCSD. (2006). *A Healthy Tomorrow; WBCSD*. UK: Earth print Limited.
- Zhang H. (2008). Understanding of Competitive Sports Conducted by School under the New Curriculum Standard. *International Education Studies Journal* Vol. 1 No. 3. Soochow University.
- Zhao N. (2019). Research on the Reform of School Physical Education Based on Lifelong Sports Thought. Changchun Sci-Tech University, Changchun, 130000, Jilin, China. 5th International Conference on Education Technology, Management and Humanities Science pg 948- 951

APPENDICES

Appendix A: Introductory Letter

The Head Teacher

.....

RE: PARTICIPATION IN RESEARCH

My name is Joyce Munyelele Manyonge, a student at Moi University pursuing Master of Education in Early Childhood and Primary Education degree. I am conducting a research on the **Role of Sports involvement on Academic Performances for Pupils in Public Primary Schools**. This study seeks to determine learners' level of involvement in sports competitions, to assess teachers' and learners' perception of the role of sports involvement on academic performance of learners and establish the relationship between the level of involvement in sports competitions and academic performance. The findings from this study will be useful in identifying ways of improving learner performance in both sports and academic.

Your school has been selected to participate in this study. You are kindly requested to grant permission to enable the researcher to get information that helps to achieve the objectives of the study.

Yours faithfully,

JOYCE MUNYELELE MANYONGE

EDU/PG/EDH/1018/12

Appendix B: Questionnaire for Pupils

Dear Respondent,

My name is Joyce Munyelele Manyonge, a student at Moi University pursuing Master of Education in Early Childhood and Primary Education. I am conducting a research on the Role of Sports involvement and Academic Performances for Pupils in Public Primary Schools. This study seeks to determine learners' level of involvement in sports competitions, to assess teachers' and learners' perception of the role of sport involvement on academic performance of learners and establish the relationship between the level of involvement in sports competitions and academic performance. The findings from this study will be useful in identifying ways of improving learner performance. In the study, academic performance refers to the academic scores/marks scored in examinations and assignment and sports refers to taking part in sports that involves winning over other teams.

As a learner, you have been chosen to participate in this study. You are kindly requested to answer the questions in this questionnaire as honestly as possible. Please do not write your name on the questionnaire since all responses are confidential and anonymous.

SECTION A: INFORMATION ABOUT YOURSELF

1. How old are you? Please tick in the brackets []

Below 9 []

10-11 years []

12-13 years []

14-15 years []

Above 16 []

Gender: Girl [] Boy []

2. In which class are you? Std 6 [] Std 7 [] Std 8 []

SECTION B**PART 1: PUPILS' INVOLVEMENT IN SPORTS**

Sports are any game activities you take part in which you have to win over the person or the team you are playing against. The study is restricted to sports played from zonal level up to the national level.

1. In which sports do you participate?

Football []

Volleyball []

Netball []

Athletics []

Handball []

Leg ball []

Any other (specify).....

2. How much time do you take to prepare for sports before competing at Zonal level?

One month []

Three weeks []

Two weeks []

One week []

Less than one week []

Never []

Tick the sport participated in at the level indicated:

Level/ Sports	Football	Volleyball	Netball	Athletics	Handball	Leg ball
Zonal						
Sub County						
County						
Regional						
National						

SECTION C

PART 2: LEARNERS PERCEPTION OF THE ROLE OF SPORTS INVOLVEMENT ON ACADEMIC PERFORMANCE

Respond to the following statements by ticking only one of the following alternatives given that is: **Strongly Agree, Agree, Undecided, Disagree, and strongly disagree** whereby:

SA-Strongly Agree **A**-Agree **UD**-Undecided **D**- Disagree **SD**- Strongly Disagree

Statement	SA	A	UD	D	SD
My grades improve when I am involved in sports.					
When I participate in sports there is still enough time for academic work.					
Participation in sports does not stop completion of my class assignment.					
Participation in sports improves my concentration in class					
Taking part in sports makes school more enjoyable					
My friends think that when I participate in sports it affects my class work					
My parents think that when I take part in sports I will perform poorly					
Some teachers think that when I take part in sports my learning in school is affected					

