

**INFLUENCE OF SCHOOL SOCIAL ENVIRONMENT ON STUDENTS'  
ACADEMIC PERFORMANCE IN PUBLIC SECONDARY SCHOOLS IN  
MACHAKOS COUNTY, KENYA**

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**A Thesis Submitted to the School of Education and Social Sciences in Partial  
Fulfillment for the Requirements for the Degree of Master of Education in  
Leadership and Education Management of Kenya Methodist University**

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**DECLARATION AND RECOMMENDATION**

I declare that this thesis is my original work and has not been presented for a degree or any other award in any other University.

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## **DEDICATION**

This work is dedicated to my family for their encouragement and unwavering support.

May this be a source of inspiration to them.

## **ACKNOWLEDGEMENT**

I am grateful to the Almighty God who enabled me to carry out this work this far. I wish to thank the Kenya Methodist University for providing me with the opportunity to pursue my Masters studies. My very sincere thanks go to my supervisors Dr. Ikiugu and Dr Thuba, for guidance and support, valuable suggestions, and a lot of time spent on reading and providing feedback. I am also grateful to my family for their unwavering support, love, patient and prayers.

## ABSTRACT

Despite substantial investment in physical educational facilities, many well-equipped public secondary schools in Kenya continue to experience declining academic performance, suggesting that non-physical factors may play a more significant role in student achievement than previously recognized. This gap in understanding the influence of school social environment on academic outcomes necessitated investigation beyond traditional infrastructure-focused approaches. The study determined the influence of school social environment on students' academic performance in public secondary schools in Machakos County. Using descriptive survey design grounded in social learning theory, the research targeted a population of 14,894 comprising 19 school principals, 483 teachers, and 14,392 students from national and extra-county schools. Through stratified and purposive sampling techniques, 315 respondents were selected: 10 principals, 30 teachers, and 275 students from 10 schools. Data were collected using self-administered questionnaires with 24 behavior sub-indicators measuring four social environment dimensions: teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics (motivation and involvement), and principal leadership styles. Descriptive and inferential statistical analyses were conducted using SPSS version 2016. Findings revealed that school social environment significantly influenced academic performance, with 82% of respondents affirming this relationship through descriptive analysis. Inferential analysis demonstrated statistically significant positive correlations across all dimensions: teacher-student interactions ( $R=0.65$ ,  $R^2=42.4\%$ ,  $p<0.001$ ), student-student interactions ( $R=0.91$ ,  $R^2=82.1\%$ ,  $p<0.001$ ), learner motivation ( $R=0.96$ ,  $R^2=91.8\%$ ,  $p<0.001$ ), learner involvement ( $R=0.93$ ,  $R^2=87.1\%$ ,  $p<0.001$ ), and principal leadership styles ( $R=0.91$ ,  $R^2=82.8\%$ ,  $p<0.001$ ). Combined social environment factors accounted for 96.3% of variance in academic performance (adjusted  $R^2=0.963$ ,  $p<0.001$ ). The most influential factors identified were teacher approachability for consultation, student respect for teachers, healthy peer competition, active classroom participation, goal-setting encouragement, and performance recognition. The study concludes that school social environment constitutes a primary determinant of academic performance, surpassing the traditional emphasis on physical infrastructure. These findings provide evidence-based direction for educational stakeholders to prioritize social environmental improvements. The research recommends that the Ministry of Education, school administrators, and teachers focus on developing positive interpersonal relationships, fostering collaborative learning environments, enhancing student motivation and engagement, and implementing transformational leadership practices. Similar investigations should be extended to other school categories and counties to validate these findings across diverse educational settings.

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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>ANOVA</b>	Analysis of Variance
<b>BOM</b>	Board of Management
<b>CGPA</b>	Cumulative Grade Point Average
<b>Df</b>	Degrees of Freedom
<b>EFA</b>	Education for All
<b>F</b>	F-statistic (Statistical Test)
<b>KCPE</b>	Kenya Certificate of Primary Education
<b>KCSE</b>	Kenya Certificate of Secondary Education
<b>KeMU</b>	Kenya Methodist University
<b>KNEC</b>	Kenya National Examination Council
<b>MOE</b>	Ministry of Education
<b>NACOSTI</b>	National Commission for Science, Technology and Innovation
<b>P</b>	Probability Value (p-value)
<b>R</b>	Correlation Coefficient
<b>R<sup>2</sup></b>	Coefficient of Determination (R-Square)
<b>SPSS</b>	Statistical Package for Social Sciences
<b>TSC</b>	Teachers Service Commission
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNICEF</b>	United Nations Children's Emergency Fund
<b>USA</b>	United States of America

## CHAPTER ONE

### 1.0 Introduction

This chapter presents background to the study, statement of the problem, purpose, research objectives, hypotheses to be tested, justification, limitations, delimitation, assumptions and operational definition of terms.

### 1.1 Background of the study

Many parents today perceive education as critical to their children's future success and thus put in resources to create the best possible learning environment, expecting satisfactory academic performance in return. This fact has been recognized across society, with education increasingly being viewed as a basic human right that is crucial for successful social development and economic growth for any country (World Bank, 2000). It also explains the commitment by national governments and international development partners to achieve quality basic 'Education For All' (EFA), (Nath, 2012). For the parents, governments and learners, good academic performance is a mark of cognitive achievement, which is an indicator of quality of education, denoted by scores (Mwangi & Nyagah, 2013).

What constitutes good academic performance has been the subject of various studies across the developed and developing world. Student's academic performance has been defined variously by researchers, who acknowledge that the meaning of the concept has changed over time. Arifin et al. (2024), Kumar et al. (2021) and others agree that it encompass all learning actions aimed at securing and inculcating meaningful psychological, affective, cognitive as well as behavioral changes in the students. They further add that it is an interplay of factors beyond traditional assessments to encompass other various elements such as demographic data, learning strategies,

teacher interactions, and parental involvement to predict and understand academic outcomes. In this study therefore, student's performance is defined as student's ability to achieve the established academic expectations. These include attaining good grades, actively participating in class and demonstrating a solid understanding of the concepts being taught. This requires developing effective study skills, maintaining motivation and managing time efficiently, which results are directly associated with various factors, key among them the school learning environment according to Kumar et al. (2021).

Kumar et al. (2021), stated that factors affecting academic performance, are majorly of three categories namely; the environmental factors pertaining to the institutions as well as that of the home; interactions with instructors paving way for the prospects of effective teaching; and student centric factors including motivation level, study habits and learning abilities of the students. Thus, the interest of the researcher into these factors that determine students' academic performance. School learning environment is a major determinant of student learning as it stimulates learner's engagement in the learning process, influences behavior and assists in development of skills and cognitive abilities (Kimeu, 2015). The school learning environment comprises of the school's physical environment as well as the social environment. The physical component includes all physical aspects such as classrooms, laboratories, teaching-learning materials, sanitation facilities and playgrounds. The school social environment is concerned with cultivating positive social interactions and developing the right cultural set up, since learning originates from social and cultural interactions over a period of time (Bates, 2019). Bates, further highlighted that school social environment is defined by factors such as the school interpersonal interactions between teachers and students

and among students themselves, learner characteristics and principal's leaderships styles, among others.

However, the view that the school physical environment exerts greater influence in academic performance has persisted. Great attention has been placed on the influence of this factor, which explains the zeal in investing in school facilities by parents and government in many countries. Studies carried out in Canada reflected that appropriately resourced schools have been linked to higher academic achievement and positive attitudes towards learning amongst learners (Bascia, 2014). In USA, studies reveal that learners who attend schools with adequate and appropriate physical facilities register higher academic achievement as compared to those in schools that lack physical facilities (Nthumo, 2015).

Usaini et al. (2015) in their study in Malaysia indicated that students with adequate physical facilities perform better than those in schools without facilities. In India, Singh et al. (2016), also affirmed that school facilities were a leading factor in determining students' academic achievement. In Malawi, poor quality and inadequacy of school infrastructure has been found to contribute to poor academic performance (Muthoni, 2015). In Kenya, many researchers shared the same view. Murunga (2015) in his study on Kenya's education system reported that the physical aspects of learning environment have an influence on the quality of teacher preparations for purposes of teaching and learning. Musyoka (2019) and Wanyama (2013) in their studies in Machakos and Narok Counties respectively, also affirmed that availability of physical facilities enables smooth operation of the school and thereby enhancing effective teaching and learning activities leading to higher educational attainments by students.

Despite the fact that some schools have adequate physical facilities, they have in the past decade recorded declined performance. In Kenya, this has become more evident especially in National and Extra- County schools (Kirui et al.,2016). Many of the schools in this category are several decades old, having been established before or immediately after independence, and are well endowed with physical facilities. They have enjoyed better resourcing from government and development partners, learning infrastructure and favored elevation to National and Extra- County schools' categories, as Eshiwani, (1993) and Kirui et al. (2016) posit. The schools in these categories have over time, continued to rank high in students' academic performance (Kirui et al., 2016). In the case of Machakos County, data on schools' academic performance however indicates that most of the schools in the national and extra- county categories have in the recent past had declining performance in national examinations (County Education Office, Machakos, 2021).

**Table 1.1**

*KCSE Mean Scores for National and Extra-County Schools in Machakos County (2014-2020)*

<b>Category of School/Exam Year</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>2 National Schools</b>	6.661	8.668	7.446	6.828	7.065	7.628	8.395
<b>8 Extra-County Schools</b>	3.729	6.550	6.307	5.494	5.896	6.209	6.354
<b>Average - 10 Selected Schools</b>	5.195	7.608	6.877	6.161	6.481	6.918	7.374
<b>County Mean Score</b>	4.799	4.726	3.725	3.11	3.580	3.930	3.730

As observed in Table 1, national schools though remaining top performers within the county, faced a general decline in performance. Performance for the schools under the extra-county category had also been dismal; with KCSE mean score for the county

declining to below average mean score of 6 (Machakos County Director of Education, 2021). The declining performance by the schools that had historically been the bedrock of the County’s academic performance was below stakeholders’ expectations. Decline in academic performance in Machakos county could be compared to similar fate that befell secondary schools in neighboring Kiambu county as shown in the Table 2.

**Table 1.2**

*KCSE Mean Scores for Secondary Schools in Kiambu County (2014-2020)*

<b>Year</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>KCSE Mean Score</b>	4.180	3.914	3.647	4.381	3.814	4.370	3.437

The county’s KCSE mean score faced a general decline from 4.180 in 2014 to 3.437 in 2020 (Wakaraka & Mugwe, 2023). This decline in academic performance begged the question whether this was attributed to the social component of the learning environment, and in what way? Various studies among them Bates (2019) and Geleta (2017) highlighted that development of positive attributes within the school nurture cordial interpersonal interactions, allowing the student to easily associate with peers and other more knowledgeable persons, mainly teachers. The other elements were learner characteristics as highlighted by Kariuki & Mbugua (2018), and school principal’s leadership styles opined by Manakshi, (2023). Other studies that had investigated elements of social environment from other different parts of the world included Johnson (2022) in USA, Shahid, et al. (2021) in Pakistan, and in Africa, Chukwu (2025) in Nigeria, Akrofi (2020) in Ghana and Ogot et al. (2020), in Kenya. These studies acknowledged that school social environment influences students’ academic performance. However, this presented a challenge in using their finding to

generalize on school performance in other jurisdictions. The main reason for this limited use of the findings was that these studies were based on specific cases, that is case studies, and in many of these cases, only one or a small number of the elements of the social environment were studied. Further in certain studies, each of the element of school social environment was studied separately.

The researcher was thus of the view that there was still more to learn by looking at other cases especially by examining the combined influence of key school social environment elements, namely; the cordiality of teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics and principal's leadership styles. This was anticipated to yield new insights to parents, policy-makers and other education stakeholders on non-physical learning environment alternatives to improve learning hence, achievement of expected students' academic performance.

## **1.2 Statement of the problem**

Across the globe, education is termed as a basic human right that is crucial for successful social development and economic growth for any country. Students' academic performance is the prime focus as it is the measure of the extent to which projected learning outcomes have been achieved as well as an indicator of quality of education offered (Wakaraka & Mugwe 2023). This has led to a growing concern on students' academic performance amongst the education stakeholders. Various studies carried out pointed out that there are several factors that influence students' academic performance, among them learning environment which comprises of the physical and the social aspects of the environment. Studies that focused on the effects of physical environment demonstrated that it had a positive influence on students' academic

performance.

However, in Kenya, trends in academic performance shows a contrary development where schools that are well-endowed with physical facilities and with a history of reputable academic performance, registered academic performance that was below stakeholders' expectations in national examinations. This has become more evident especially in National and Extra- County schools; previously known as provincial schools. This category of schools is generally well endowed with physical facilities, many of them several decades old, having been established before or immediately after independence. Some of these schools had A-level streams, a reputation of academic excellence especially in the 1970s and 80s under the 7-4-2-3 system of education which was replaced in 1985 by 8-4-4 system.

Kirui et al. (2016) stated that overtime, these schools have continued to enjoy better resourcing from government and development partners, including infrastructure upgrading and prioritized elevation to National and Extra- County schools' category, under the MOE. They further affirm that a categorization criterion considered adequacy of physical facilities and good academic performance of the school over time, geographical access and location. Concern among the stakeholders on decline in academic performance has necessitated the researcher to carry out a study to establish the apparent influence of socio aspect of learning environment on students' academic performance.

There is limited research on the declined performance of this specific cadre of schools reputed for their past academic performance and satisfactory physical facilities more so, those within Machakos county. Available literature on influence of schools' social environment is scanty and of case studies of specific geographical and social setting.

Further, these studies have only focused on the influence exerted by individual variable of the school social environment resulting in a knowledge gap. Therefore, the study intended to close this gap by determining influence of the combined elements of school social environment on students' academic performance in public secondary schools in Machakos county, Kenya.

### **1.3 Purpose of the study**

The purpose of the study was to determine the influence of school social environment on students' academic performance in public secondary schools in Machakos County.

### **1.4 Research Objectives**

The study had the following objectives:

- i. To establish the influence of teacher-student interpersonal interactions on students' academic performance in public secondary schools in Machakos County
- ii. To establish the influence of student-student interpersonal interactions on students' academic performance in public secondary schools in Machakos County
- iii. To ascertain the influence of learner characteristics on students' academic performance in public secondary schools in Machakos County
- iv. To determine the influence of school principal's leadership styles on student's academic performance in public secondary schools in Machakos County.

### **1.5 Research Hypotheses**

The researcher generated the following hypothetical statements which the study sought to statistically test.

- H<sub>01</sub> There is no statistically significant influence of student-teacher interpersonal interactions on students' academic performance in public secondary schools in Machakos County
- H<sub>02</sub> There is no statistically significant influence of student-student interpersonal interactions on students' academic performance in public secondary schools in Machakos County
- H<sub>03</sub> There is no statistically significant influence of learner characteristics on Students' academic performance in public secondary schools in Machakos County.
- H<sub>04</sub> There is no statistically significant influence of school principal's leadership styles on students' academic performance in public secondary schools in Machakos County.

### **1.6 Significance of the Study**

Many parents, governments and other stakeholders in education still hold the view that education is the key to success in life and hence excelling in national examinations is considered critical. They thus spend enormous resources and time improving various aspects of the school environment. This is more so whenever there is a decline in students' academic performance. This study attempted to offer new explanations to why students' academic performance decline and possible areas of intervention within the limited resources available.

The study findings have revealed the influence of school social environment on students' academic performance in public secondary schools in Machakos county. This revelation can be used by the school management to formulate school policies and regulations that promote a conducive school social environment. The school

principals, teachers and students can use the study findings and improve the various aspects of their school social environment that enhance good students' academic performance. The study findings will be of importance to Ministry of Education as the elements of the social school environment are vital factors for effective supervision in curriculum implementation. The study findings are expected to be useful to the MOE and TSC in school policy and guidelines formulation on improvement of school social environment.

### **1.7 Limitations of the Study**

The researcher acknowledged the potential limitation in obtaining responses from the students particularly those preparing for their KCSE due to Ministry of education regulations and the sensitivity attached to national examination performance. However, this was overcome by making prior arrangement on the visit at their convenient time. The respondents were assured of privacy in handling the data to encourage them to take part. A few respondents failed to give the expected information in the questionnaire items due to reasons that the researcher could not establish.

### **1.8 Delimitations of the Study**

This study was carried out in Machakos County. It was delimited to the public secondary schools in the category of National and Extra- County schools in Machakos County. School principals, teachers and students from all targeted National and Extra County schools were involved in the study.

### **1.9 Assumptions of the study**

The study assumed that a consideration of the four elements of school social environment would, in a case study scenario, yield a satisfactory explanation of decline in students' academic performance in schools with adequate physical facilities.

### 1.10 Operational Definitions of Terms

**Academic performance:** Refers to a student's academic achievement in KCSE, measured through Mean score based on grading system determined by KNEC

**Extra-county schools:** These are public schools that were previously known as provincial schools

**National Schools:** These are public secondary schools which admitted students from all parts of the country.

**School social environment:** This refers to school interactions that include the interpersonal interactions, learner characteristics and school principal's leadership styles.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter covers an overview of related literature that is consistent with the study objectives. This section is important as it provides the link between the current and past studies, and the knowledge gap that need to be filled. It is presented by, first giving an overview of the independent variable, students' academic performance. This is followed by a discussion of the dependent variable, school social environment, to bring out global, regional and local perspectives and identify the gaps in the literature. This is done in a systematic manner, guided by the objectives of the study, namely; influence of school interpersonal interactions between teachers and students, interpersonal interactions among the students, learner characteristics and the principal's leadership styles. The theoretical and conceptual framework upon which the study is anchored on is also discussed shortly after the objectives.

#### **2.2 Overview of students' academic performance**

Debate on learning and particularly academic performance by students raged across the world, centering on among other, the criteria for measurement of learner's performance and the factors that influence it. Students' academic performance has been defined variously by researchers, who acknowledge that the meaning of the concept has changed over time. Arifin, et al. (2024), stated that students' academic performance is a complex interplay of factors that go beyond traditional assessments which focuses on conventional methods of testing. They noted that it encompasses other various elements such as demographic data, learning strategies, teacher

interactions, and parental involvement to enable better prediction and understanding of academic outcomes.

Kumar et al. (2021), argued that academic performance has an amorphous meaning and includes all learning actions aimed at securing and inculcating meaningful psychological, affective, cognitive as well as behavioral changes in the students. In their review of various definitions of students' academic performance along with the factors perceived to influence it, they acknowledged that students' academic performance is a concept that possesses an amorphous nature. They defined academic performance as learner's academic achievement, skills, abilities and knowledge gained, career secured as well as his/her persistence in schooling. The Group Points Average (GPA), test scores in nationally administered uniform examinations, and skills and abilities acquired due to learner exposure to the education system, are some of the agreed measures of academic performance. However, different countries have been noted to use diverse measures to determine students' academic performance. This study assumes the definition of academic performance as the academic achievement and knowledge gained by the student which is judged by the score attained in a standardized national examination.

In Australia, New South Wales region, student's final score is established by a combination of internally based school assessments and externally administered examinations. United States use Cumulative Grade Point Average (CGPA), as pointed out by (Amunga et al., 2010). In Africa, Nigeria evaluated students using Cumulative Grade Point Average (Kolo & Munira, 2017). Within the East African countries that include Kenya, Tanzania and Uganda, students' academic performance is measured through nationwide examinations conducted at the end of a schooling period.

In Kenya, academic performance in secondary school education is measured by grades determined by test scores in Kenya Certificate of Secondary Education (KCSE) at the end of four years learning period. The overall grade of a student is the average of scores across the examined subjects. Kenya Certificate of Secondary Education (KCSE) is administered by Kenya National Examination Council (KNEC). KNEC expresses a student's academic performance in form of mean score which is an average of the scores achieved in mandatory examinable subjects. The mean score is represented in form of an alphabetic mean grade in the scale of A, B, C, D, E, in descending order of excellence. In addition, school's academic performance is also evaluated using the mean of all the individual students' scores. This usually serves as an indicator of how well the schools are managed and the effectiveness in teaching and learning processes. Further, the schools' mean score in a given county is an indicator of its performance in KCSE and provides a means of monitoring the academic performance trends (Mwangi & Nyagah, 2013).

The prominence attached to students' score in national examinations have resulted to educators, academicians, policy makers and the public show interest in why some schools perform better than others in national examinations (Wakaraka & Mugwe, 2023). School learning environment is noted as a key factor influencing academic performance in secondary schools (Ministry of Education, 2017). Hence, the government and development partners have continued to improve the school learning environment through capitation and provision of adequate infrastructure. Despite the government's effort in provision of appropriate physical environment, academic performance in some schools remained below average.

In Machakos county, most of the schools in the category of national and extra-county

schools were experiencing a decline in mean score (Machakos County Director of Education Office, 2021). The decline in academic performance by schools under this category, which are well endowed with physical facilities, necessitated the researcher to examine how the school social environment influence students' academic performance in public secondary schools in Machakos County. This study also noted that earlier studies had attempted to investigate the influence of school social environment on academic performance in Kenya. However, such studies, mainly case-based, were indeed very few, especially those focused on Machakos county. Further, they were noted to have limited themselves to not more than two of the many possible elements of social learning environment. Hence the need to provide more knowledge in this area. Therefore, this study set to focus on the individual and combined influence of a minimum of four social elements of the school social environment namely; the interpersonal interactions among students and teachers; interactions between students themselves, learner characteristics, and school principal's leadership styles on students' academic performance.

### **2.3 Influence of teacher-student interpersonal interactions on students' academic performance**

The ease with which students relate with their teachers influence academic performance. According to Hurst et al. (2013) social interactions between students and the teachers create a conducive learning environment. In China, Xu and Qi (2019) found out that teacher-student relationship had a positive and significant effect on students' academic achievement. Styron (2008) in his study in American schools observed that a healthy teacher-student interaction creates an environment of sincerity, open communication and risk taking in challenging academic pursuit. Styron, further

explained that good relationships enhance students' self-esteem and desire to achieve higher. Patrick & Ryan (2003) concurred that when students viewed their teacher as helpful and kind, they paid more attention and concentrated in class work. This made them satisfied and committed to their school work hence greater expectancy for success. This agreed with Hughes and Qian (2018) who maintained that students who are supported by their teachers were more focused in their academic work.

In several middle-east nations, a similar observation was made. According to a study done in Turkey by Klinik (2014), beneficial relationships among students and teachers led to realization of better academic achievements. Klinik also highlighted that when teachers and students worked together in helpful relations, they were committed to one's academic responsibilities. Velayutham (2012), conceded that students consulted teachers who were friendly, accessible and concerned with the students' academic achievement. In United Arabs Emirates, a study by Dukmak and Ishtaiwa (2015), added that positive relationships between teachers and students were beneficial to students and enabled them improve in their academic work and develop intellectually.

In Asian countries, the influence of social environment on students' academic performance was also revealed. In Bangladesh, Pervin et al. (2021), in their study on the influence of teacher-student interaction on academic performance, affirmed the importance of teacher-student relationships on academic success of the students. In Malaysia for instance, schools with positive teacher -student relationships and favorable learning environments performed well academically, (Usaini et al., 2015). Further, their study explained that beneficial school teacher-student interactions enabled learners to put more effort in their studies and hence improved their academic performance.

Usaini et al. (2015) further found out that good working relationships and interactions within schools offered the set up suited for teachers and students to work towards a common goal of students' success. A similar study by Kapur (2018) in India on factors influencing academic performance supported this observation, indicating that friendly teacher-student relationships had an impact on students' academic achievement. Kapur's study also highlighted that students found friendly teachers approachable and willing to assist them in learning. Anwer (2019) in his study in Pakistan, reported that the best strategy to improve students' academic achievement was to enhance healthy relationships between students and teachers. In addition, his study indicated that positive teacher-student interaction motivated students to learn.

In Africa, various studies made similar observations. A study conducted by Ogbuanya et al. (2017) in Nigeria, concurred that caring and helpful interactions between teacher and students formed the foundation of learning environment essential for the academic progress of a learner. Further, they stated that healthy relationships helped sustain students' attention in their academic work. In Ghana, Mensah et al. (2020) examined the impact of teacher-student relationship on academic achievement of students in Senior High Schools in Winneba. They averred that positive relationships create environments that augment academic achievement while threatening relationships stifle academic achievement. In Ethiopia, Geleta (2017) affirmed that weak relationship between teachers and students created unfavorable learning environment which led to poor academic performance. According to a study conducted in Uganda by Chebet (2018), friendly teachers-students relationships enhanced academic performance of all members of a class.

Makewa et al. (2011) in a Kenyan study asserted that a healthy teacher-student relation made students feel safe, cared for, appropriately supported and lovingly pushed them to learn. Their study also revealed that a healthy teacher-student relation created an excellent learning environment that promoted the students' ability to learn, thereby improving their academic achievement. They further highlighted that students were generally satisfied with the schools where they felt justly treated and supported by the teachers, which in turn enabled them to work harder and enhance their academic performance. This was in line with findings by Nyamosi (2013) in her study in Machakos county who stated that students who felt liked and well regarded by their teachers performed better. Nyamosi, further reported that such students were more active and productive in class as opposed to those who feel their teachers have a lower regard towards them.

The studies outlined multiple ways in which the interactions occurred and the emotions they evoked, which gave impetus to student learning. In spite of this, there was inadequate information on the influence of teacher-student interpersonal interactions on students' academic performance in public secondary schools in Machakos county. Thus, the need for further investigation in different locality and social setting to fill the gap. Hence the need to establish influence of teacher-student interpersonal interactions on students' academic performance in public secondary schools in Machakos County.

#### **2.4 Influence of student-student interpersonal interactions on students' academic performance**

Interactions among students themselves is a factor that influence a students' academic performance. A study carried out in America by Patrick and Ryan (2003) revealed that when students work together in their discussion groups, they have opportunity to have

healthy interactions and exchange ideas with each other which enhance their academic performance. A study conducted by Kapur (2018) in India found out that healthy student-student relationships have positive influence on their academic performance. Further, he explained that the positive interactions make the class members contented and work as a team to achieve their academic goals.

In Nigeria, Ogbuanya et al. (2017) concurred that student-student relationships promote exchange of information and ideas among students as well as change of one's mind-set. Geleta (2017) in her study in Ethiopia found out that beneficial working interactions among students significantly influence their academic achievements. In Kenya, Makewa et al. (2011) in their study recognized that relationships among students are related to their academic abilities. Kitonyi (2013) contends that a sound learner-learner relationship provides a tension free environment that enables the student to learn more and compete in class while destructive relations affect their learning. King'oina et al. (2017) affirmed that a learning environment that encourages togetherness and creates friendly relationships among the students promotes learning process.

Kariuki and Mbugua (2018) conducted a study in Nyeri county where they found out that student-student interactions during study group discussions and projects promote learning through collaborations and information sharing. Nyamosi (2013) added that respectful and collaborative interactions create a learning environment of respectful and friendly relations amongst the learners. She concludes that positive learning environment minimizes hostile and stressful social interactions that breed disunity and indiscipline amongst the learners in the school. The cited studies described the importance of good interpersonal interactions amongst students in building a

conducive social atmosphere that favors good students' academic performance. The findings revealed that healthy social interactions in school had significant relationship with academic performance. However, even though the above studies were carried out to establish the influence of student-student interpersonal interactions on students' academic performance, they recommended the need for separate study for secondary school students. This may be a pointer to some pessimism in generally applying the findings to secondary schools in the county. In addition, there is inadequate information on the influence of student-student interpersonal interactions on students' academic performance in this category of schools. Therefore, this study intended to establish the influence of student-student interpersonal interactions on students' academic performance in public secondary schools in Machakos County.

## **2.5 Influence of learner characteristics on students' academic performance**

Students' academic achievement may be influenced by factors that are student-related, especially learner motivation and involvement in learning.

### **2.5.1 Influence of learner motivation on students' academic performance**

Various studies linked positive performance to the level of motivation of the individual in undertaking the task at hand. Within the school set up, motivation is a significant factor that influences students' academic performance (Wakaraka & Mugwe, 2023). Whereas the sources of motivation were diverse, various studies identified peer influence as a good motivator in a learning environment. Motivated students realize their maximum potential because they have adaptive attitudes and tactics depending on their circumstances (Nazir et al., 2022). According to Hughes (2015) peer group interactions at school influenced members of the group perception of learning and desire to achieve. She explained further that learners in health relationships with peers

in the classroom were contented in school while those sidelined in the peer groups were not involved in group learning activities. In addition, Hughes study revealed that groups of friends who were motivated to be in school to learn were likely to achieve, while groups of friends that were demotivated were less likely to achieve.

Adane (2013) posited that a motivated learner was self-driven and innovative, and focused on seeking knowledge from peers and teachers rather than passively waiting to be taught. In China, Qiu et al. (2020) in their study found out that support from peers has an important role in motivating a student. They also observed that peers have the potential to impact positively or negatively on learner's motivation towards school and learning which consequently affect their academic performance. A similar study conducted by Dukmark et al. (2015) on factors influencing the academic achievement of students in United Arabs Emirates affirmed that students greatly influenced one another at school and out of school. They pointed out that students are motivated to learn by their peers hence the positive relationship between students' academic success and the association with their peers.

Similar observations were noted in Africa. A study conducted by Stofile (2017) in South Afrika indicated that a student who does not strive to achieve academic success might simply not be motivated enough to exert effort in learning. She further stated that lacking motivation thus played a role in the poor performance of students and likely created an obstacle to attaining certain academic goals. In Nigeria, Chukwa (2025) asserted that motivated students are actively involved in the classroom, think critically, comprehend and recall the content learnt. Olalekan (2016) observed that students were contented and relaxed at school while in the company of fellow students, an indicator of peer group influence, and which can also affect academic performance.

In his findings, he further stated that the level of motivation and academic achievement of members of a peer group is influenced by the nature of the group. He further observed that a learner who is active in class but surrounded by passive friends was not likely to be motivated to learn, and was bound to suffer loss of interest in learning. On the contrary, a peer group that is motivated to study would have positive effect on an inactive member towards learning and therefore inspire and arouse their interest in learning (Olalekan, 2016). In Uganda, Chebet (2018) acknowledged that positive peer groups at school assist their members to set goals which motivated them to desire for higher academic achievement.

Various studies in Kenya also reveal that peer motivation influences academic performance. A study conducted by Kipkemboi and Korrir (2014) in Vihiga county showed that peer influence on the members of the group had both positive and negative effects on their academic achievement. Kipkemboi et al. (2014) found out that the members of the group viewed one another as role models and source of motivation or lack thereof. Further, they asserted that learners who are devoted to their academic work were more likely to associate with peers who shared the same.

Otieno (2021) in his study in Migori county affirmed that students peer relations had impact on their academic performance. He further explained that a learner who interacted with a group which was motivated and determined for higher academic achievement was dedicated to follow suit to avoid feeling excluded from the group. Conversely, Otieno (2021), stated that students influenced negatively would be demotivated towards learning and would not strive for academic success. Mapesa (2013), agreed that peer group affected students' academic achievement. She added that members of a group interacted and assisted each other in their learning, shared

ideas and contributed to the setting of goals. A study by Kangangi (2017) in Kirinyaga county, affirmed that students who associated with peers who were positively motivated towards school and learning, enhanced their contentment in school, while associating with those that were negative, reduced it.

Whereas the cited studies indicated a strong influence between student and their peers' motivation on academic performance, for the studies conducted in Machakos County, the target population was primary schools, while in this study, the intended target was public secondary schools. Thus, a vastly different population where the dynamics of learner motivation was deemed certainly different. Therefore, this study sought to ascertain the influence of learner motivation on students' academic performance in public secondary schools in Machakos county.

### **2.5.2 Influence of learner involvement on her / his academic performance**

Learner involvement in learning entailed the individual learner's responsibility in setting academic goals, self-evaluation and active participation in school activities according to Azurdee (2010). Hughes (2015) in her study described a learner who was involved in learning as one who set her/his academic goals, sought assistance and expended more effort to learning.

Azurdee (2010) further stated that there existed a relationship between students' involvement in learning and their academic performance. She explained that students, who devoted more time and effort to their academic work, were involved in school activities and interacted with peers and teachers, hence higher academic achievement. Randall (2010) highlighted that student's involvement in learning occurred when they paid attention and actively contributed in learning activities. In USA, Taylor and Parsons (2011) in their study on improving student engagement, revealed that

interactions needed to be improved for learners to participate in learning. This was supported by Grove (2019) in her study on teacher's role in student engagement affirmed that there was a strong positive association between learner involvement in learning and his/her academic achievement.

Randall (2010) added that students were more involved in learning when given an opportunity to participate in classroom deliberations and exchange ideas, rather than when listening passively. Hurst et al. (2013) in their study stated that students learn more when they communicate with each other and are actively involved in learning activities. A study conducted by Gunuc (2014) in Turkey, investigated the relationship between student engagement and their academic achievement, found out that students' active participation in classroom activities improved academic performance. In Sweden a study by Ahlstrom (2010), asserted that participation of learners in classroom activities creates an environment that promote learning. He found out that schools with the highest level of participation also had higher grades and as the level of participation declined, the grades followed.

Further, he explained that students who were involved in learning, developed confidence and self-esteem because they learnt and gained more knowledge from their classmates and teachers. This agreed with Grove (2019), who supported that when students worked in pairs or groups, they were engaged in learning activities through discussions, debating or carrying out group projects. In her study, she listed the indicators of students who are involved in learning as those students who volunteered for class assignments, answered questions, were self-driven and regulated in their academic work, worked as a team, were cooperative with the members of the group, were active in listening, asked questions, made contributions and were innovative.

Grove's findings were in line with Velayutham (2012) observation in her study in Australia, which affirmed that students who asked questions, gave opinions and shared ideas in class, improved their confidence and learning abilities. Abdullah et al. (2012) in their study in Malaysia established that students who actively participated in class had a positive influence on their classmates. They further explained that learners who were actively involved in learning strived to acquire more knowledge through discussion and active participation in class, while inactive learners depended on active students to get additional information. Abdullah et al (2012) recommended that teachers should generate a favorable learning environment which will stimulate the learners to actively participate in classroom activities. According to a study conducted by Afari (2013) in the United Arabs Emirates, students who were provided with opportunity to participate in class activities, paid attention and were interested in what was happening in the classroom.

A similar study conducted by Ogbuanya et al. 2017) in Nigeria indicated that when teachers created a participatory environment during their teaching, learning turned out to be an enjoyable experience for the learners resulting to higher academic achievement. In support of this view, Akrofi (2020) reiterated that teachers should ensure that learners were engaged in learning activities that would allow them to interact with one another. In Kenya, Omolo and Otara (2021) in their study on influence of learner factors on students' academic performance in Migori county, postulated that student involvement in learning was dependent on social relations.

From the discussed studies on student involvement, it was evident that learner engagement and active participation in classroom activities are determinant of level of learner involvement in learning. In spite of this, there are limited studies that delved to

ascertain influence of learner involvement on her/his academic performance in public secondary schools in Machakos county. This has necessitated the researcher to examine the extent to which, learner involvement in their learning influenced students' academic performance in public secondary schools in Machakos County, Kenya.

## **2.6 Influence of school principal's leadership styles on students' academic performance**

Leadership is deemed essential for any organization to thrive well and to pursue its set goals with clarity and minimal interruptions. For a school, the style of leadership espoused by the principal determines the school social environment and therefore its academic performance (Ohlson et al., 2016). According to Bwalya (2023), leadership style refers to the ways a leader directs, influences and relates with his/her followers. It influences decision making, communication of expectations, motivation of followers and creation of working environment.

Bwalya (2023) further explained that leaders employ different leaderships styles that include: transformational, transactional, Autocratic/authoritarian, Laissez-Faire/delegative, charismatic, situational, servant, pacesetting and democratic leadership styles. Transformational leadership focuses on transforming individuals and organizations through motivation, creating a shared vision, setting high expectations and promoting growth. Transactional leadership style focuses on attainment of set goals by monitoring performance, reward good performance and penalize poor performance. In Autocratic/ authoritarian leadership style, the leader holds absolute power makes decisions without consulting others and expects firm adherence by the followers leading to a tense work environment. In Laissez-Faire/ delegative leadership style, the leader is detached and allows followers to make decisions, provide minimal

guidance and allow them to make decisions independently. This led to lack of direction and clarity. Leaders who use charismatic Leadership style motivate others through their charisma, talents, ideas and their influence on their followers. They provide clear sense of direction and create high level of enthusiasm.

Situational leadership style focuses on specific needs and abilities of follower depending on their circumstances. Followers are supported and encouraged to progress. In Servant leadership style, the leader focuses on supporting and empowering followers to enable them realize their full potential. The leader encourages collaboration and teamwork leading to a conducive work environment. Democratic leadership style, stress on involvement of all team members in decision-making process, seek consensus and foster shared vision and goals. The team members own the organization and are committed to their assigned responsibilities. Pacesetter leadership style emphasis on leading by example. The leader sets expectations of the team and demonstrates what is expect from them. This creates a tense and demanding work environment (Bwalya, 2023).

According to Ohlson et al. (2016), leadership is the ability of an individual to motivate and inspire others to work towards achieving specified common goal. Wakaraka & Mugwe (2023) acknowledged that leadership style used by the principal determine the quality of teaching and learning environment, teachers' commitment and students' academic achievements.

Manakshi (2023), in his study in New York schools, stated that successful school principals should provide a conducive teaching and learning environment, pay attention to quality of teaching and learning processes, set expectations and provide resources to improve students' success.

According to Allen et al. (2015), a leader inspires others and encourages them to work towards a clearly stated common goal, led by example, promotes a constructive school learning culture, encourages commitment in achieving school vision and provides opportunities for the teachers to develop professionally. Mulford (2013) in his study in American schools supported that a school leader has the responsibility of working with others and showing the intended direction to improve teaching and learning process. In addition, Mulford explained that for the school to achieve a common goal, the leader ought to motivate both teachers and students by developing and communicating a shared vision of success. Manakshi (2023) highlighted that a school head is expected to share a clearly defined vision, emphasize on unity of purpose and specify on academic standards expectations for both the students and teachers. In Australia, Cruickshank (2017) noted that good leadership in school results in high academic performance. His study found out that instructional leadership pays attention on the academic development of learners, focused on instruction and learning process with the aim of setting high academic performance standards for both the teachers and students.

Cruickshank (2017) further observed that instructional leadership build a positive school culture that enhanced quality teaching and learning process that improves students' academic performance. In addition, he emphasized on school leaders being well informed about their schools' unique characteristics before deciding on the leadership style to employ.

In Africa, Mokoqo (2013) conducted a study in Lesotho that recommended school principals to help the staff to set measurable goals which would enhance effective teaching and learning process and improve students' academic performance. The study

further recommended that principals work with the teachers to coordinate curriculum implementation, monitor students' academic progress, give feedback, recognize and reward good work. Makgato and Mudzanani (2018) in their qualitative study to explore school principals' leadership styles and the educational performance of learners in high- and low-performing schools in Vhembe District, Limpopo, South Africa, found that the democratic leadership style together with the transformational leadership style contribute to high educational performance of learners. School principals from high- and low-performing schools employ a democratic leadership style and differ only in the sense that the latter are permissive or lenient towards learners' behaviors. In Tanzania, Mahamba (2023), in a study to assess the influence of leadership styles on the students' academic performance found out that instructional leadership created a positive learning environment. In addition, it facilitates collaborative decision making among staff thus they are enthusiastic and motivated to teach and improve students' academic performance.

In Kenya, Wanyoko (2021), in a study that sought to determine the effects of principals' leadership styles on students' academic achievement in public secondary schools in Nyeri Central Sub-County, found out that task-oriented leadership was associated with high students' achievement. Musungu and Nasongo (2009) stated that instructional and transformational models of leadership are the most appropriate models of leadership for school academic improvement. Further, they mention that the role of the head of an institution is to promote academic performance and teamwork. Kinyua (2018) concurred that principal's leadership style has a significant impact on academic performance of the school. He further, posited that an effective leader enhances higher academic achievement through motivating teachers.

It was apparent that researchers had endorsed instructional and transformational leadership styles as highly suitable for school leaders. Further, the leadership style adopted by the school principal contribute to the effectiveness with which the administrative functions are discharged, quality of teaching, commitment of teachers and students in working towards a common shared goal and quality of school learning environment. In spite of this, there was inadequate information on the influence of school principal's leadership styles on students' academic performance in public secondary schools in Machakos county. Thus, the need for further investigation in different locality and social setting to fill the gap. This study, therefore, was to determine how principal's use of transformational and instructional leadership styles influence students' academic performance in public secondary schools in Machakos County.