THANK YOU FOR PARTICIPATING IN THIS STUDY

Appendix C: Questionnaire for Teachers

Dear Respondent,

My name is Joyce Munyelele Manyonge, a student at Moi University pursuing Master of Education in Early Childhood and Primary Education. I am conducting a research on the *Role of Sports involvement On Academic Performances for Pupils in Public Primary Schools*. This study seeks to determine learners' level of involvement in sports competitions, to assess teachers' and learners' perception of the role of sports involvement on academic performance of learners and establish the relationship between the level of involvement in sports competitions and academic performance. The findings from this study will be useful in identifying ways of improving learner performance. In the study, academic performance refers to the academic scores/marks scored in examinations and assignment and sports refers to taking part in sports that involves winning over other teams. You have been chosen to participate in this study. You are kindly requested to answer the questions in this questionnaire as honestly as possible. Please do not write your name on the questionnaire since all responses are confidential and anonymous.

SECTION A: BIODATA

1. What is your teaching experience?

- | | |
|-------------------|------------------------------|
| 15 yrs. and above | [<input type="checkbox"/>] |
| 10-14yrs | [<input type="checkbox"/>] |
| 5-9yrs | [<input type="checkbox"/>] |
| 1-4yrs | [<input type="checkbox"/>] |

2. For how long have you been in your current school?

Less than a year []

1-3 yrs. []

4-6 yrs. []

7-9 yrs. []

10-12 yrs. []

Over 12 yrs. []

SECTION B

PART 1: PUPILS INVOLVEMENT IN SPORTSCOMPETITIONS

1. In the years indicated in the table below, how many pupils in your school participated in sports up to the following levels;

Level	2017
Zonal	
Sub county	
County	
Regional	
National	

2. Tick some of the sports that your pupils participate in:

Football []

Volleyball []

Netball []

Handball []

Athletic []

Leg ball []

Any other

3. How much time do learners take to prepare for the zonal sports competition?

One month []

Three weeks []

Two weeks []

One week []

Less than a week []

Never []

PART 2: ACADEMIC PERFORMANCE OF LEARNERS WHO PARTICIPATE IN SPORTS

1. Has any pupil who participates in sports led in examinations? Yes [] No []

2. If yes, how often: Always [] Sometimes [] Rarely []

PART 3: THE ROLE OF SPORTS IN ACADEMIC PERFORMANCE

1. How do you rate the performance of learners who participate in sports competitions in the following areas?

Assessment Period	Very Good	Good	Fair	Poor	Very Poor
1.1 Daily class work					
1.2 Weekly tests					
1.3 End of term examination					
1.4 End of year examination					

2. State any influence that involvement in sports has on academic performance in pupils?

Positive influence

.....

Negative influence

.....

SECTION C**PART 4: TEACHERS PERCEPTION OF THE ROLE OF SPORTS INVOLVEMENT ON ACADEMIC PERFORMANCE.**

- i. Respond to the following statements by ticking only one of the following alternatives given that is: **Strongly Agree, Agree Undecided, Disagree, and strongly disagree** whereby:

SA-Strongly Agree **A**-Agree **UD**-Undecided **D** – Disagree **SD**-Strongly Disagree

Statement	SA	A	UD	D	SD
When learners participate in sports, their academic performance improves					
Participation in sports doesn't affect learners time for study because they complete their assignment in time					
The school attendance of the participants of sports is high during the season of sports					
Participants of sports attend to class and lessons regularly					
Learners who participate in sports are more attentive in class					
Learners who participate in sports work independently in solving academic problems					
Learners who participate in sports are lazy in classwork					
Parents complain about their children involvement in sports					
Some teachers ridicule pupils in class especially those who excel in sports and don't do well in academics					
Those learners who participate in sports are generally poor in academic work					

- ii. What are the general comments of other teachers in the school about learners who participate in sports?

Positive comments

.....

Negative comments

.....