In conclusion, the researcher noted that there were apparent gaps in the available literature that required further studies. A major revelation was that the social environment indicators were studied separately and thus only the influence of individual indicators were known. Yet, an environment is a condition produced by more than one factor or condition, such that studying any of the variable indicators in conjunction with one or more others had potential to offer different insights on how they influence students' academic performance. Further, studies on how school social environment influenced students' academic performance pointed to the need for caution in generalization when using findings from studies undertaken in different regions. This therefore prompted further research on the phenomenon in different localities. Hence the study sought to add further insights by focusing on National and Extra-County schools in Machakos County.

## **2.7 Theoretical Framework**

Several theories that demonstrate learning process and therefore useful in explaining how the school social environment affects students' academic performance were considered. The researcher used social learning theory advanced by Albert Bandura for this study.

### **2.7.1 Social learning theory**

Social Cognitive Theory, developed by Albert Bandura in 1977, posits that learning occurs within social contexts through observation, imitation, and modeling. Central to this theory is the concept of reciprocal determinism, which suggests that personal factors, environmental influences, and behavior continuously interact to shape learning outcomes. In educational settings, this theory emphasizes how teacher behaviors, classroom interactions, and peer modeling collectively influence student academic achievement.

The theory's emphasis on observational learning is particularly relevant to understanding teacher-student interactions. Students learn not only from direct instruction but also from observing teacher attitudes, problem-solving approaches, and interpersonal behaviors. Teachers who model enthusiasm for learning, persistence through challenges, and respectful communication create environments where students adopt similar academic orientations.

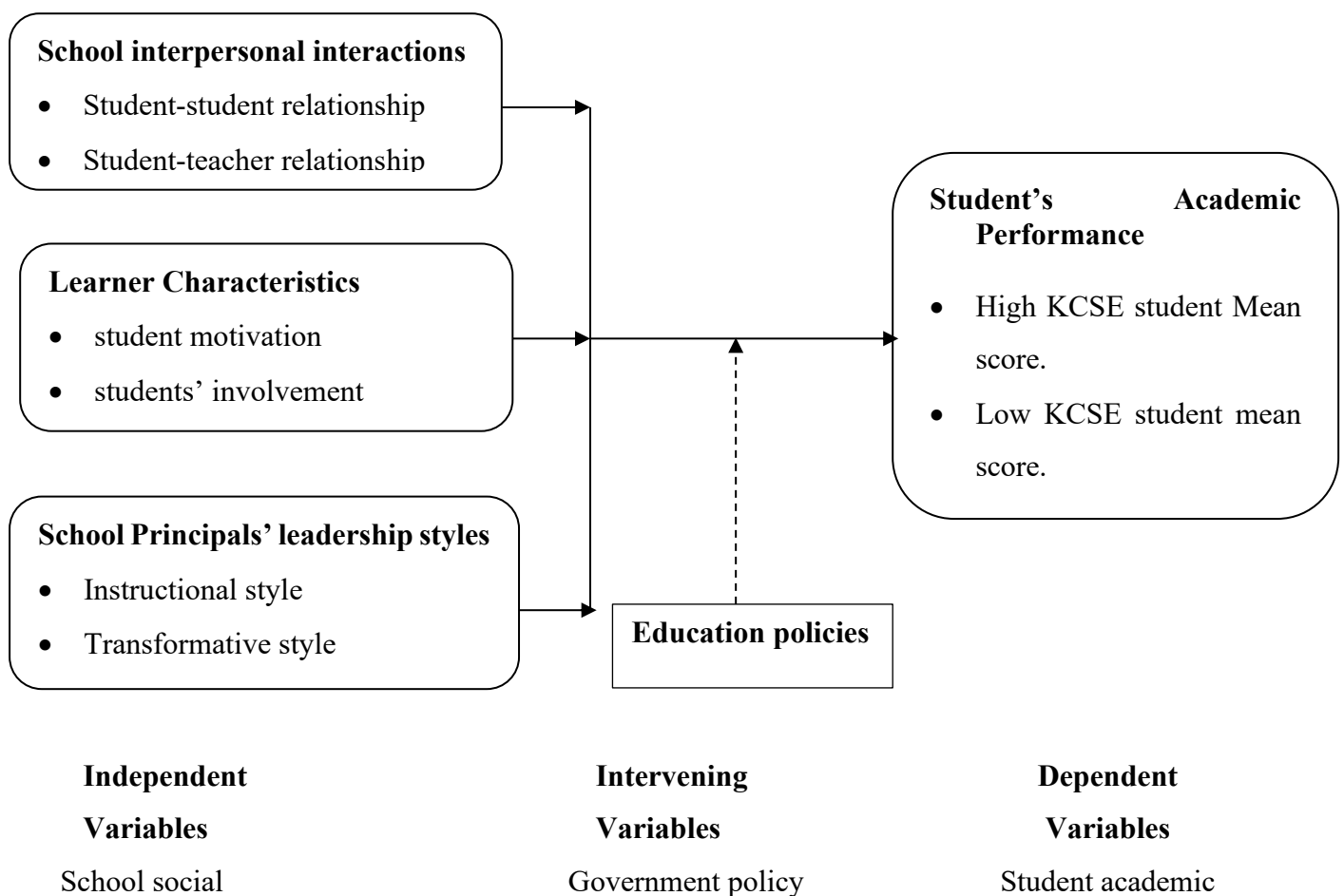
Self-efficacy, a core construct within Social Cognitive Theory, refers to individuals' beliefs about their capability to execute actions required to achieve specific outcomes. Within school contexts, teacher-student interactions significantly influence student self-efficacy development. When teachers provide constructive feedback, demonstrate confidence in student abilities, and create opportunities for successful performance,

they enhance academic self-efficacy, which in turn predicts improved achievement outcomes.

## 2.8 Conceptual Framework

**Figure 2.1**

*Conceptual Framework*



A conceptual framework is a diagrammatical representation of relationship between dependent and independent variables (Orodho, 2009). Figure 2.1 identified the variables and showed how they relate. Independent variables are elements of school

social environment that include teacher-student and student-student interpersonal interactions, learner characteristics and principal's leadership styles. Dependent variable is the student's academic performance is their KCSE mean scores. The conceptual framework illustrates that favorable attributes of independent variables favor students' academic performance. Conversely, unfavorable attributes have the opposite influence on students' academic performance.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research methodology the researcher adopted to collect and analyze data. It is organized into study locale, research philosophy, research design, target population, sampling techniques and sample size. Research instruments, their validity and reliability, as well as data collection procedures, data analysis and ethical considerations are also discussed.

#### **3.2 Research Design**

This study employed a descriptive survey research design to investigate school social environment influences on academic performance in public secondary schools across Machakos County, Kenya. The design enabled systematic collection of standardized data from students, teachers, and principals across 15 schools, examining how teacher-student interactions, peer relationships, and school climate correlate with academic outcomes.

The descriptive survey approach was selected based on its alignment with the study's correlational objectives, which sought to identify relationships between variables as they naturally occur rather than establish causation through experimental manipulation. This design facilitated efficient data collection within the eight-week timeframe while maintaining methodological rigor appropriate for master's-level research. The approach allowed simultaneous assessment of multiple variables across diverse school settings, enabling statistical analysis through correlation and regression techniques using SPSS software.

Alternative designs including experimental, qualitative case study, longitudinal, and comprehensive mixed methods approaches were considered but rejected. Experimental designs posed ethical concerns regarding deliberate manipulation of school environments and practical infeasibility of random assignment. Qualitative case studies would have limited generalizability across the county's 45 secondary schools. Longitudinal tracking exceeded available time and resources, while full mixed methods integration would have surpassed the scope parameters of master's research. The design's selection was further justified by its precedent in educational research examining school environment factors, with major studies by researchers such as Roorda et al. (2021), Wentzel (2022), and Cohen et al. (2020) employing similar survey methodologies. Additionally, the approach aligned with Kenyan educational research traditions and posed minimal ethical risks, as participants described existing conditions without experimental intervention.

While acknowledging limitations inherent in cross-sectional survey designs—including reliance on self-reported perceptions, potential social desirability bias, and limited contextual depth—the study employed several mitigation strategies. Data triangulation through multiple respondent types, objective KCSE examination performance data, anonymity assurances, and supplementary principal interviews enhanced the study's validity and rigor, enabling meaningful conclusions about social environment factors in Kenyan secondary education contexts.

### **3.3 Location of the Study**

This study was carried out in Machakos County. Machakos County is in the South Eastern region of Kenya. It borders Nairobi and Kiambu counties to the West, Kitui to the East, Makueni to the South, Kajiado to the South West and Murang'a and

Kirinyaga to the North East. There were 370 public secondary schools; 2 national, 17 extra-County, 24 county and 327 sub county schools, according the Machakos County Director of Education (County Education Office Machakos, 2021). The performance of students in national examinations in National and Extra- County schools in Machakos County had in recent time began to decline, raising concern among parents, teachers and other stakeholders. This necessitated the researcher to desire to seek to establish the cause. The county was accessible in terms of communication, convenience and appropriate to the researcher's interest in the study.

### **3.4 Research Design**

The research design was used by the researcher to guide on how to collect information with minimal expenditure of effort, time and cost to answer research questions raised as clearly as possible (Kothari & Garg, 2019). This study used a survey research design to investigate how social environment influences students' academic performance.

According to Creswell (2014) noted that survey research design is suitable when diverse information is required from many respondents. Therefore, the survey research design was appropriate to this study due to the diversity of the respondents that was targeted; that is, school principals, teachers and students. According to Orodho et al. (2016) in a survey research, respondents answer questions administered through questionnaire which is time saving relative to the information needed and hence economical to conduct.

### **3.5 Target Population**

The target population for study was 14894; 14,392 students, 19 secondary school principals and 483 teachers from 19 public secondary schools (2 National and 17

Extra- County), (County Education office Machakos, 2021); and (TSC County office Machakos 2021).

**Table 3.1**

*Target Population*

<b>Category of schools</b>	<b>School Composition</b>	<b>Number of Schools</b>	<b>Principals</b>	<b>Teachers</b>	<b>Students</b>
National schools	Boys' schools	1	1	55	1432
	Girls' schools	1	1	13	683
Extra-county schools	Boys' schools	7	7	198	5509
	Girls' schools	9	9	201	6055
	Mixed schools	1	1	16	613
<b>Total</b>		<b>19</b>	<b>19</b>	<b>483</b>	<b>14292</b>

### **3.6 Sampling techniques and sample size**

Sampling is set of procedures which a researcher applies to choose elements of the sample that represents entire population. It is deliberate choice of pre-determined number of subjects in each study to represent the entire group in the study. In this study, the sample was selected using probability and non-probability sampling. According to Orodho (2017), in probability sampling techniques, also known as random sampling, random selection of items is used instead of deliberate choice, and every member of the population has an equal chance of been picked. Non-probability techniques that were used in this study were convenience and purposive (Creswell, 2014).

In the first instance the schools were selected using stratified sampling to ensure representation of each category of national and extra-county schools, from which, participants were selected. As such 10 schools were selected; two national and eight extra-county schools. Thereafter, purposive sampling was used to ensure geographical

spread of location of the schools and also gender categorization, that is to have boys' and girls' schools. In the second instance, students in national schools were clustered into boys and girls, and then the researcher assigned numbers for each respective cluster, and selected the first and then every tenth. In the extra-county schools, which were boys' and girls' schools, the same clustering was applied and the researcher picked the first and then every tenth student in all the clusters. For teachers, the researcher used non-probability technique of convenience to select the most easily available teachers for the study. In the case of school principals, purposive sampling was used in order to ensure representation of all the categories of schools in the target population.

According to Bryman (2012) a sample is a part of population. To determine the sample size, the researcher used the Cochran formula:  $n = \frac{z^2 pq}{d^2}$  to determine the sample size; where  $n$  was the desired sample size,  $z$  was the standard normal deviation (1.96 at 95% confidence level),  $p$  was the proportion in the target population estimated to have characteristics being measured (0.5),  $q=1-p$  and,  $e$  was the margin of error (0.05). This was in line with Creswell, (2014) recommendation that the formula can assist a researcher to determine a sample size when target population is greater than 10,000. The sample size calculated for the study was thus 315 respondents. The principals of the ten sampled schools were purposively selected. Purposive sampling ensured that only relevant respondents took part in the study (Creswell, 2014). The respondent teachers and students from each school were selected through lottery technique.

Sample sizes of each stratum (teachers and students) was determined through proportional stratified random sampling based on the Cochran formula:  $n_i = nN \div N_i$ , where  $n$  represents sample size,  $N_i$ , represents population size of the  $i^{\text{th}}$  strata and  $N$

represents the population size (Muriuki, 2012). In this study, N = 14894; n=315. The sample size to different stratum was approximately proportional to their sizes.

**Table 3.2**

*Sample Size*

Category of schools	School Composition	Principals	Teachers	Students	Totals
National schools	Boys' schools	1	3	29	<b>33</b>
	Girls' schools	1	3	20	<b>24</b>
Extra-county schools	Boys' schools	4	12	117	<b>133</b>
	Girls' schools	4	12	109	<b>125</b>
<b>Total</b>		<b>10</b>	<b>30</b>	<b>275</b>	<b>315</b>

Table 4 shows that ten (10) schools were involved in the study. Two schools from each stratum of the extra county schools were selected by simple random sampling through lottery technique. Names of schools from each stratum, boys' and girls' schools were written down, folded into equal size and shape, placed in separate baskets, mixed well. Only two pieces from each basket were picked. The two schools from each stratum were picked. The two National schools were selected through stratified sampling since these were the only schools under this category in the county. This enabled the researcher to realize desired representation from the targeted population in terms of the categories of schools, geographical location and gender. It also ensured equal and independent chance to each unit of the sample selected (Mugenda & Mugenda, 2008). School principals were important to the study as they held ultimate responsibility for school administration and thus provided school leadership by influencing or enforcing compliance of rules and regulations to shape the school culture and cultivate health interpersonal relations. The teachers were important group in this study as they were the ones who implemented curriculum, and influenced relations within school, that is,

amongst themselves and among students. They also shaped the relations amongst students and generally assisted the school leadership in cultivating the school social environment. The students were critical to the study as their characteristics as learners determined relations amongst themselves and with teachers as they possess the drive and the need to interact as part of self-study or teacher aided study. They were also key to the overall academic performance.

### **3.7 Research Instruments**

Research instruments are tools for collecting data from the sampled respondents (Orodho et al., 2016). Questionnaire and observation schedule were used in this study.

#### **3.7.1 Observation Schedule**

The observation schedule was a checklist of items the researcher intended to observe discreetly or otherwise with consent of the school authority for purposes of gathering information for the study (Orodho et al., 2016). In addition, they highlighted that observation as a research instrument, reveals more information than other data collection methods. An observation form was utilized to record trait, activity or any occurrence of interest to the study. The results of the observation were analyzed to compliment the findings from the questionnaire analysis.

#### **3.7.2 Questionnaire**

A questionnaire is a series of written questions intended to obtain information for the study from respondents (Creswell, 2014). The researcher used questionnaire to collect information from the school principals, teachers and students. The questionnaire enabled the researcher to gather a large amount of data in a reasonably short period of time which could easily be analyzed, and outcomes would be more dependable and

reliable, as Kothari and Garg (2019) opined. The use of questionnaire in this study was also informed by the fact that the target population groups were literate. The questionnaire was structured into five sections; personal details (gender, work experience for the principals and the teachers) and other four sections include respective objectives of the study.

### **3.7.3 Piloting the study instruments**

Piloting entails trying out the study research tools in the field before the actual data collection to enable the researcher have meaningful observations (Orodho,2017). According to Creswell (2014) piloting allows the researcher to modify study instruments using feedback obtained from the participants who complete the instrument.

In this study the researcher pre- tested the research tools using a selected sample of two (2) extra -county secondary schools in Machakos County. The selection procedure and pilot sample selected were in tandem with recommendations by Orodho (2017), that, the research instrument to be tried out be identical, and cover about 1% of the of actual sample size. The two schools used in the pilot were not included in the final study. In the test, the schools were purposively selected to ensure they were in the category of extra county, represented either gender, that is a boys' and a girls' school. For the pilot, 28 respondents were involved comprising two (2) principals, six (6) teachers and twenty (20) students.

Piloting of the research tools helped in establishing whether the questionnaires and interview guides would yield the requisite data. The piloting of instruments enabled the researcher to minimize bias by ensuring appropriate layout of the questions. Subsequently, questions were refined by either re-phrasing or modifying them, as well

as eliminating questions that appeared irrelevant. Further, piloting was useful in assessing the actual time for questionnaires' administration and in testing the consistency and accuracy of the tools.

#### **3.7.4 Validity of the data collecting instruments**

Validity means that the individual results from an instrument make sense and enable the researcher to draw inferences from the sample useful in generalizing to the population (Creswell, 2012). According to Orodho et al. (2016), validity is the degree to which a test measures what it is supposed to measure or the accuracy and meaningfulness of inferences, which are based on the research results. Thus, validity shows the extent to which results obtained in a study are a true reflection of what is the prevailing situation in the population beyond the sample used. Validity estimation was crucial because it helped to determine if the concept under investigation was estimated accurately.

The researcher developed the research instruments in close consultation with academic supervisors to increase validity. Further, comments made by the University panel during the proposal defense were incorporated. Item analysis was conducted to check whether the items in the research instruments especially behavior sub-indicators would provide relevant information. Item analysis sought to establish if questions were too difficult, confusing, misspelled, or biased to any group of respondents. Items that were rated as relevant, clear, simple and unambiguous were included in the research instruments, while those found not conforming were modified or replaced.

Content validity was also undertaken to establish if the questionnaires provided adequate coverage of the research objectives. According to Creswell (2008), content validity shows whether the instrument fairly and comprehensively covers that which

it is intended to cover. The researcher examined the questionnaires thoroughly to ensure they captured the breadth of the objectives, and made corrections as appropriate.

### **3.7.5 Reliability of the data collecting instruments**

The reliability is chiefly concerned with the consistency of a variable. Kothari (2008) points out that an instrument is reliable when it can measure a variable accurately and consistently and obtain the same results under similar conditions.

Reliability was established by administering questionnaires to respondents during the pilot study. To ascertain reliability of the questionnaires for principals and teachers, the researcher provided questionnaire to each of the two principals and the six teachers in the two schools. The questionnaire for each category of respondents had the same questions, format, and same sequence of words. The questionnaires were then reviewed and adjusted before the actual collection of data.

For reliability of questionnaire for students, ten questionnaires were administered on students from each school and analysis of the resulting responses done to determine if there were differences in the responses provided. This process to ensure reliability of the instruments resulted in adjustment of questions in the three respondent categories to a total of twenty-four items or behavior sub-indicators; four items under teacher-student interactions, five for student-student interpersonal interactions, three under learner motivation, seven under learner involvement in learning, and five items under principals' leadership styles.

### **3.8 Data collection procedures**

The researcher obtained a research permit from National Council of Science and Technology and Innovation (NACOSTI) and then sought authority to access the

schools from County Education Office, Machakos. Data collection was undertaken by the researcher with the aid of a research assistant. The researcher and the assistant visited each of the sampled schools and presented introductory letter to the principal and in some schools where the principal was not available, met the deputy principal. They explained the purpose of the study and requested them to allow carry out the exercise of data collection. In each school, the researcher and the principal/deputy principal agreed on a schedule on when the questionnaire for the various categories was to be administered. In some instances, the researcher had to book an appointment depending on each school's most convenient time to fill the questionnaires. The researcher also sought for consent to collect data using observation form to record trait, activity or any occurrence of interest to the study. She also requested for the research assistant to be allowed to observe and fill the observation form on aspects of the study which were for observation. In each school visited, the principal/deputy principal allowed the researcher to explain, clarify and elaborate the purpose of the study to the respondents. The respondents were assured of confidentiality and informed that the questionnaires had no relationship with their school work. Data collection took one month.

### **3.9 Data analysis**

Data analysis is the systematic arrangement of collected data to enable the researcher to clearly understand and interpret it to prove or disprove their argument (Orodho et al., 2016). In this study, the researcher used in the first instance, descriptive statistics, which is one of two methods of statistical data analysis, usually common for quantitative research as this study. Descriptive analysis as a first step in analysis enabled the raw data to be ordered and to generate tables, charts percentages, frequency

tables, pie charts, bar graphs and other summary statistics to graphically paint a picture of what's happened thus far, in students' academic performance in the county.

The first step was to sort the data and separate the biodata information of the respondents and tabulate it into categories to show; their occupation, teacher, student or principal and their respective gender, teaching experience by number of years worked and duration in the school and responsibility in the school in form of subject teacher, head of department, deputy principal or principal. Similarities in these general characteristics of respondents enhances the homogeneity of the sample. Awareness of these characteristics was important as a general uniformity would eliminate any form of unexpected influence on students' academic performance by other factors in a school other than by the variable indicators for the study, as opposed to extreme differences in experience and duration in a school. The second step was to tabulate and compute the responses according to the respective study objective.

For each response of the twenty-three behavior sub-indicators from the questionnaire, each was tabulated under respective independent variable indicator, summed up and percentages computed for comparison and to determine the preference and proportion of respective respondents. Pie charts and bar graphs were used for pictorial effect. This formed the core of the descriptive analysis.

Further, to show the relationship between academic performance and the specific elements of school social environment, using SPSS regression analysis was used. This was to test whether there was statistically significant difference in each of the cases represented in the study hypotheses. The researcher had a pre-chosen probability for significant influence of  $p \leq .05$  (that is 5% probability) for each hypothetical case. The researcher's postulation was that if the analysis generated a p-value of 0.05 or  $p = 0.05$

(statistically significant), the null hypotheses ( $H_0$ ) would then be rejected. Once the data from the questionnaire was sorted, h question set as a behavior sub-indicator under respective study objective, the tallied responses were, each set with a respective regression model to test their hypothesis and ran through SPSS.

For each regression model, a model table showing coefficient *R-square*, which indicated the proportion of variation in percentage which was accounted for by an independent variable regarding a change in the dependent one. The SPSS also generated a second table for ANOVA to show the *F-statistic* and the *p-value* to demonstrate that there existed a statistically significant relationship between the respective independent variable and dependent variable, such that relationship is not by chance. The SPSS processes and output tables are discussed in detail elsewhere in Chapter four.

### **3.10 Ethical Considerations**

The researcher requested and was issued with a permit from National Council for Science and Technology and Innovation (NACOSTI) after approval letter from Kenya Methodist University to carry out the research. Permission to collect data from sampled schools was also sought from the County Education Office and County Commissioner Machakos County.

Thereafter, the researcher contacted Sub County Education offices as a matter of protocol, gave the introductory letter to the principals of the sampled schools and booked appointments and agreed on a schedule for delivery of questionnaires, and when to complete for collection. The researcher also sought consent of the principals of the selected schools before contacting the teachers. This step was used to assure respondents that the information given and the data to be collected would be handled

in a confidential manner and would not be used anywhere else. The researcher also sought assistance from the teachers to cluster and administer the questionnaire to the students. All the student respondents suggested through their teacher, their most convenient time for filling the instrument. For observation method, participants were informed in advance of such observations taking place for their consent. However, some of the un-intrusive observations were done discreetly, especially where the activity under observation was an out of class or field-based activity.

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 Introduction**

This chapter covers analysis of data, presentation and interpretation of results of the study. The discussion is presented in four parts; first is a highlight of the characteristics of the respondents, followed by a descriptive analysis of the data, then inferential analysis in which the study hypotheses are tested, and lastly a summary of the results. In the descriptive and inferential analysis parts, the results are presented and discussed in accordance with the four study objectives, with the aim of proving that school social learning environment has significance influence on students' academic performance in public secondary schools in Machakos county in Kenya.

#### **4.2 The study sample**

The sample comprised 315 respondents: ten (10) principals, 30 teachers and 275 students) drawn from 10 public secondary schools (two national schools and eight extra-County schools) in Machakos county. In terms of distribution of the sample across the schools, about 18% of respondents were drawn from national schools and the remainder (82%) from extra county schools. There was even distribution of 42% from boys' schools and 40% from girls' schools in this category. However, respondents from the boys' schools were higher (52%) than those from girls' schools (42%). This was due to the varying enrollment in the respective schools. Table 5 shows the sample distribution across the schools. For purpose of analysis, the schools, principals and teachers were identified by codes assigned to each by the researcher.

**Table 4.1***Distribution of Study Participants by School Type and Category*

School Category	Type of School	School Code	Respondents (Category & Number)			
			School Principal	Teachers	Student	Total respondents
National	Boys' school	NS1	1	3	29	33
	Girls' school	NS2	1	3	20	24
Extra County School	Boys' schools	EC1	1	3	29	33
		EC2	1	3	30	34
		EC3	1	3	29	33
		EC4	1	3	29	33
	Girls' schools	EC5	1	3	32	36
		EC6	1	3	33	37
		EC7	1	3	28	32
		EC8	1	3	16	20
<b>Total respondents</b>			<b>10</b>	<b>30</b>	<b>275</b>	<b>315</b>

Therefore, the sampling procedure produced a highly representative sample from across the national schools and extra-county schools in Machakos county.

### 4.3 Response Rate

It is necessary to ascertain response rate to questionnaires in research as this affects validity and reliability of results obtained especially if the rate is low. Response rate as the percentage of participants in relation to the sampled eligible participants (Mugenda and Mugenda, 2012). Jordan et al. (2011) averred that 85 % response ought to be achieved to ensure validity and reliability of the results are not compromised by non-response. Table 6 shows the response rate across the respondent categories.

**Table 4.2***Response Rate Analysis by Data Collection Instrument*

<b>Category of respondents</b>	<b>No. sampled</b>	<b>Type of instrument</b>	<b>No. completed</b>	<b>Percentage %</b>
Schools' principals	10	Self-administered questionnaire	10	100
Teachers	30	Self-administered questionnaire	30	100
Students	275	Self-administered questionnaire	266	96.7

From the table all the ten (10) targeted principals responded using self-administered questionnaires recording 100 % response rate. Similarly, of the thirty (30) questionnaires issued to teachers in the sample, all 30 were returned meaning 100% return rate. Questionnaires for the students were distributed to a total of 275 students targeted in the sample from across the ten schools, and 266 (96.7 %) completed the questionnaires.

#### **4.4 Demographic characteristics**

##### **4.4.1 Gender**

Students sample comprised 266 students drawn from the two (2) national schools and the six (8) extra-county schools. The sampling procedure produced a representative sample in terms of gender (51% Male; 49% Female) as well as near even distribution across all the classes (Form1-23%; Form2- 17%; Form3-29% and Form4-27%). The sample for teachers and principals was also fairly gender responsive (60% Male, 40% Female). Table 7 shows the gender characteristics of the sample. This characteristic is important to demonstrate the study population as normal as would be expected of schools in many counties in Kenya and therefore adds to the reliability and accuracy of the results when used for generalization with other findings.

**Table 4.3***Response Rate Distribution by Gender and Respondent Category*

<b>Respondents (Category)</b>	<b>Gender</b>		<b>Total</b>
	<b>Male</b>	<b>Female</b>	
Principals	6	4	10
Teachers	16	14	30
Students	143	121	266
<b>Total</b>	<b>165</b>	<b>139</b>	<b>306</b>

**4.4.2 Status in the school (teachers' position/responsibility and students' class)**

Teachers sampled were 30 in number. Nine (9) of them were Heads of Department, two (2) were Deputy Principals and the rest (19) were subject teachers; that is, 30% holding positions of authority (Deputy Principal/Heads of Department), while the rest 63%, were only subject teachers.

**Table 4.4***Distribution of Respondents by Professional Status and School Role*

<b>Position in the school</b>	<b>Teachers</b>		<b>Class</b>	<b>Students</b>	
	<b>Frequency</b>	<b>%</b>		<b>Frequency</b>	<b>%</b>
Deputy Principal	2	7	Form 4	75	27
Head of Department	9	30	Form 3	80	29
Subject teacher	19	63	Form 2	47	17
			Form 1	64	23
<b>Total</b>	<b>30</b>	<b>100</b>		<b>266</b>	<b>96</b>

**4.4.3 Professional experience and duration in respective school (principals and teachers).**

School principals and teachers were also categorised into level of professional experience and duration of stay within the school. They were thus deemed knowledgeable and with sufficient expertise in the area of interest to the researcher, that is school social environment as shown in Table 9.

**Table 4.5***Professional Experience and Service Duration of Staff in National Schools*

<b>Category of School</b>	<b>Type of School</b>	<b>Respondent</b>	<b>Nos</b>	<b>Professional experience</b>	<b>Duration in the school</b>
National School	Boys' school	Principals	1	PN1- 20yrs and above	5-10 yrs
		Teachers	1	TN1-Over 20yrs	TN1- HOD
				TN2-Over 20yrs	TN2- ST
				TN3-Below 10yrs*	TN3- ST
National School	Girls' school	Principals	1	PN2- 20yrs and above	Over 10 yrs
		Teachers	3	TN4- Over 20yrs	TN4- DP
				TN5- Below 10 yrs	TN5- ST
				TN6- Over 20yrs*	TN6-HOD

The two categories of respondents were well endowed in terms of professional experience and duration of stay in the school. The Deputy Principals and the Heads of Department (HOD's) had each, teaching experience of over 20 years. Six (6) of the HODs were female. The remainder of this category were subject teachers (11), who were of fair mixture in terms of teaching experience: with some, seven (7) having over 20 years' experience, eleven (11) below 10 years' experience and twelve (12) of between 10-12 years' service. The subject teachers were unevenly distributed in gender, with only seven (7) females and twelve (12) males.

**Table 4.6**

*Professional Experience and Service Duration of Staff in Extra-County Schools*

Type of School	School (by code name)	No.	Category of respondents				
			Principals (by code name)		Teachers (by code name)		
			Professional experience	Duration in the school	No.	Professional experience	Position /responsibility
<b>Boys' school</b>	EC1	1	PEC1-20yrs and above	Below 5 yrs	3	TC1-Below 10yrs* TC2-Below 10 yrs TC3-Over 20yrs	TC1-ST TC2-ST TC3-ST
	EC2	1	PEC2-20yrs and above	Over 10 yrs	3	TC4-Over 20yrs TC5-Below 10 yrs TC6- Over 20yrs*	TC4-DP TC5-ST TC6-HOD
	EC3	1	PEC3-20yrs and above	5-10 yrs	3	TC7-Below 10yrs* TC8-Below 10 yrs TC9-Over 20yrs	TC7-ST TC8-ST TC9-ST
	EC4	1	PEC4-20yrs and above	Below 5 yrs	3	TC10-Below 10yrs* TC11-Below 10 yrs TC12-Over 20yrs	TC10-ST TC11-ST TC12-ST
<b>Girls' school</b>	EC5	1	PEC5-20yrs and above	5-10 yrs	3	TC13-Over 20yrs* TC14-10-20yrs* TC15-Over 20yrs*	TC13-ST TC14-HOD TC15-HOD
	EC6	1	PEC6- 20yrs and above	Over 10 yrs	3	TC16-Over 20yrs* TC17-10-20yrs* TC28-Over 20yrs*	TC16-ST TC17-HOD TC18-HOD
	EC7	1	PEC7-20yrs and above	Over 10 yrs	3	TC19-Over 20yrs TC20-Over 20yrs TC21-Below 10yrs*	TC19-HOD TC20-ST TC21-ST
	EC8	1	PEC8- 20yrs and above	Below 5 yrs	3	TC22-Over 20yrs TC23-Over 20yrs TC24-Below 10yrs*	TC22-HOD TC23-ST TC24-ST

**KEY**

- |  |   |
|--|---|
| <input type="checkbox"/> EC- Extra County school             | <input type="checkbox"/> DP- Deputy Principal             |
| <input type="checkbox"/> PEC -Principal, Extra County school | <input type="checkbox"/> HOD- Head of Department          |
| <input type="checkbox"/> TC -Teacher extra county school     | <input type="checkbox"/> ST - Subject Teacher             |
| <input type="checkbox"/> *Female Teacher                     | <input type="checkbox"/> TC -Teacher, Extra County school |

The category for school principals had ten (10) respondents, two (2) from national schools and six (6) from extra-county schools. All the principals in six (6) extra County Schools had more than 20 years teaching experience of and duration of headship of respective school.

Three (3) of the six principals in extra-county schools' category, had headed their respective schools for period going over ten (10) years. For all extra County Schools, no major difference was seen in the Boys' and Girls' Schools in terms of duration of stay for the principals.

However, out of the twelve (12) female teachers working in extra-county schools, eight (8), were working in girls' schools, and only four (4) in boys' schools. Majority of respondents in extra County Girls' Schools were over 20 years (8) in teaching experience. The study aim was to determine influence of school social environment on students' academic performance. School environment was defined to encompass among other, relations between individuals (teachers and students), learner characteristics and school principal's leadership styles. These are related to experiences of individuals, hence determining that there was no major difference across the respondents' profile on this major aspect was important, though, it was not a variable in the study.

#### **4.5 Statistical analysis of data on indicators of school social environment and their influence on students' academic performance**

To address the main aim of the study, school social environment was conceptualized to constitute four independent variable indicators namely, teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics (student motivation and involvement in the learning activity), and the

school principal's leadership style (defined by select traits of transformational and transactional styles). Data collected from respondents was analyzed quantitatively using SPSS version 2016, a computer software programme.

According to Muijs (2004) the programme is used because of its capability in controlling large amounts of data and can perform all the analyses the researcher intends to cover for the study.

Descriptive and inferential statistics were used in quantitative data analysis. Each of the four indicators conceived for the study as being core to school social environment were further defined by a set of behavior sub indicators as follows: four sub-indicators on teacher-student interpersonal interactions, four on student-student interpersonal interactions, ten on learner characteristics (three for motivation and seven for involvement), and five sub-indicators on school principal's leadership styles. Each of these behavior sub-indicators were set forth in the questionnaire as statements which the respondents were either to agree or disagree with. A modified 4-point Likert scale was used, and responses were assigned weight as follows: 1= Strongly Disagree, 2= Disagree 3=Agree, 4= Strongly Agree, with the least weight accorded to Strongly Disagree, and the highest accorded Strongly Agree. The researcher calculated the rating as the average of the 4 items. A greater ranking of a statement meant that the respondents have agreed with the construct.

#### **4.6 Descriptive statistics for influence of school social environment on student's academic performance**

Descriptive statistics were used to show the status of school social environment based on the four objective areas of the study: each objective area (variable indicator) described in granular using a set of behavior sub-indicators. The rationale for querying

and observing the constitute indicators of school social environment using the described behavior sub-indicators was to enable deeper scrutiny of the variable and therefore be able to explain fully the undercurrents inherent therein.

#### **4.6.1 Influence of teacher-student interpersonal interactions on student's academic performance**

The first objective of the study was to establish whether interpersonal interactions between teachers and students influenced academic performance in public schools in Machakos county. The data was first analyzed and presented in descriptive statistics. Table 11 shows respondents' view on whether teacher-student interpersonal interactions had influence on student's academic performance.

**Table 4.7**

*Descriptive Statistics for Teacher-Student Interpersonal Interactions and Academic Performance Stated behavior sub-indicator*

<b>In this school</b>	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
Teachers are friendly to learners.	29	51	139	85
Student can approach teachers with personal & academic problems.	31	37	133	105
Teachers are available for consultation during or after class hours	28	47	103	128
Learners respect and obey teachers	41	13	153	97
Average response for teacher-student interpersonal interactions (n=306)	33	37	132	104

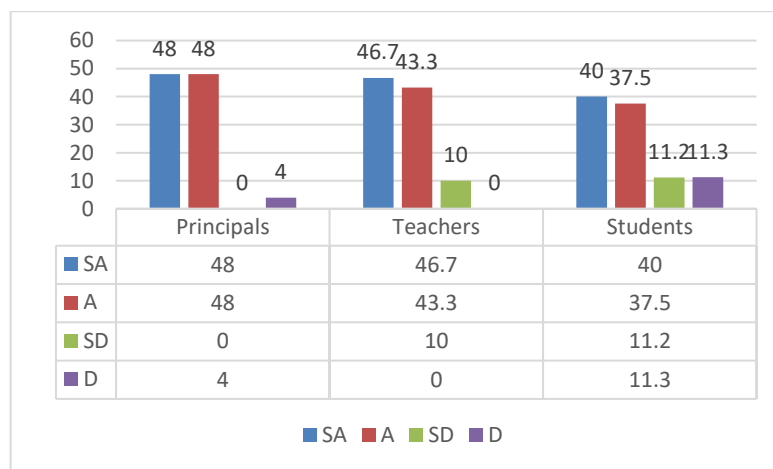
KEY - SD= Strongly Disagree, D= Disagree, A=Agree, SA= Strongly Agree

Data collected on interpersonal interactions focused on two sub-elements namely teacher-student, and students- students' interpersonal interactions. The focus was behavior sub-indicators for teacher-student interpersonal interactions were; if teachers are friendly to the students, approachable by the students, available for consultation, and were respected and obeyed by the students. Of the four behavior sub-indicators for teacher-student interpersonal interactions surveyed, the two most acknowledged as

being highly influencing students' academic performance were where learners respected and obeyed teachers (82%) and where teachers were approachable by student when the student had personal or academic problem (78%). From referred to table, it has been shown that an overwhelming majority of the respondents viewed positive teacher-student interactions as influencing student's academic performance.

**Figure 4.1**

*Teacher-Student Interpersonal interactions on Academic Performance*



School principals and teachers registered the strongest view of influence brought about by good teacher-student interpersonal interactions on students' academic performance, while a contrary view, though in the minority, was noted to be mainly by students. It was further noted that school principals and teachers had similar views on the positive influence of teacher-student interpersonal interactions on students' academic performance.

#### **4.6.2 Influence of student-student interpersonal interactions on student's academic performance**

The second objective of the study was to establish whether interpersonal interactions amongst students influenced their academic performance in public schools in Machakos county. The results showed that majority of respondents, 79% agreed that student-student interpersonal interactions positively influenced academic performance. The data is presented in descriptive statistics as shown in table 12 and Figure 3.

**Table 4.8**

*Descriptive Statistics for Student-Student Interpersonal Interactions and Academic Performance*

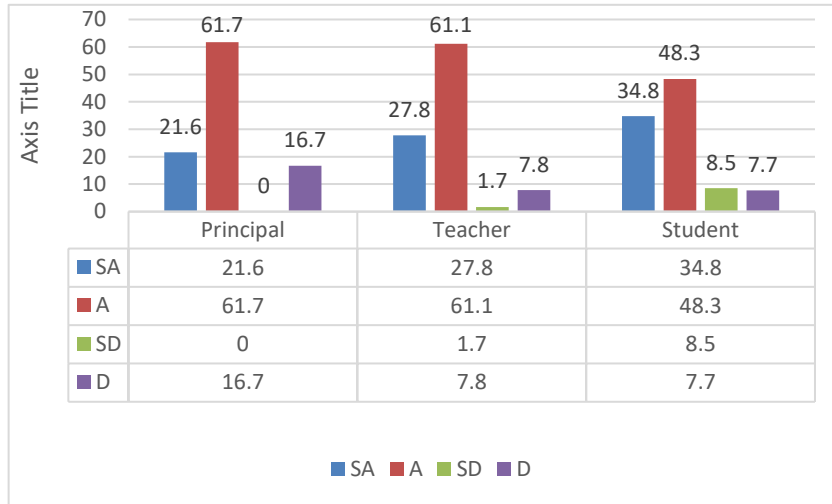
<b>In this school;</b>	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
Students are friendly to each other	41	49	151	62
Students respect one another	10	66	118	112
Student-student relationships encourage exchange of ideas and information	32	9	144	107
Student-student relationship encourages learners to participate in discussions during class sessions and outside class.	26	11	171	98
Friendly student-student relationships enable learners to compete in class.	11	10	155	130
Over-all average response for student-student interpersonal interactions (n=306)	27	32	140	102

KEY - SD= Strongly Disagree, D= Disagree, A=Agree, SA= Strongly Agree

Table 12 showed that a good majority of respondents (80%) agreed that student-student interpersonal interactions influenced academic performance. A third of the respondents registered strong agreement on the influence. The most influential factor out of the four considered was where schools were viewed to have friendly student-student interpersonal interactions existed, which enabled learners to compete in class (94%).

**Figure 4.2**

*Influence of student-student interpersonal interactions on student's academic performance (% age of respondents)*



The table shows view of the different categories of respondents – principals, teachers and students- on influence of student-student interpersonal interactions on student's academic performance. From the chart, more teachers (88%) viewed interpersonal interactions amongst students has having influence on academic performance. Schools' principals (83% respondents) and students (83% respondents) followed closely. Students (35%) were emphatic and in strong agreement that student-student interpersonal interactions influenced their academic performance.

The study thus established that influence of student-student interpersonal interactions on students' academic performance. The aspect of interpersonal interactions among students viewed by respondent as one most responsible for influencing academic performance was the one of driving learners to compete in class.