- iii. Do the learners participate willingly in sports? **Yes** [] **No** []
- iv. If NO, explain what cause the unwillingness

THANK YOU FOR PARTICIPATING IN THIS STUDY

Appendix D: Interview Guide for Head Teachers

SECTION A: EXPERIENCE AS HEAD TEACHER

- A. How long have you served as a Head Teacher?
- B. Length of service in the current station as Head Teacher

SECTION B

PART 1: PUPILS INVOLVEMENT IN SPORTSCOMPETITIONS

- i. Which are some of the games that your learners feature in most?
- ii. How many learners from your school participated in sports at?
 - Zonal level
 - Sub-county level
 - County level
 - Regional level
 - National level
- iii. What are your comments on involvement in sports in your school in relation to academic performance of learners who participate in sports at different levels?
.....
- iv. What are the rewards for the top performers in sports both at school and beyond?
.....

PART 2: ACADEMIC PERFORMANCE OF LEARNERS WHO PARTICIPATE IN SPORTSCOMPETITIONS

- a. What are the rewards for the top performers in academic both at school and beyond?
.....

PART 3: THE ROLE OF SPORTSINVOLVEMENT ON ACADEMIC PERFORMANCE

- a. In your view, do you think sporting improves academic performance?
.....

PART 4: LEARNERS AND TEACHERS PERCEPTION OF THE ROLE OF SPORTS INVOLVEMENT ON ACADEMIC PERFORMANCE

1. In your view, what is the perception of learners towards involvement in sports?

.....

2. Comment on perception of teachers towards pupils' involvement in sports?

.....

3. In your view, should sports be enhanced in your school to bring on board more participants?

.....

THANK YOU FOR PARTICIPATING IN THIS STUDY.

Appendix E: Focused Group Schedule.

1. What is the name of your school?
2. Is your school boarding/day/mixed/girls/boys?
3. Does your school participate in sports competitions?
4. What are the games that learners feature most in your schools?
5. Are you satisfied with the number of participants representing your schools in sports competitions, Yes/No
 - a) If No, state areas you feel that are dissatisfying
 - b) Explain how we can remedy or improve on it
6. Comment on the academic performance of learners who participate in sports competitions
7. In your opinion is there any benefits of being involved in sports competitions
 - First, to academic performance
 - Second, healthy
 - Third, any other
8. How best can a participant in sports competitions be motivated to participate and perfect their talents?

9. Comment on the perceptions of the following towards learners involvement in sports competitions,
 - a) Parents
 - b) Teachers
10. In your view, how could sports competitions be enhanced in your school to bring on board more participants?
11. What are your suggestions about involvement in sports competitions in public primary schools?
12. In your views, do sports competitions influence academic performance, Yes/No
 - a) If Yes, state briefly how it influences
 - b) If No, please expound on the limitations
13. Comment on the mode of training for sports competitions and practices of sports for competitions in our public primary schools
14. What are the challenges that sporting activities encounter in terms of:
 - a) The sports activities
 - b) The participants in the various sports

THANK FOR YOUR PARTICIPATION.

Appendix G: Research Permit

CONDITIONS

- 1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit.**
- 2. Government Officer will not be interviewed without prior appointment.**
- 3. No questionnaire will be used unless it has been approved.**
- 4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.**
- 5. You are required to submit at least two(2) hard copies and one (1) soft copy of your final report.**
- 6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice**



REPUBLIC OF KENYA



National Commission for Science, Technology and Innovation

RESEACH CLEARANCE PERMIT

Serial No.A 13877

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:

MS. JOYCE MUNYELELE MANYONGE
of MOI UNIVERSITY, 0-50205

WEBUYE,has been permitted to conduct research in Bungoma County

on the topic: THE RELATIONSHIP BETWEEN PARTICIPATION IN COMPETITIVE SPORTS AND ACADEMIC ACHIEVEMENT FOR LEARNERS IN PRIMARY SCHOOLS IN BUNGOMA COUNTY

for the period ending: 28th April,2018

Permit No : NACOSTI/P/17/55902/16602
Date Of Issue : 28th April,2017
Fee Received :Ksh 1000



Applicant's Signature

Director General
National Commission for Science, Technology & Innovation