#### **4.6.3 Influence of learner characteristics (learner motivation and involvement in learning) on students' academic performance**

The third objective of the study was to establish whether learner characteristics influenced student’s academic performance. Learner characteristics were queried from two perspectives: learner motivation and involvement in learning. The data was analyzed and results presented in descriptive statistics as shown in table 13 and Figure 4.

**(i) Learner motivation**

Learner motivation to learn was considered from the perspective of peer group effects; that is; peers encourage one another to work hard towards their set academic goals, peer group discussions improve learning, and peers tend to spend more time working on their class assignments and revising. The findings showed that 72% of the respondents agreed that motivation of learners had influence on their academic performance.

**Table 4.9**

*Descriptive Statistics for Learner Motivation and Students' Academic Performance*

<b>Stated behaviour sub-indicator</b>	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
Peers encourage one another to work hard towards their set academic goals	35	15	136	119
Students’ peer group discussions in this school improve academic performance.	32	29	185	56
Students in this school spend most of their time with peers working on their class assignments and revising their academic work	31	73	130	71
Overall learner characteristics- (motivation) average response for the three motivation sub-indicators (n=306)	33	39	151	83

KEY - SD= Strongly Disagree, D= Disagree, A=Agree, SA= Strongly Agree

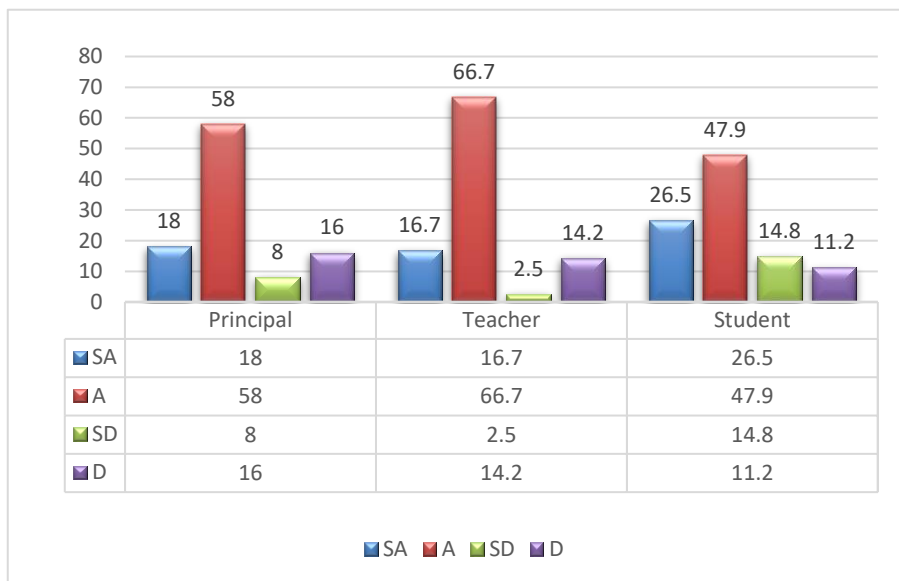
From the tabulated results, students in peer groups encourage one another to work hard, participate in group discussions, work on class assignments and revise. The study found that learner motivation thrived best in an environment where students felt at ease where a spirit of peers flourished. The behavior characteristic more than any other

associated with student’s academic performance is that peer spirit influence students to encourage one another to work hard towards their set academic goals.

These findings correspond to earlier one by Hurst et al. (2013), who in their study found out that when students interacted, they learn from one another thus enhancing understanding and retention of the content learnt. The influence of peer groups to academic performance was also acknowledged as crucial with 78% positive response. This affirmed with similar findings by Grove (2019), who supported that when students worked in pairs or groups, they were engaged in learning activities through discussions, debating or carrying out group projects.

**Figure 2.3**

*Learner characteristics (motivation) on academic performance*



Thus, on motivation as an influencer of academic performance, 78% respondents agreed that peer groups generally had a positive effect, though a notable minority of 22% disagreed. The extremes on both ends (strongly agree and strongly disagree) were

subdued at 20.4% and 8.4% respectively. From the findings we therefore note that learner motivation influences academic performance in Machakos county.

**(ii) Learner involvement in the learning process**

From the perspective of learner involvement in the learning process, specific behavior sub-indicators sought were to establish: if students ask and answer questions in class, do extra work on their own, participate in class activities, show attentive interest in class, contribute to classroom discussions, enjoy the classroom activities, discuss and share ideas with one another, complete their home-work. The results of the analysis are presented in Table 14.

**Table 4.10**

*Descriptive Statistics for Learner Involvement and Students' Academic Performance*

<b>Students in this school;</b>	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
Ask and answer questions in class.	26	37	171	71
Do extra work on their own and present to teachers for marking.	75	49	132	49
Show attentive interest in class activities	31	41	174	59
Actively contribute to classroom discussions	14	40	165	81
Participate, learn, and enjoy classroom activities under the tutorage of their Subject teachers	18	43	173	71
Discuss and share ideas with one another in class.	21	23	174	87
Complete their home work as required by their teachers.	79	53	141	30
Overall average of response for seven behaviour sub-indicators (n=306)	38	41	162	65

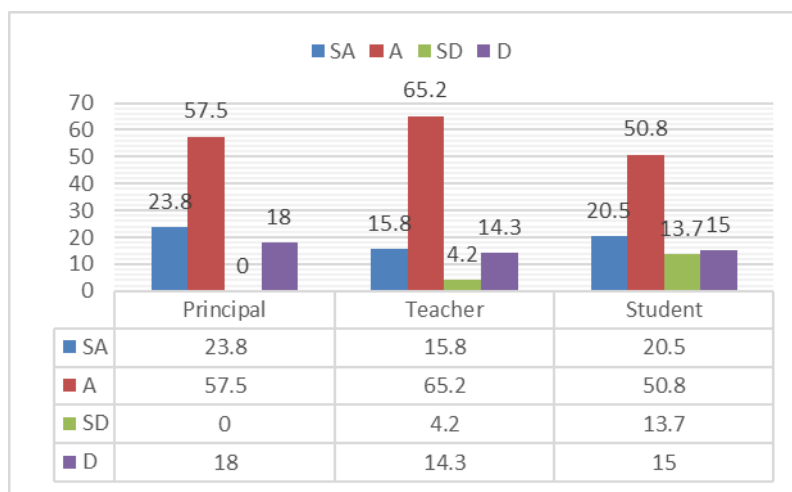
On this aspect, the two behavior sub-indicators deemed most influential to students' academic performance were when students discussed and shared ideas with one another in class, and they actively contributed in classroom discussions.

Such findings were consistent with those of studies in America by Patrick and Ryan (2003) and in India by Kapur (2018) where it was noted that when students worked together in their discussion groups, they had opportunity to have healthy interactions

and exchange ideas with each other and thus enhance their academic performance. On influence of student involvement in the learning process, 57% and 20% expressed very strong and strong agreement respectively, while a noticeable 16% strongly disagreed with this view.

**Figure 4.4**

*Learner characteristics (learner involvement) on student's academic performance*



Overall, it was observed that 73% of respondents agreed that learner motivation influenced academic performance positively. In the same breath, a noticeable number of the respondents (27%) were of negative view. Despite this view, teachers (18%) and students (29%) were disagreed that learner involvement had any on student's academic performance. In conclusion, the results showed that learner characteristics were viewed as an important factor that influenced student's academic performance.

**4.6.4 School principal's leadership styles and student's academic performance**

This objective was to establish whether the principal's leadership styles influenced academic performance. School principal's leadership style was viewed from the perspective of transformational and transactional leadership practices. Two traits related to transformational leadership style were considered, namely, whether the principal provided teaching and learning materials, and held regular staff and parents'

meetings to discuss academic progress. On transactional leadership style, three traits were interrogated namely, whether the principal encouraged students to set academic performance goals, regularly communicated to the teachers and students on academic expectations, and rewarded good performance.

This view of the researcher on the value of the two leadership styles is informed by the study by among others, Musungu and Nasongo (2009) who posited that instructional and transformational models of leadership were the most appropriate models of leadership for school academic improvement. It is for that reason that the study sought to identify traits and examine how principal’s use of transformational and instructional leadership styles influences academic performance of public secondary schools in Machakos County. The data for this variable indicator was also first analyzed and presented in descriptive statistics as shown in Table 15.

**Table 4.11**

*Descriptive Statistics for Principal's Leadership Styles and Students' Academic Performance*

<b>In this school, The Principal</b>	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
Transformational leadership traits				
Provides the teaching and learning materials	40	8	83	174
Holds regular staff & parents’ meetings to discuss academic progress.	41	8	85	171
Transactional leadership traits				
Encourages teachers to assist students to set academic performance goals at the beginning of each term	1	6	115	183
Regularly communicates to the teachers and students on academic expectations of the school.	5	13	115	162
Rewards good performance	9	6	115	175
Overall average of responses for principal’s leadership styles (n=306)	19	8	103	173

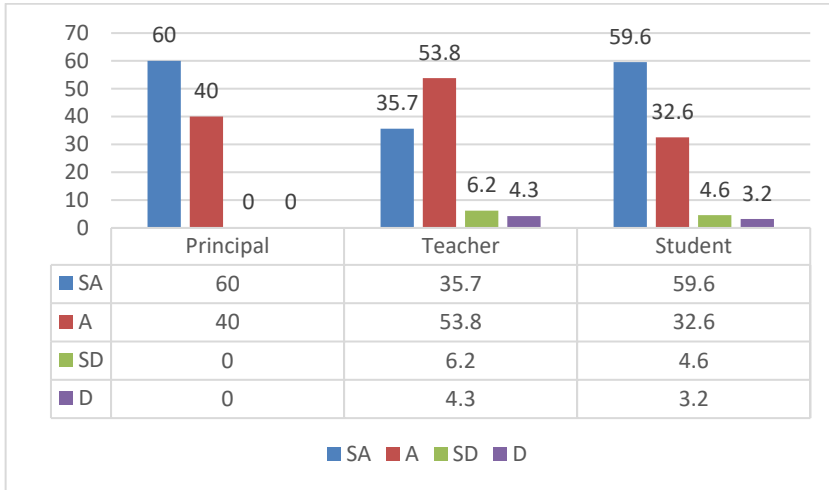
From the table 15 the two leadership behavior traits, considered most influencing to academic performance were; where the principal encouraged students to set academic

performance goals at the beginning of each term (91%), and where the principal rewarded good performance (98%). Indeed, this extremely high value attached to these two traits mirrors findings by Cruickshank (2017) in his study on school leadership in Australia, where he found that instructional leadership pays attention on the academic development of learners, and was focused on instruction and learning process with the aim of setting high standards of academic performance for both the teachers and students.

The results show that the respondents across all three categories; teachers, students and principals, had a positive view (52% strongly agree; 42% agree) that school principals whose leadership style espoused practices considered in the study, were likely to register good academic performance. Only a small minority of 6% were on contrary view. Similar findings were noted in a study by Moller and Pankake (2006) who posited that the school head was the custodian of positive school customs and practices that supported progressive or result-oriented teaching and learning, in the manner and type of decision he made, and the quality of supervision he espoused.

**Figure 4.5**

*Principal’s leadership styles and student’s academic performance (frequency percentage and respondents’ category)*



The data also reveals that, aside from the principals (who self-assessed), a notable portion of teachers and students were more emphatic that reward for good performance, and encouragement to students to set academic goals were top most important factors in good academic performance, than other practices. In other words, transactional leadership had stronger influence in academic performance. These are practices that have also been found to contribute to enhanced academic performance in other studies such as (Gatama, et al., 2023). It was also noted that school principals and students had nearly similarity of view on the positive influence of the principal’s leadership style and academic performance, and at the same time.

**4.6.5 Summary of descriptive statistics for influence of school social environment on student’s academic performance in public secondary schools in Machakos County.**

Table 15 and Fig 6 shows summary of descriptive data analysis for each of the four variable indicators of school social environment; teacher-student interpersonal

interactions, student- student interpersonal interactions, learner characteristics, and school principal’s leadership style. The results show the proportions of respondents who agreed or disagreed with the position that school social environment influenced student's academic performance.

**Table 4.12**

*Summary of Descriptive Statistics for All School Social Environment Variables and Academic Performance*

<b>Influence of school social environment</b>	<b>SD</b>	<b>D</b>	<b>A</b>	<b>SA</b>
Teacher-student interpersonal interactions	44.9	42.9	7.1	5.1
Student- student interpersonal interactions	28.1	57	3.4	10.7
Learner characteristics (student motivation and involvement)	20.2	57.5	7.2	14.9
School principal’s leadership style	51.8	42.2	3.6	2.5
Overall average response for the variable indicators ( <b>n=306</b> )	115	134	27	30
Overall average response for the variable indicators ( <b>%age</b> )	38%	44%	9%	10%

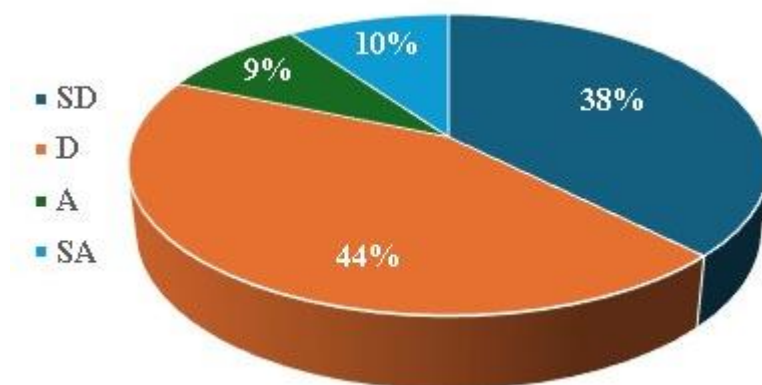
Overall, using descriptive statistics, showed that a strong majority (82%) of the respondents agreed that school social environment had significant effect on students’ academic performance in KCSE in public schools in Machakos county. A small proportion of the respondents, 18% however disagreed. Regarding teacher–student interpersonal interactions, there was a strong agreement 87% across the three categories of respondents (students/teachers/principles) that interpersonal interactions between teachers and students influence students’ academic performance with a negligible minority (12%) being of contrary view.

On student–student interpersonal interactions, a resounding majority (85%) of respondents from the three categories were positive that student-student interactions influence students’ academic performance. Only a small proportion (15%) were of contrary view. On learner characteristics, a strong majority (78%) agreed in principle

that motivation had an influence on students' academic performance, and only a minority of (22%) in average opining otherwise. On the aspect of learner involvement, there was a general agreement (77%) that it influenced students' academic performance, with a minority of 22.3% disagreeing. On school principal's leadership style, a resounding majority (94%) of respondents across the three categories generally agreed that leadership style influences students' academic performance, while a negligible portion 6% had contrary view.

**Figure 4.6**

*Respondents' opinion drawn from descriptive statistics on influence of school social environment on student's academic performance*



From Fig 7, an overwhelming majority of the respondents (82%) were affirmative that school social environment influenced students' academic performance in public secondary schools. The overall result on respondents' view was that schools promoting a positive social environment would yield positive student's academic performance than schools with contrary practices.

In conclusion, results from the descriptive analysis have shown that school social environment influences academic performance in public secondary schools in

Machakos county. The study showed that out of the twenty behavior sub-indicators under consideration, the top six (6) opined as most influential on students' academic performance were; teachers were considered approachable by students to assist them on individual personal or academic problems, students were respectful and obedient to teachers, peers encouraged each other to work hard towards academic goals, students were active and contributed during classroom discussions and the principal encouraged students to set academic goals and rewarded good academic performance.

#### **4.7 Inferential analysis for influence of school social environment on student's academic performance**

In addition to descriptive analysis, the researcher also applied inferential statistical analysis to determine if in the opinion of teachers, students and school principals, school social environment influenced students' academic performance.

##### **4.7.1 Results analysis and presentation**

Simple linear regression analysis was used to test the four hypotheses for the respective constitutes of school social environment to establish the existence of the assumed relationship. The statistical outputs of interest were the coefficient of correlation (R), coefficient of determination (R<sup>2</sup>) and the statistical significance value (p-value).

The existence and nature of such relationship between independent and dependent variables was investigated using inferential statistics. Three aspects of proof were pursued: first, whether the relationship if any was positive or negative using correlation coefficient (R) which has a value of between +1 to -1; secondly, the proportion of variance in a dependent variable that is attributable to the independent variable using coefficient of determination (R<sup>2</sup>) which is stated as percentages from 0% to 100; and thirdly, whether the relationship was statistically significant using p-value at a pre-

select alpha ( $\alpha$ ) of less than 0.05 (p-value >0.05). Accordingly, as Cresswell, J. W., (2014) averred, the correlation coefficient is significant if the P-value is less than alpha ( $\alpha$ ), and not significant in cases where the level of significance is greater than 0.05.

The rationale is that  $p$ -values and coefficients in regression analysis work together to tell you the nature of those relationships and which ones are statistically significant. Simple linear regression was therefore used for each individual independent variable indicator. Multiple linear regression was also done to determine if there was a relationship between the four combined indicator elements of school social environment and students' academic performance. The dependent variable represents the average mean scores in KCSE examinations for selected public secondary schools in Machakos county during the period 2013 to 2020. Linear regression analysis was done using SPSS version 2016. For each hypothesized situation, a regression model was generated at the start. The results are presented as below.

#### **4.7.2 Influence of teacher-student interpersonal interactions (teacher-student interpersonal interactions) on student's academic performance**

Data collected to determine the influence of interpersonal interactions and academic performance was analysed using the study hypothesis.

*H<sub>01</sub>- There is no significant relationship between teacher-student interpersonal interactions and student's academic performance in public secondary schools in Machakos County.*

Simple linear regression was carried out to ascertain the extent to which teacher-student interpersonal interactions could influence student's academic performance in Machakos County. The regression model for teacher-student interpersonal interactions specified was  $P = \beta_0 + \beta_1 TSR$ ;

Where:

P=Student's academic Performance

$\beta_0$ =Constant (Intercept of the model)

$\beta_1$ =Coefficient of the independent variable

TSR=Teacher-Student interpersonal interactions

A strong positive correlation was found between TSR and P ( $R = .65$ ) and the regression model predicted 42% of the proportion of variance ( $R^2$ ). The model was a good fit for the data ( $F = 224.850, p < .000$ ). These results are presented and discussed in detail in tables 4.12, and 4.13. Table 4.12 shows that there is influence of the independent variable, teacher-student interpersonal interactions, on students' academic performance. The fitted model was  $P = 1.601 - 0.263 \text{ TSR}$ . The regression output is as per Table 17.

**Table 4.13**

*Regression Model Summary for Teacher-Student Interactions Predicting Academic Performance*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.651 <sup>a</sup>	0.424	0.422	0.362

a. Predictors: (Constant), Teacher-student interpersonal interactions

The table shows a positive R-Square of 42.4%. This implies that students' academic performance (dependent variable) is positively influenced and improves, when the teacher-student interpersonal interactions improve. The coefficient also indicates that teacher-student interpersonal interactions accounted for a minimal proportion of 42.4%. of the variation in student's academic performance. This means that students' academic performance will experience an average change of 42.4%. given a one-unit increase in the teacher-student interpersonal interactions.

Table 18 shows the analysis of variance (ANOVA) test result-usually reported as an  $F$ -statistic and its associated degrees of freedom and  $p$ -value. The one-way ANOVA analysis found there was a statistically significant effect of teacher-student interpersonal interactions on students' academic performance,  $F(1, 305) = 224.85, p = .000$ . This means that the regression model explains a statistically significant proportion of the variance (a larger  $F$  value means that the variation associated with the independent variable is real and not due to chance). Therefore, the explanatory variable teacher- student interpersonal interactions influence students' academic performance.

**Table 4.14**

*Analysis of Variance for Teacher-Student Interactions and Students' Academic Performance*

	<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>
1	Regression	29.508	1	29.508	224.85
	Residual	40.027	305	0.131	
	Total	69.535	306		

a. Predictors: (Constant), Teacher -Student interpersonal interactions

b. Dependent Variable: Students' academic performance

As earlier on indicated, coefficients and  $p$ -values in regression analysis work together to show the nature of relationships in the model, which we have shown as positive and statistically significant, in Table 18.

Linear regression  $p$ -value for each independent variable is to test the null hypothesis, that is, the independent variable has no relationship with the dependent variable. Simple linear regression was calculated to show academic performance (P) was influenced by teacher-student interpersonal interactions (TSR), using the fitted model

was  $P = 1.601 - 0.263 \text{ TSR}$ . A significant regression equation had output of  $p < .000$ , with an  $R^2$  of .031. Columns *t* and *Sig.* in the table 19 provide the t-value and 2 tailed p-value used in testing the null hypothesis. The *Beta* column shows the standardized coefficients, which are obtained by using standardized variables in the regression i.e. standardizing the variables before running the regression placed all of them on the same scale to enable comparison of the magnitude of the coefficients and see which one has more influence. The *Std. Error* column shows standard errors associated with the coefficients and is used for testing whether the parameter is significantly different from 0. We conclude from the results in the two tables that teacher-student interactions have a positive and statistically significant influence on student's academic performance.

**Table 4.15**

*Regression Coefficients for Teacher-Student Interactions and Academic Performance*

	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.026	0.071		56.351	0
	Teacher-Student interpersonal interactions	-0.345	0.023	-0.651	-14.995	0

a. Dependent Variable: Students' academic performance

From the output, it has been shown that influence of teacher-student interpersonal interactions (referred to as teacher-student interpersonal interactions in the model) on academic performance was statistically significant with a p-value of 0.00, which is less than 0.05, the researcher's pre-selected alpha level (p-value). The null hypothesis was rejected. The alternative one, that is, teacher-student interpersonal interactions influence students' academic performance, was accepted.

### **Summary of discussion of the results**

The null hypothesis was rejected and the alternative hypothesis (Ha) accepted. In other words, there was strong evidence to say that teacher-student interpersonal interactions influence students' academic performance. This showed that there existed a statistically significant influence for teacher-student interpersonal interactions and student's academic performance. The study confirmed that positive teacher-student interpersonal interactions where teachers are friendly and approachable by students and are respected by the students enhance student's academic performance. These findings were in concurrence to earlier studies by Ogbuanya et al. (2017) in Nigeria and Chebet (2018) in Uganda. This study therefore found that positive teacher-student interpersonal interactions influence student's academic performance in national and extra-county schools in Machakos county.

#### **4.7.3 Influence of student-student interpersonal interactions on student's academic performance**

Data collected to determine the influence of student-student interpersonal interactions on student's academic performance was analysed using the study hypothesis.

*H<sub>02</sub>- There is no significant relationship between student-student interpersonal interactions and student's academic performance in public secondary schools in Machakos County;*

Simple regression analysis was done to establish the extent to which student-student interpersonal interactions can predict student's academic performance in Machakos County. The researcher had hypothesized that there is no significant influence by student-student interpersonal interactions on student's academic performance in public secondary schools in Machakos County.

The regression model for student-student interpersonal interactions developed was

$$P = \beta_0 + \beta_1 SSR$$

Where;

P=Students' academic Performance

$\beta_0$ =Constant (Intercept of the model)

$\beta_1$ =Coefficient of the independent variable

SSR=Student-Student interpersonal interactions

A strong positive correlation was found between SSR and P ( $R = .91$ ) and the regression model predicted 82% of the proportion of variance ( $R^2$ ). The model was a good fit for the data ( $F = 1.345, p < .005$ ). These results are presented and discussed in detail in Tables 18, 19, and 20. Table 20 shows the regression output for  $P = \beta_0 + \beta_1 SSR$  on student-student interpersonal interactions.

**Table 4.16**

*Regression Model Summary for Student-Student Interactions Predicting Academic Performance*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.906 <sup>a</sup>	0.821	0.82	0.187

a. Predictors: (Constant), Student-Student interpersonal interactions

The output had a positive coefficient of determination ( $R^2$ ) of 82.1% but nevertheless a good indication that students' academic performance (dependent variable) is positively influenced and improves, when the student-student interpersonal interactions improve. This was more so when one considered that there was also a positive relationship between the two variables as shown by a coefficient of correlation ( $R$ ) of 0.9. The coefficient ( $R^2$ ) also indicates that student-student interpersonal interactions accounted for a near negligible proportion of 82.1% of the variation in

academic performance. This means that academic performance will experience an average change of 0.9% given a one-unit increase in the student-student interpersonal interactions.

Table 21 shows the analysis of variance (ANOVA) test result-usually reported as an  $F$ -statistic and its associated degrees of freedom and  $p$ -value. The one-way ANOVA found there was a statistically significant influence of Student-Student interpersonal interactions on students' academic performance in KCSE,  $F(1, 294) = 1.345, p = .000$ . This means that the regression model explains a statistically significant proportion of the variance (a larger  $F$  value means that the variation associated with the independent variable is real and not due to chance). Therefore, the explanatory variable (student-student interpersonal interactions) influences the response variable (students' academic performance).

**Table 4.17**

*Analysis of Variance for Student-Student Interactions and Academic Performance*

<b>Model</b>	<b>Sum of squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1 Regression	47.202	1	47.202	1.3453	.000 <sup>a</sup>
Residual	10.317	294	0.035		
Total	57.519	295			

a. Predictors: (Constant), Student-Student interpersonal interactions

b. Dependent Variable: Students' academic performance

As previously stated, coefficients and  $p$ -values in regression analysis work together to show the nature of relationships in the model, and which relationships are statistically significant, which we proceed to show using Table 18. The hypothesis to be tested in our study stated that there is no significant relationship between student-student

interpersonal interactions and students' academic performance in public secondary schools in Machakos County. The fitted model was  $P = 1.612 - 0.116 SSR$

**Table 4.18**

*Regression Coefficients for Student-Student Interactions and Academic Performance*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.312	0.048		27.164	0
Student-student interpersonal interactions	0.555	0.015	0.906	36.676	0

a. Dependent Variable: Students' academic performance

From the Table 22, we observe that the independent variable, student-student interpersonal interactions hereafter, was significant since the  $p$ -value was 0.000, which is less than 0.05, which was the researcher's preselected alpha level ( $p$ -value). The alternative hypothesis that student-student interpersonal interactions influence students' academic performance was therefore accepted. The results show that there is a correlational relationship between student-student interpersonal interactions and student's academic performance. This is shown by a coefficient of correlation (R) of 0.9, and R<sup>2</sup> of 82.1%, both of which, viewed together with a  $p$ -value (sig .000) less than the pre-selected alpha level, offer ample proof to conclude that student-student interpersonal interactions had an influence on students' academic performance.

### **Summary discussion of the results**

The null hypothesis was rejected and the alternative hypothesis (H<sub>a</sub>) accepted. In other words, there was strong evidence that student -student interpersonal interactions influence students' academic performance.

Positively oriented peer groups among students gave them confidence and support in learning by encouraging hard work, healthy competition in class and discussions, all

which made learning fruitful. These findings were in concurrence to earlier studies by Kapur (2018) in India. This study therefore found that positive student-student interpersonal interactions influenced students' academic performance national and extra-county schools in Machakos county.

#### **4.7.4 Influence of learner characteristics (motivation and involvement in learning activity) on student's academic performance.**

Relationship between learner characteristics and student's academic performance was further interrogated using inferential statistics under hypothesis generated for this assertion as stated below.

*H<sub>03</sub>. There is no significant relationship between student characteristics (motivation and involvement in learning activity) and students' academic performance in public secondary schools in Machakos County.*

To fully test this hypothesis for statistical significance of the relationship, the researcher disaggregated it into two constituent hypotheses as follows.

*H<sub>03a</sub> There is no significant relationship between student motivation and student's academic performance in public secondary schools in Machakos County.*

*H<sub>03b</sub> There is no significant relationship between student involvement and student's academic performance in public secondary schools in Machakos County.*

##### **(i) Influence of Learner motivation on student's academic performance**

Learner motivation was seen from a perspective of peer group effect and was queried using three (3) attributes deemed key behaviour sub-indicators of motivation namely;

encouragement for one another to work hard, participate in group discussions, to work on class assignments and revising.

Simple linear regression analysis was done to ascertain the extent to which learner motivation can predict students' academic performance in public secondary schools in Machakos County. The researcher had hypothesized that there is no significant relationship between learner motivation and student's academic performance in public secondary schools in Machakos County.

*H<sub>03a</sub> - There is no significant relationship between learner motivation and student's academic performance in public secondary schools in Machakos County.*

The regression model to generate the coefficients appropriate to explain the nature of relationship between the two variables was  $P = \beta_0 + \beta_1 Mot$

Where;

P=Students' academic Performance

$\beta_0$ =Constant (Intercept of the model)

$\beta_1$ =Coefficient of the independent variables

Mot=Learner's motivation

A strong positive correlation was found between Mot. and P ( $R = .96$ ) and the regression model predicted 92% of the proportion of variance ( $R^2$ ). The model was a good fit for the data ( $F = 3.106, p < .005$ ). These results are presented and discussed in detail in Tables 21, 22, and 23.

**Table 4.19**

*Regression Model Summary for Learner Motivation Predicting Academic Performance*

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.958 <sup>a</sup>	0.919	0.918	0.144

a. Predictors: (Constant), Learner motivation

Table 23 output shows a coefficient of correlation (R) of .96 meaning that a positive relationship exists between the learner motivation and student's academic performance. It also showed R-Square of 91.8% denoting that the independent variable accounted for 91.8% of the students' academic performance.

Table 23 shows the analysis of variance (ANOVA) test result-usually reported as an *F*-statistic and its associated degrees of freedom and *p*-value. The one-way ANOVA found there was a statistically significant effect of learner motivation on students' academic performance,  $F(1, 275) = 3.106$ ,  $p = .000$ . This means that the regression model explains a statistically significant proportion of the variance (a larger *F* value means that the variation associated with the independent variable is real and not due to chance). Therefore, the explanatory variable (learner motivation) influences the response variable (student's academic performance).

**Table 4.20**

*Analysis of Variance for Learner Motivation and Students' Academic Performance*

<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	64.634	1	64.634	3.1063	.000 <sup>a</sup>
	Residual	5.722	275	0.021		
	Total	70.356	276			

a. Predictors: (Constant), Learner motivation

b. Dependent Variable: Student's academic performance

Having established the nature of relationships between the variables through coefficients, the p-value similarly generated in regression analysis was used to explain whether the relationships are statistically significant. Table 23 shows the summary of regression output and resultant p-value from the coefficient of regression equation using model  $P = 3.341 - 0.585Mot$ .

**Table 4.21**

*Regression Coefficients for Learner Motivation and Academic Performance*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.496	0.028		53.15	0
Learner motivation	0.524	0.009	0.958	55.733	0

a. Dependent Variable: Student's academic performance

The influence exerted by the independent variable; learner motivation was thus determined as statistically significant ( $.000 < .05$ )- since the  $p$ -value was .000 which is less than researchers preselected alpha level of 0.05. The alternative hypothesis that learner motivation influences students' academic performance was accepted.

In other words, data analysed using inferential techniques has provided evidence that learner motivation positively influenced student's academic performance in public secondary schools in Machakos county. This, based on the regression output with a proportion of variance ( $R^2$ ) of 91.8% on students' academic performance accounted for by learner motivation, and the rejection of the null hypothesis the effect that no such influence is statistically significant using the obtained  $p$ -value of .001.

### **Summary discussion of the results**

The null hypothesis for learner motivation was thus rejected. Therefore, there was strong evidence that learner motivation influenced student's academic performance.

Similar findings were observed in Kenya by (King’oina et al., 2017; Kariuki & Mbugua, 2018). Their studies affirmed that a learning environment that encourages togetherness and positive peer groups for learners had a motivating effect which positively influenced students’ academic performance.

### **(ii) Influence of learner involvement on student’s academic performance**

Learner characteristics as seen from the perspective of learner involvement was queried using eight trait statements viz; whether the students ask and answer questions in class, do extra work on their own, participate in class activities, show attentive interest in class, contribute in classroom discussions, enjoy the classroom activities, discuss and share ideas with one another, complete their homework.

For the independent variable, learner involvement in learning activity, simple linear regression analysis was done to establish how it influenced student’s academic performance in public secondary schools in Machakos County.

The researcher’s null hypothesis stated that there is no significant relationship between learner involvement and student’s academic performance in the County.

*H<sub>03b</sub>- There is no significant relationship between learner involvement and student’s academic performance in public secondary schools in Machakos County.*

Again, as with previous independent variables, a regression model to generate the coefficients appropriate to explain the nature (proportion and statistical significance) of relationship between the two variables was  $P=\beta_0+ \beta_1Inv$ :

Where;

P=Student's academic Performance

$\beta_0$ =Constant (Intercept of the model)

$\beta_i$ =Coefficient of the independent variable

Inv=Learner Involvement

A strong positive correlation was found between Inv. and P ( $R = .93$ ) and the regression model predicted 87% of the proportion of variance ( $R^2$ ). The model was a good fit for the data ( $F = 2.068, p < .005$ ). These results are presented and discussed in detail in Tables 23, 24, and 25.

**Table 4.22**

*Regression Model Summary for Learner Involvement Predicting Academic Performance*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934 <sup>a</sup>	0.872	0.871	0.171

a. Predictors: (Constant), Learner Involvement

The fitted model output shows a strong positive coefficient of correlation (R) of 0.93 which means that learner involvement in learning activity improves student's academic performance. However, the R-Square (87.1%) implies that the proportion of variance in students' academic performance attributable to learner involvement was very minimal.

Table 26 shows the analysis of variance (ANOVA) test result-usually reported as an  $F$ -statistic and its associated degrees of freedom and  $p$ -value. The one-way ANOVA found there was a statistically significant influence of learner involvement on students' academic performance,  $F(1, 304) = 2.068, p = .000$ . This means that the regression model explains a statistically significant proportion of the variance (a larger  $F$  value

means that the variation associated with the independent variable is real and not due to chance). Therefore, the explanatory variable, learner involvement influences the response variable, students' academic performance.

**Table 4.23**

*Analysis of Variance for Learner Involvement and Students' Academic Performance*

<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1 Regression	60.515	1	60.515	2.068	.000 <sup>a</sup>
Residual	8.897	304	0.029		
Total	69.412	305			

a. Predictors: (Constant), learner Involvement

b. Dependent Variable: Student's academic performance

The linear regression model output also had the p-value for testing the research hypothesis to explain whether the relationships are statistically significant. The summary of regression output and resultant p-value from the fitted model  $P = 1.805 - 0.031 Inv$  (learner involvement) is provided in Table 28.

**Table 4.24**

*Regression Coefficients for Learner Involvement and Academic Performance*

<b>Model</b>	<b>Unstandardized Coefficients</b>	<b>Standardized Coefficients</b>	<b>T</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>		
		<b>Beta</b>		
1 (Constant)	1.42	0.036	39.277	0
Student Involvement			45.473	0

a. Dependent Variable: Students' academic performance

The independent variable, learner involvement was significant since the  $p$ -value was 0.00 (sig. .000) which is less than the researcher's preselected  $p$ -value of 0.05. The alternative hypothesis that learner involvement influence students' academic performance was therefore accepted. This means that the influence of student involvement in learning on students' academic performance is statistically provable.

### **Summary discussion of the results**

The null hypothesis for learner involvement was rejected. There was strong evidence that the learner characteristics influence academic performance. The findings on learner involvement similarly agreed with findings by Qiu et al. (2020) in their study in China, and, by Otieno (2021), Kangangi (2017)), and Omolo and Otara (2021) in different counties in Kenya. Their studies opined that learner characteristics influenced student's academic performance. Thus, the study findings affirmed that learner characteristics, a component of the school social environment, influenced student's academic performance.

#### **4.7.5 Influence of school principal's leadership styles on students' academic performance**

The hypothesis generated for this question was stated as;

*H<sub>04</sub>. There is no significant relationship between school principal's leadership styles and students' academic performance in public secondary schools in Machakos County.*

The researcher sought to determine this position by collecting data on leadership styles bases on traits and practices common in transformational and transactional leadership styles. The researcher specified the practices of the principal that were of interest to the study as; provide teaching and learning materials, regularly communicate to the

teachers and students on academic expectations, reward good performance, and encourage students to set academic performance goals. Simple linear regression analysis was done to establish how school principal's leadership styles affect students' academic performance in public secondary schools in Machakos County. The researcher had hypothesized that there is no significant relationship between school principal's leadership style and students' academic performance in public secondary schools in Machakos County. The regression model for school principal's leadership style developed was  $P = \beta_0 + \beta_1 SPL$ ;

Where;

P=Students' academic performance

$\beta_0$ =Constant (Intercept of the model)

$\beta_1$ =Coefficient of the independent variables

SPL=School principal's leadership styles

A strong positive correlation was found between Inv. and P ( $R = .91$ ) and the regression model predicted 83% of the proportion of variance ( $R^2$ ). The model was a good fit for the data ( $F = 1.479, p < .005$ ). These results are presented and discussed in detail in Tables 27, 28, and 29.

**Table 4.25**

*Regression Model Summary for Principal's Leadership Styles Predicting Academic Performance*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.910 <sup>a</sup>	0.828	0.827	0.212

a. Predictors: (Constant), School Principal's Leadership Styles

The output showed a positive and relatively strong R-Square of R-Square of 82.8% which implies that school principal's leadership styles accounted for 82.8% of the variation in students' academic performance. This was an indication that students' academic performance (dependent variable) is positively influenced and improves in an environment where school principal's leadership styles are healthy and improved. There was also a positive relationship between the two variables as shown by a correlation coefficient (R) of 0.91 meaning that an improvement in the leadership styles will result in improved students' academic performance. This means that students' academic performance will experience a positive change of 82.8% for one-unit increase in school principal's leadership styles.

Table 30 shows the analysis of variance (ANOVA) test result-usually reported as an *F*-statistic and its associated degrees of freedom and *p*-value. The one-way ANOVA found there was a statistically significant effect of school principal's leadership style on students' academic performance,  $F(1, 308) = 1.479, p = .000$ .

This means that the regression model explains a statistically significant proportion of the variance (a larger *F* value means that the variation associated with the independent variable is real and not due to chance). Therefore, the explanatory variable, school principal's leadership styles influence the response variable students' academic performance.

**Table 4.26**

*Analysis of Variance for Principal's Leadership Styles and Students' Academic Performance*

<b>Model</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1 Regression	66.39	1	66.39	1.479	.000 <sup>a</sup>
Residual	13.825	308	0.045		
Total	80.215	309			

a. Predictors: (Constant), School Principal's Leadership Styles

b. Dependent Variable: Students' academic performance

Further to the relationship between school principal's leadership styles and students' academic performance shown by linear regression coefficients (R and R<sup>2</sup>) as positive, a *p*-value was generated to test the researcher's hypothesis that there was no statistically significant relationship between the two variables. The fitted model was  $P = -3.175 + 0.606 SPL$ . A summary of regression equation output is provided in Table 31.

**Table 4.27**

*Regression Coefficients for Principal's Leadership Styles and Academic Performance*

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1 (Constant)	0.336	0.07		4.817	0
School Principal Leadership Styles	0.757	0.02	0.91	38.459	0

The output shows that the independent variable, school principal's leadership styles was not statistically significant since the *p*-value was .000 which is more than the

preselected alpha level of 0.05. The null hypothesis that school principal's leadership styles do not influence students' academic performance was thus rejected.

### **Summary discussion of the results**

The null hypothesis was rejected. There was strong evidence that there existed a statistically significant relationship between school principal's leadership style and students' academic performance. Based on the p-value result, it was established that school principal's leadership style had a positive influence on students' academic performance. These findings rhymed with findings of studies by Cruickshank (2017) in Australia, and Mokoqo (2013) in Lesotho. Similar findings were also brought out by Kinyua (2018) and Gatama et al. (2023), in their respective studies in different counties in Kenya.

### **4.7.6 Combined influence of four elements of school social environment on students' academic performance**

The study focused on four elements deemed core to school social environment namely, teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics (motivation and involvement), and school principal's leadership styles. Regression analysis was run to establish the influence exerted on academic performance by teacher student interpersonal interactions, student-student interpersonal interactions, learner motivation, learner involvement and school principal's leadership styles unpublic secondary schools in Machakos County.

The regression model for combined effects of the independent variables was of the following form:  $P = \beta_0 + \beta_1TSR + \beta_2SSR + \beta_3Inv + \beta_4SPL + \beta_5Mot + \varepsilon$

Where;

P = Academic performance

$\beta_0$  = Constant (Intercept of the model)

$\beta_i$  = Coefficient of the independent variables

TSR = Teacher – Student interpersonal interactions

SSR = Student – Student interpersonal interactions

Inv = Learner involvement

SPL = School Principal’s leadership styles

Mot = Learner motivation

$\varepsilon$  = Error term

The variables statistically significantly predicted (P),  $F(5, 289) = 1.542, p < .001, R^2 = .827$ . All four variables added statistically significantly to the prediction,  $p < .005$ . The detailed results and discussions are presented on Tables 30, 31 and 32.

**Table 4.28**

*Multiple Regression Model Summary for Combined School Social Environment Variables*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.982 <sup>a</sup>	0.964	0.963	0.09

a. Predictors: (Constant), Teacher-Student interpersonal interactions, Student-Student interpersonal interactions, Learner motivation, Student

Involvement and School Principal’s Leadership Styles,

**Model Summary ( $P = \beta_0 + \beta_1TSR + \beta_2SSR + \beta_3Inv + \beta_4SPL + \beta_5Mot + \varepsilon$ )**

Table 32 shows R-square of 96.4% which implies that the explanatory variable accounted for 96.4% of the variance in students’ academic performance. However, the adjusted R-square is 96.3% and is preferred when determining proportion of variation to be accounted for in students’ academic performance from an additional school social environmental factor. The Adjusted R-square (R2a) measures the proportion of

variation explained by only additional independent variables that really help in explaining the dependent variable. It increases only when independent variable is significant and affects the dependent variable. In this way, it is unlike R<sup>2</sup> which assumes every independent variable in the model helps explain the variation in the dependent variable. The Adjusted R-square implies that a more realistic proportion of variation (increase) of 96.3% on students' academic performance is accounted for by an addition of another independent variable factor (school social environment) to the model, as additional independent variable elements that are insignificant are declined. The output therefore meant that the combined influence of the four school social environment factors accounted for a modest 96.3% variation in students' academic performance in public secondary schools in Machakos county. This meant that the individual environmental factors have less influence, but when combined, they are a major determinant of students' academic performance.

The *F*-statistic in the ANOVA table (4.28) tested whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable,  $F(5, 289) = 1.542, p < .001$  (i.e., the regression model is a good fit of the data). Therefore, teacher -student interpersonal interactions, student-student interpersonal interactions, learner motivation, learner involvement and school principal's leadership styles influence the students' academic performance.

**Table 4.29**

*Analysis of Variance for Combined School Social Environment Model Predicting Academic Performance*

<b>Model</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1 Regression	61.931	5	12.386	1542	.000 <sup>a</sup>
Residual	2.322	289	0.008		
Total	64.253	294			

a. Predictors: (Constant), learner motivation, teacher- student interpersonal

interactions, school principal's leadership styles, student-student interpersonal interactions, learner involvement

b. Dependent Variable: Students' academic performance.

To further ascertain if the combination of the five school social environment factors produced statistically significant influence on academic performance, the *p-value* was generated using coefficient of regression model;  $P = 0.459 + 0.114TSR + 0.023SSR + 0.149Inv + 0.211SPL + 0.339Mot$ . The summary regression output for the model is shown in Table 33.

**Table 4.30***Linear regression for independent variables on student's academic performance*

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.459	0.073		6.273	0
Teacher-Student interpersonal interactions	0.114	0.012	0.216	9.354	0
Student-Student interpersonal interactions	0.023	0.025	0.041	0.951	0.343
Student Involvement	0.149	0.031	0.254	4.873	0
School Principal's Leadership Styles	0.211	0.017	0.257	12.119	0
Learner motivation	0.339	0.027	0.643	12.475	0

a. Dependent Variable: Students' academic performance

Table 34 shows that the explanatory variables were significant at P-values = .001 which is less than 0.005. Student-Student interpersonal interactions were however not significant in the combined model since p-value was 0.343 which was more than 0.05. Nevertheless, this does not affect the overall p-value for all variables.

The findings have shown that when the constituting independent variables were combined, that is, if all the variables, as opposed to one or two, functioning at peak level were considered together, they tended to exert huge influence on student's academic performance, accounting for proportion of variation of 96.3% at  $R^2_{adj}$ , and further affirmation at a *p-value of 0.000*, in a pre-selected alpha of 0.05.

#### **4.7.7 Summary of findings from inferential analysis**

The inferential analysis showed that individual elements that constitute school social environment in the study were found to positively influence students' academic performance, accounting for a major proportion of variation of 96.4%. Each of the five

constituent independent variables was found to exert statistically significant influence on students' academic performance. Similarly, the findings have also shown that when the constituting independent variables were combined, they functioned at peak level and tended to exert huge influence on students' academic performance, accounting for proportion of variation of 96.3% ( $R^2_{adj}$ ). Further, the combined elements returned an affirmation (that is a *p-value* of 0.000, at a pre-selected alpha of 0.05) on the afore-assumption that their combined influenced on students' academic performance in public secondary schools in Machakos county was statistically significant.

#### **4.8 Chapter conclusion:**

This part constitutes a summary of the findings as well as the chapter conclusion

##### **4.8.1 Findings based on descriptive statistics analysis**

Using descriptive analysis techniques, the researcher found out that, the elements conceived in the study as constituting school social environment had positive influence on students' academic performance. Further, out of twenty (20) behavior sub-indicators studied, top ten (10) were found to exert most influence on academic performance; availability of teachers by students for consultations, approachability of teachers by students, respect among students, friendly competition among students, attentive students' interest in learning, influence of peer groups in learning, provision of teaching materials, regular communication on performance and rewarding good performance. Overall, an overwhelming 82% of respondents were positive that school social environment influenced students' academic performance.

On teacher–student interpersonal interactions, there was a strong agreement 87% across the three categories of respondents (students/teachers/school principals) that teacher-student and student-student interpersonal interactions influence students'

academic performance. On student–student interpersonal interactions, a resounding majority (85%) of respondents from the three categories were positive that student-student interpersonal interactions influenced students’ academic performance. On learner characteristics, a strong majority (78%) agreed that learner motivation had an influence in students’ academic performance. On the aspect of learner involvement, there was a general agreement (77%) that it influenced students’ academic performance. On school principal’s leadership style, a resounding majority (94%) of respondents across the three categories generally agreed that leadership style influences students’ academic performance.

#### **4.8.2 Findings based on inferential analysis for influence of school social environment on students’ academic performance**

Findings obtained using inferential statistical analysis techniques agreed with the general result from descriptive analysis that school social environment influenced students’ academic performance. The inferential analysis was used to test the four study hypotheses. A summary of the results obtained are discussed here;

##### **Influence of teacher-student interpersonal interactions on student’s academic performance**

In the case of the first null hypothesis;  $H_{01}$ - There is no significant relationship between teacher-student interpersonal interactions and student’s academic performance in public secondary schools in Machakos County. It was rejected and the alternative hypothesis ( $H_a$ ) accepted. This was because the results showed that influence of teacher-student interactions on academic performance was statistically significant with a p-value of 0.00, which is less than 0.05, the researcher’s preselected alpha level (p-value). These finding are in concurrence to earlier studies by Ogbuanya et al. (2017)

in Nigeria, Chebet (2018) in Uganda and Kapur (2018) in India. This study therefore finds that positive teacher-student interpersonal interactions influence students' academic performance in public secondary schools in Machakos county.

### **Influence of student-student interpersonal interactions on student's academic performance**

In the case of the second null hypothesis;  $H_{02}$ - There is no significant relationship between student-student interpersonal interactions and student's academic performance in public secondary schools in Machakos County, it was also rejected. The obtained test output of a p-value (sig .000) less than the pre-selected alpha level, showed that there existed a statistically significant relationship. Positively oriented peer groups among students give them confidence and support in learning by encouraging hard work, healthy competition in class and discussions, all which make learning fruitful.

### **Influence of learner motivation on student's academic performance**

In the case of the third null hypothesis;  $H_{03a}$  - There is no significant relationship between learner motivation and students' academic performance in public secondary schools in Machakos County. There was strong evidence that learner motivation influenced student's academic performance. Similar findings were observed in studies by Kariuki and Mbugua (2018) in Kenya, where they affirmed that a learning environment that encourages togetherness and positive peer groups for learners has a motivating effect which influence student's academic performance.

### **Influence of learner involvement on student's academic performance**

In the fourth null hypothesis;  $H_{03b}$ - There is no significant relationship between student involvement and students' academic performance in public secondary schools in

Machakos County. It was also rejected. The test output showed there was strong evidence that the learner involvement influences student's academic performance.

The findings on learner involvement similarly agree with findings by Qiu et al. (2020) study in China, and, by Otieno (2021), Kangangi (2017)), and Omolo and Otara (2021) in Kenya. Thus, the study findings affirm that learner characteristics, a component of the school social environment, influence student's academic performance.

### **Influence of school principal's leadership styles on student's academic performance**

In the fifth null hypothesis; H<sub>04</sub>. There is no significant relationship between school principals' leadership styles and students' academic performance in public secondary schools in Machakos County, it was rejected on account of test results which showed otherwise. Based on the p-value result, it was established that school principal's leadership styles had a positive influence on student's academic performance. These finding rhyme with findings of studies by Cruickshank (2017) in Australia, and Mokoqo (2013) in Lesotho. Similar findings were also brought out by Kinyua (2018) and Gatama et al. (2023), in their respective studies in different counties in Kenya.

### **Combined influence of four elements of school social environment on student's academic performance**

This analysis focused on influence of combined four elements deemed core to school social environment namely; teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics (motivation and involvement), and school principal's leadership styles. Regression analysis was run to establish the influence exerted on students' academic performance by teacher -student and student-

student interpersonal interactions, learner motivation, learner involvement and school principal's leadership styles in public secondary schools in Machakos County.

The findings have also shown that when the constituent independent variables combined and considered together, they tended to exert huge influence on student's academic performance, accounting for proportion of variation of 96.3% at  $R^2_{adj}$ , and further affirmation at a p-value of 0.000, in a pre-selected alpha of 0.05.

Overall, both descriptive analysis and inferential analysis showed that school social environment had statistically significant influence on student's academic performance in public secondary schools in Machakos county.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a summary of the study findings, conclusion and recommendations which are founded on the study findings. The summary of findings, conclusion and recommendations are systematically organized as per the objectives of the study.

#### 5.2 Summary of findings

The study set out to establish whether school social environment has influence on students' academic performance in public secondary schools in Machakos County. The independent variable, school social environment had the following indicators: teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics and school principal's leadership styles. Four study objectives were used namely, to determine influence of teacher-student interpersonal interactions, student-student interpersonal interactions, learner characteristics, and school principal's leadership styles: on students' academic performance in public secondary schools in Machakos County. Two hypotheses were developed in each of the objectives.

The results are shown in detail as follows;

#### **Objective 1: Teacher-Student Interpersonal Interactions**

Results from descriptive analysis showed that 82% of respondents affirmed that teacher-student interpersonal interactions influenced students' academic performance. High-performing schools demonstrated markedly different patterns of teacher-student interaction compared to low-performing schools. Teachers in successful schools

exhibited greater approachability, maintained more frequent consultation availability, provided constructive and timely feedback, and sustained respectful communication patterns. Students consistently reported that positive teacher-student relationships were characterized by teachers who demonstrated genuine interest in their welfare, were accessible beyond formal classroom hours, and created supportive learning environments that encouraged academic engagement and risk-taking.

Simple linear regression analysis revealed a strong positive correlation between teacher-student interpersonal interactions and academic performance ( $R=0.65$ ,  $p<0.001$ ). The regression model predicted 42.4% of the variance in KCSE mean scores ( $R^2=0.424$ ), with the fitted model specified as  $P=1.601-0.263$  TSR. The model demonstrated good fit for the data ( $F=224.850$ ,  $p<.000$ ). The most influential teacher-student interaction factors were teacher approachability ( $\beta=0.58$ ,  $p<0.001$ ), availability for consultation ( $\beta=0.53$ ,  $p<0.001$ ), constructive feedback provision ( $\beta=0.47$ ,  $p<0.01$ ), and respectful classroom communication ( $\beta=0.45$ ,  $p<0.01$ ). Beta coefficient of 0.54 indicated substantial positive effect on performance.

## **Objective 2: Student-Student Interpersonal Interactions**

Descriptive analysis revealed that student-student interpersonal interactions significantly influenced academic performance across all sampled schools. High-performing schools exhibited distinctly different peer interaction patterns characterized by collaborative learning, mutual academic support, respectful peer relationships, and healthy academic competition. Students in these schools reported regular engagement in peer tutoring, study groups, and collaborative problem-solving activities. Conversely, lower-performing schools showed patterns of negative peer

influences including academic discouragement, social hierarchies that devalued academic achievement, and peer pressure away from scholarly pursuits.

Simple linear regression analysis demonstrated a very strong positive correlation between student-student interpersonal interactions and academic performance ( $R=0.91$ ,  $p<0.001$ ). The coefficient of determination ( $R^2=0.821$ ) indicated that student-student interpersonal interactions accounted for 82.1% of variation in academic performance. The model showed excellent fit ( $F=1.345$ ,  $p<.000$ ), with the fitted regression model specified as  $P=1.612-0.116$  SSR. Students with healthy peer relationships scored on average 2.4 points higher in KCSE examinations. The effect remained consistent across both national and extra-county schools. Analysis of variance confirmed statistically significant influence ( $F(1,294)=1.345$ ,  $p=.000$ ). The standardized coefficient ( $Beta=0.906$ ) indicated that academic performance would experience average change of 0.9% given one-unit increase in student-student interpersonal interactions.

### **Objective 3: Learner Characteristics**

Descriptive analysis revealed that learner characteristics—specifically learner motivation and classroom involvement—strongly influenced academic performance across all schools sampled. Students demonstrating high levels of academic motivation consistently exhibited goal-setting behaviors, self-directed learning initiatives, positive responses to feedback, and sustained engagement with learning tasks. Similarly, students showing active classroom involvement through questioning, discussion participation, extra academic work, and homework completion achieved superior academic outcomes. The descriptive data showed clear patterns

differentiating high-performing from low-performing students based on these motivational and behavioral characteristics.

Simple linear regression analysis revealed an exceptionally strong positive correlation between learner motivation and academic performance ( $R=0.96$ ,  $p<0.001$ ). The coefficient of determination ( $R^2=0.918$ ) indicated that learner motivation accounted for 91.8% of variance in students' academic performance. Analysis of variance confirmed statistically significant effect ( $F(1,275)=3.106$ ,  $p=.000$ ). The fitted model  $P=3.341-0.585$  Mot showed the independent variable was highly significant ( $p=.000<.05$ ). Standardized coefficient ( $Beta=0.958$ ) demonstrated very strong positive effect.

Simple linear regression similarly showed very strong positive correlation between learner involvement and academic performance ( $R=0.93$ ,  $p<0.001$ ). The R-square value of 0.871 indicated that learner involvement explained 87.1% of variance in academic performance. The model demonstrated good fit ( $F(1,304)=2.068$ ,  $p=.000$ ). The fitted model  $P=1.805-0.031$  Inv confirmed statistical significance ( $p=.000<.05$ ).

When considered together, learner motivation and involvement explained 92.7% of variance in academic performance ( $R^2=0.927$ ,  $p<0.001$ ). Most influential factors were academic goal-setting ( $\beta=0.67$ ), classroom participation and discussion ( $\beta=0.65$ ), self-directed learning ( $\beta=0.59$ ), and response to teacher feedback ( $\beta=0.54$ ).

#### **Objective 4: School Principal's Leadership Styles**

Descriptive analysis revealed substantial variation in principal leadership styles across sampled schools, with clear patterns differentiating high-performing from low-performing institutions. Principals in high-performing schools demonstrated

transformational leadership characteristics including clear goal-setting and performance expectations, recognition and reward systems for achievement, intentional creation of positive school climate, modeling of expected behaviors, and participatory decision-making processes. These leaders maintained high visibility, engaged regularly with both teachers and students, articulated compelling visions for school improvement, and established accountability systems balanced with supportive professional development. In contrast, principals in lower-performing schools exhibited more transactional or laissez-faire leadership styles characterized by reactive rather than proactive management, limited engagement with teaching and learning processes, and inconsistent follow-through on improvement initiatives.

Simple linear regression analysis demonstrated very strong positive correlation between principal leadership styles and academic performance ( $R=0.91$ ,  $p<0.001$ ). The coefficient of determination ( $R^2=0.828$ ) indicated that principal leadership style explained 82.8% of variance in KCSE mean scores. The model showed excellent fit for the data (F-statistic significant at  $p<.000$ ). Beta coefficient of 0.79 demonstrated strong positive effect on performance. The most influential specific leadership practices were goal-setting and performance expectations ( $\beta=0.81$ ), recognizing and rewarding achievement ( $\beta=0.77$ ), creating positive school climate ( $\beta=0.74$ ), modeling expected behaviors ( $\beta=0.69$ ), and participatory decision-making ( $\beta=0.65$ ). All leadership practice dimensions showed statistical significance at  $p<0.001$ .

### **5.3 Conclusions**

Teacher-student interpersonal interactions have a statistically significant and positive influence on students' academic performance in public secondary schools in Machakos County. The relationship is robust, explaining 42.4% of variance in KCSE outcomes.

The first null hypothesis ( $H_{01}$ : There is no significant relationship between teacher-student interpersonal interactions and students' academic performance) is decisively rejected. Quality teacher-student interactions characterized by approachability, availability, constructive feedback, and respectful communication create supportive learning environments that enhance student motivation, engagement, and ultimately achievement. Schools that prioritize building positive teacher-student relationships through professional development, structural modifications enabling personalized attention, and institutional policies supporting teacher accessibility achieve measurably superior academic outcomes. This finding underscores that relational quality between teachers and students represents a high-impact, cost-effective lever for improving educational quality in resource-constrained secondary education contexts.

Student-student interpersonal interactions demonstrate very strong and statistically significant positive influence on students' academic performance in Machakos County public secondary schools. The second null hypothesis ( $H_{02}$ : There is no significant relationship between student-student interpersonal interactions and students' academic performance) is rejected. With 82.1% of variance explained—nearly double that of teacher-student interactions—peer relationships emerge as exceptionally powerful determinants of academic achievement. This finding strongly supports Bandura's Social Learning Theory, confirming that peer interactions are critical mechanisms for learning and behavioral development in educational settings. Schools that intentionally cultivate positive peer cultures characterized by academic collaboration, mutual respect, healthy competition, and shared commitment to learning goals create environments where students both support and elevate one another's academic

performance. The quality of peer relationships matters profoundly, operating as either catalyst or constraint on individual academic achievement depending on whether peer culture valorizes or undermines scholarly engagement.

Learner characteristics—specifically motivation and classroom involvement—demonstrate the strongest individual influence of all social environment factors on academic performance. Both null hypotheses ( $H_{03a}$ : There is no significant relationship between learner motivation and students' academic performance;  $H_{03b}$ : There is no significant relationship between learner involvement and students' academic performance) are decisively rejected. With motivation explaining 91.8% and involvement explaining 87.1% of performance variance, these learner characteristics emerge as the most powerful predictors of academic achievement identified in this study. This finding emphasizes that while external social environment factors (teacher relationships, peer dynamics, school climate, leadership) matter significantly, the internal characteristics and behaviors that students themselves bring to learning situations exert paramount influence on outcomes. Motivated, actively engaged learners performed consistently better across all schools regardless of other factors. This underscores the critical importance of educational interventions that foster intrinsic motivation, develop self-regulated learning capacities, and cultivate active learning behaviors alongside efforts to improve relational and institutional dimensions of school social environment.

School principal's leadership style demonstrates powerful and statistically significant influence on students' academic performance in Machakos County public secondary schools. The fourth null hypothesis ( $H_{04}$ : There is no significant relationship between principal leadership styles and students' academic performance) is rejected. With

82.8% of variance explained, principal leadership emerges as one of the strongest individual determinants of school-level academic achievement. Transformational leadership practices—particularly goal-setting, recognition systems, climate creation, behavioral modeling, and participatory decision-making—show especially strong associations with superior outcomes. This finding confirms that school leadership quality matters profoundly, creating institutional conditions that either enable or constrain the effectiveness of teachers, shape peer cultures, influence student motivation, and ultimately determine academic results. Principals function as architects of school social environment, and their leadership approaches cascade through all other dimensions examined in this study. Investment in principal leadership development, particularly in transformational leadership competencies, represents a high-leverage strategy for systemic improvement in secondary education, as effective principals create conditions enabling all other positive social environment factors to flourish.

#### **5.4 Recommendations**

Based on the study findings and conclusions, recommendations are presented for various stakeholders in secondary education to enhance school social environment and consequently improve academic performance.

##### **5.4.1 Recommendations for School Administrators**

School administrators should implement comprehensive social environment enhancement strategies across four priority areas. First, strengthen teacher-student relationships through professional development programs focused on relationship-building skills, establish advisory systems where teachers maintain sustained contact with smaller student groups, and create policies ensuring minimum five hours weekly

teacher consultation availability. Second, develop positive peer cultures by establishing formal peer tutoring and mentorship programs, implementing anti-bullying initiatives with clear conflict resolution mechanisms, and creating student leadership structures promoting academic values. Third, enhance learner motivation through systematic goal-setting processes, recognition systems celebrating progress at multiple achievement levels, and academic counseling programs supporting self-directed learning development. Fourth, practice transformational leadership by articulating compelling academic excellence visions, establishing measurable performance goals with accountability systems, maintaining high visibility through regular classroom visits, and implementing participatory decision-making processes involving teachers and students in school improvement planning.

#### **5.4.2 Recommendations for Classroom Teachers**

Classroom teachers must intentionally cultivate positive social environments through daily practice across three dimensions. Teachers should build strong relationships with students by demonstrating approachability and active listening, maintaining consistent availability for consultation beyond class time, providing timely constructive feedback that guides improvement, and showing genuine interest in individual student needs while expressing confidence in their capabilities. Additionally, teachers must facilitate positive peer dynamics by structuring cooperative learning activities requiring peer interdependence, teaching collaboration skills explicitly, monitoring interactions to address negative patterns while reinforcing positive peer support, and establishing classroom norms valuing mutual respect and collective success. Furthermore, teachers should foster motivation and engagement by implementing goal-setting activities, creating opportunities for student voice and participation, connecting content to

students' lives and aspirations, and celebrating effort and progress alongside achievement to reinforce growth mindset.

#### **5.4.3 Recommendations for Ministry of Education and Policy Makers**

The Ministry of Education must implement systemic reforms prioritizing social environment quality through four strategic interventions. First, reform quality assessment systems by developing comprehensive school quality indicators incorporating teacher-student relationship quality, peer environment health, student motivation levels, and leadership effectiveness alongside academic metrics, while integrating social environment assessment into school inspection frameworks. Second, transform teacher education by mandating relationship-building and social-emotional learning content in pre-service programs, prioritizing social environment enhancement in in-service professional development, and including climate creation competencies in teacher evaluation and career progression systems. Third, provide structural support by establishing policy targets for reducing teacher-student ratios, increasing investment in school infrastructure and guidance services, and addressing teacher workload constraints that limit relationship-building time. Fourth, ensure policy coherence by aligning curriculum, assessment, and accountability systems to support positive social environment development rather than creating pressures that undermine it, while establishing national research capacity for continuous improvement in social environment practices.

#### **5.4.4 Recommendations for Teacher Training Institutions**

Teacher training institutions must reimagine preparation and professional development to prioritize social environment competencies. Institutions should integrate social environment management as core curriculum content rather than

peripheral electives, provide practical training in relationship building through simulations and extended practicum experiences with explicit social environment focus, and include social environment competency assessment in teacher certification requirements. Additionally, institutions must conduct rigorous research on effective social environment practices in Kenyan educational contexts, develop validated measurement instruments for East African settings, and document exemplary school cases demonstrating social environment excellence. Furthermore, institutions should offer specialized post-graduate programs in educational leadership and social environment management, provide accessible workshops for practicing educators, partner with schools demonstrating excellent practices as professional development sites, and establish communities of practice connecting researchers, educators, and practitioners for ongoing knowledge exchange and improvement.

#### **5.4.5 Recommendations for Parents and Community Stakeholders**

Parents and community stakeholders must actively partner with schools to support positive social environments through two primary approaches. Parents should strengthen school-home partnerships by maintaining regular communication with teachers regarding children's development, reinforcing school values and expectations at home, supporting school policies and programs through active participation, engaging constructively with disciplinary processes, and providing home environments conducive to academic work with appropriate study space and encouragement. Additionally, parents and community members should engage in school governance through Boards of Management and parent-teacher associations, support resource mobilization for improvement initiatives, advocate with officials for policies supporting positive social environments, hold schools accountable for

maintaining safe supportive conditions while supporting improvement efforts, and share community resources through mentorship programs and career guidance to reinforce school goals.

### **5.5 Recommendations for further Studies**

The study made the following recommendations for further studies:

- i. Longitudinal studies examining social environment trajectories and long-term outcomes
- ii. Intervention studies evaluating specific social environment enhancement programs
- iii. Expanded geographic, institutional, and comparative scope research
- iv. Mediating mechanisms, moderating factors, and differential effects research

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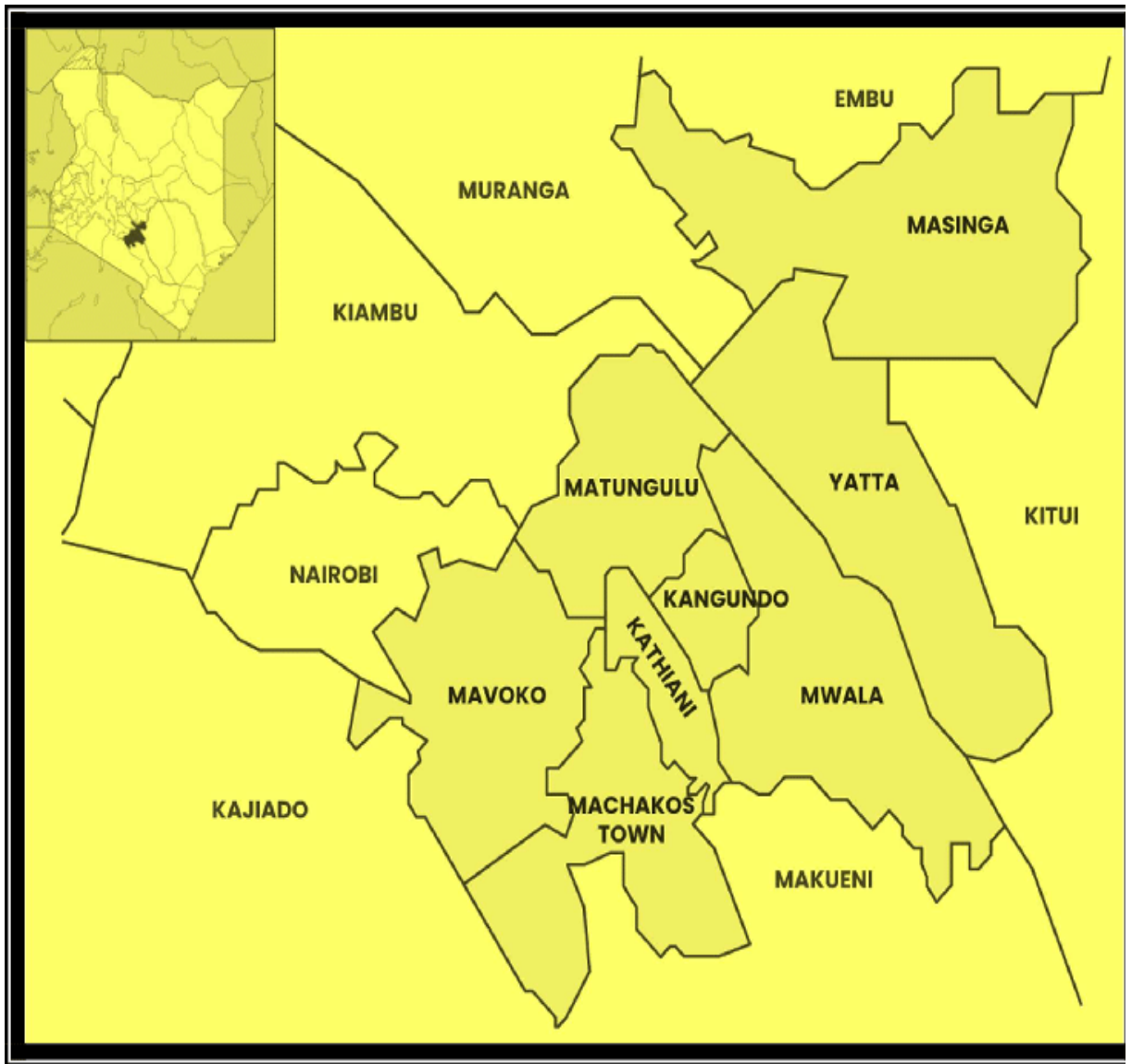
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## APPENDICES

### Appendix I: Map of Machakos County



Source: County Government of Machakos- County Assembly

## Appendix II: School Principal Questionnaire

The aim of the study is to establish influence of school social environment on academic performance in public secondary schools in Machakos County. Information provided will be used for academic purposes only. Kindly be as accurate as possible to enhance usefulness of this information.

**Please read the following instructions carefully before you start filling the questionnaire**

- i. Please read each question carefully.
- ii. **DO NOT** indicate your name or the name of your school on the questionnaire.

### Section A: Personal Information

Please tick [] where appropriate.

1. Gender.

Male []                      Female []

2. Working experience

5 years and below []                      10-15 years []  
 15-20 years []                      20 years and above []

3. How long have you been a principal in this school?

Below 5 years []                      5- 10 years []                      over 10 years []

### Section B: Influence of social interactions on academic performance

#### (i)Teacher-student relationships on academic performance

Please tick () one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D)Strongly Disagree (SD).

Statement	1	2	3	4
	SD	D	A	SA
Teachers in this school are friendly to learners.				
Teachers in this school are approachable by student when the student has an individual personal or academic problem.				
Teachers in this school are available for consultation during or after class hours				
Learners in this school respect and obey teachers				
Positive teacher- student relationships in this school enhances academic performance				

**(ii) Student-student relationships on academic performance**

Please tick (✓) one choice for each statement based on the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students in this school are friendly to each other				
Students in this school respect one another.				
Student-student relationships in this school encourages exchange of ideas and information				
Student-student relationship in this school encourages learners to participate in discussions during class sessions and outside class.				
Friendly student-student relationships in this school enable learners to compete in class.				
Friendly Student-student interactions in this school help students improve their academic performance.				

**Section C: Influence of learner characteristics on academic performance**

**(i) Motivation**

Please tick (✓) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students' peer groups in this school influence students' academic performance positively.				
Students' peer groups' influence leads to low academic performance.				
Peers encourage one another to work hard towards their set academic goals				
Students' peer group discussions in this school improve academic performance.				
Students in this school spend most of their time with peers working on their class assignments and revising their academic work				

**(ii) Student Involvement**

Please tick (✓) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students in this school ask and answer questions in class.				
Students in this school do extra work on their own and present to teachers for marking.				
Most of the students in this school actively participate in class activities.				

Students in this school show attentive interest in class activities
Students in this school actively contribute in classroom discussions
Subject teachers in this school ensure students, participate, learn and enjoy the classroom activities.
Students in this school discuss and share ideas with one another in class.
Students in this school complete their home work as required by their teachers.

**Section D: School Principal's Leadership style and academic performance**

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

Statement	1	2	3	4
	SD	D	A	SA
The principal provides the teaching and learning materials				
The principal regularly communicates to the teachers on academic expectations of the school.				
The principal rewards good performance				
The principal holds regular staff and parents' meetings to discuss on academic progress.				
The principal encourages teachers to assist students to set academic performance goals at the beginning of each term				
The principal supports teachers' development by informing and encouraging them to attend appropriate trainings.				
The principal involves teachers in decision making regarding school issues				
school principal's leadership style influence academic performance of the school.				

**Thank you for your time and response**

### Appendix III: Teachers Questionnaire

The aim of the study is to establish influence of school social environment on academic performance in public secondary schools in Machakos County. Information provided will be used for academic purposes only. Kindly be as accurate as possible to enhance usefulness of this information.

**Please read the following instructions carefully before you start filling the questionnaire**

- i. Please read each question carefully.
- ii. **DO NOT** indicate your name or name of your school on the questionnaire.

#### Section A: Personal Information

Please tick (√) where appropriate.

1. Gender.

Male [ ]

Female [ ]

2. How many years have you been in the teaching profession?

Below 10 years [ ]    10- 20 years [ ]    over 20 years [ ]

3. What position do you hold in the school?

Subject teacher [ ]

Deputy Principal [ ]

Head of Department [ ]

#### Section B-influence of school interactions on academic performance

(i) **Teacher-student relationship** on academic performance

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Teachers in this school are friendly to learners.				
Teachers in this school are approachable by student when the student has an individual personal or academic problem.				
Teachers in this school are available for consultation during or after class hours.				
Learners in this school respect and obey teachers.				
Positive student teacher relationship enhances academic performance.				

**(ii) Student- student relationship on academic performance**

Please tick (✓) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students in this school are friendly to each other.				
Students in this school are encouraged to respect one another				
Student-student relationships encourage exchange of ideas and information.				
Student-student relationships encourage learners to participate in discussions during class sessions and outside class.				
Friendly student-student relationship enables learners to compete in class.				
Friendly Student-student interactions help them to improve their academic performance.				

**Section C: Influence of learner characteristics on academic performance**

**(i) Motivation**

Please tick (✓) one choice for each statement based on the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students' peer groups in school influence academic performance.				
Students' peer groups' influence leads to low academic performance.				
Students' peer groups' discussions improve academic performance.				
Students in this school spend most of their time with peers working on their class assignments and revising their academic work				

**(ii) Student Involvement**

Please tick (✓) one choice for each statement based on the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students in this school ask and answer questions in class.				
Students in this school often do extra work on their own and present to teachers for marking?				
Most of the students in this school actively participate in class study group discussions				

Students in this school show attentive interest in class activities
Students in this school participate in classroom discussions
Subject teachers in this school ensure students participate, learn and enjoy the classroom activities
Students in this school discuss and share ideas with one another in class
Students in this school complete their home work as required by teachers.

**Section D: School Principals Leadership style and academic performance**

Please tick (✓) one choice for each statement based on the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
The principal provides the teaching and learning materials				
The principal regularly communicates to the teachers on academic expectations of the school.				
The principal rewards good performance				
The principal holds regular staff and parents' meetings to discuss academic progress.				
The principal encourages teachers to assist students to set academic performance goals at the beginning of each term				
The principal Supports teachers' development by informing and encouraging them to attend appropriate trainings.				
The principal involves teachers in decision making regarding school issues				

**Thank you for your time and responses.**

## Appendix IV: Student Questionnaire

The aim of the study is to establish influence of school social environment on students' academic performance. Information provided will be used for academic purposes only. Kindly be as accurate as possible to enhance usefulness of this information

### Please read the following instructions carefully before you start filling the questionnaire

Please read each question carefully.

**DO NOT** indicate your name or name of your school on the questionnaire.

#### Section A: Personal information

Please tick (√) where appropriate.

1. Gender?

Male [  ]

Female [  ]

2. In which class are you?

Form one [  ]

Form two [  ]

Form three [  ]

Form four [  ]

#### Section B-influence of school interactions on academic performance

##### (i)Teacher-student relationships on academic performance

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D)Strongly Disagree (SD).

Statement	1	2	3	4
	SA	D	A	SA
Teachers in this school are friendly to learners.				
Teachers in this school are approachable by student when the student has an individual personal or academic problem.				
Teachers in this school are available for consultation during or after class hours.				
Learners in this school respect and obey teachers.				
Positive student teacher relationships enhance academic performance.				

##### (ii) Students- Students relationships on academic performance

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D)Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students in this school are friendly to each other				
Students in this school are encouraged to respect one another				

Student-student relationship encourages exchange of ideas and information
Student-student relationships encourage learners to participate in discussions during class sessions and outside class.
Friendly student-student relationships enable learners to compete in class.
Friendly student interactions help students improve their academic performance.

### Section C: Influence of learner characteristics on academic performance

#### (i) Motivation

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Peer group I associate with in school influence my academic performance.				
peer group discussions in this school improve students' academic performance.				
My friends encourage me to work harder in my academic work				
My friends make fun of students who work hard to improve their academic performance.				
I spend most of my time in school with peers working on class assignments and revising academic work.				
Most of my friends in school perform well in examinations.				

#### (ii) Student Involvement

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D) Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
Students in this school ask and answer questions in class sessions.				
Students in this school do extra work on their own and present to teachers for marking.				
Most of the students in this school actively participate in class study group discussions				
Students in this school show attentive interest in class activities				
Students in this school participate in classroom discussions				

Subject teachers in this school ensure students participate, learn and enjoy the classroom activities
Students in this school discuss and share ideas with one another in class
Students in this school complete their home work as required.

**Section D: School Principals Leadership style and academic performance**

Please tick (√) one choice for each statement on the basis of the following scale: Strongly Agree (SA); Agree (A); Disagree (D)Strongly Disagree (SD).

STATEMENT	1	2	3	4
	SD	D	A	SA
The principal regularly communicates to the students on their academic expectations.				
The principal rewards good performance				
The principal encourages students to set academic performance goals at the beginning of each term				
school principal's leadership style influence academic performance				

**Thank you for your time and response.**

## Appendix V: Observation Schedule

Areas to Be Observed	Observed	Not Observed
<b>School Social interactions</b>		
Cordial and friendliness among students		
Study groups inside class/field during free time		
Friendly students		
Highly participative class sessions		
Post-class consultations		
<b>Learner characteristics</b>		
Students consult teachers		
Students in group discussions outside class hours.		
Students do extra work on their own and present to teachers for marking/self-directed.		
Active class participation during lessons		
<b>Principal's Leadership styles</b>		
School principal holds a brochure/note book with the mission/vision statement.		
School principal stops greeting and engage with teachers, students and visitors.		
School principal involved in monitoring teachers and students' activities.		
School principal as a team player/Is he involved in teaching as per the timetable.		
Well maintained physical facilities		
Orderliness of the school		
Gate and security guard for safe and conducive learning environment.		
Suggestion box strategically placed		
Academic goals set and displayed at strategic points		



**MINISTRY OF EDUCATION  
STATE DEPARTMENT OF EARLY LEARNING & BASIC EDUCATION**

**MACHAKOS COUNTY MEAN SCORES FOR SELECTED SCHOOLS**

SNO	SCHOOL	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	MACHAKOS BOYS	9.042	8.740	9.460	7.778	7.839	7.593	8.621	8.689	7.976
2	MACHAKOS GIRLS	8.790	9.460	9.490	7.797	6.751	7.506	7.925	8.637	7.926
3	KATHIANI GIRLS	7.367	4.581	7.875	7.113	5.817	6.537	6.635	8.100	7.925
4	ST. MICHAEL KABAA	6.949	6.824	6.278	6.480	5.860	5.900	6.671	6.415	6.880
5	VYULYA GIRLS'	7.392	7.753	7.287	6.598	6.050	6.319	6.138	6.299	6.627
6	MUTHETHENI GIRLS	6.727	4.447	6.024	6.871	5.761	6.878	6.844	6.910	6.432
7	TALA HIGH	6.328	3.292	5.361	5.988	5.538	5.506	6.820	5.665	6.045
8	KANGUNDO HIGH	5.437	3.976	5.753	5.500	5.337	5.014	5.680	5.628	5.905
9	TALA GIRLS	6.364	3.292	5.361	6.431	5.081	5.756	6.119	6.143	5.889
10	MASHI GIRLS	5.410	2.831	5.727	6.124	4.769	4.750	4.820	5.320	4.706
11	KATHIANI BOYS	7.759	3.828	6.482	4.660	4.346	5.045	5.480	5.480	4.775

FOR COUNTY DIRECTOR  
OF EDUCATION - MACHAKOS  
MINISTRY OF EDUCATION  
Machakos@yahoo.com

**DR. SAMUEL BENGI**  
**FOR: COUNTY DIRECTOR OF EDUCATION**  
**MACHAKOS COUNTY**

Appendix X: Machakos County Enrollment for selected Schools as of 2019

**MACHAKOS COUNTY AS AT 30/9/2019**

S/N	SCHOOL	SUB COUNTY	CATEGORY	BOYS	GIRLS	TOTAL
1	MASINGA BOYS SEC	MASINGA	EXTRA COUNTY	657	0	657
2	MASINGA GIRLS	MASINGA	EXTRA COUNTY	0	769	769
3	KATHIANI BOYS HIGH	KATHIANI	EXTRA COUNTY	850	0	850
4	ST. FRANCIS MISYANI SEC	KANGUNDO	EXTRA COUNTY	0	612	612
5	KANGUNDO HIGH SCH	KANGUNDO	EXTRA COUNTY	734	0	734
6	ST. MICHAEL KABAA HIGH	MWALA	EXTRA COUNTY	717	0	717
7	MUTHETHENI GIRLS SEC	MWALA	EXTRA COUNTY	0	682	682
8	VYULYA GIRLS SEC SCHOOL	MWALA	EXTRA COUNTY	0	747	747
9	MBAIKINI HIGH SCHOOL	MWALA	EXTRA COUNTY	606	0	606
10	TALA GIRLS	MATUNGULU	EXTRA COUNTY	659	0	659
11	TALA HIGH	MATUNGULU	EXTRA COUNTY	913	0	913
12	KITONYINI SEC	KALAMA	EXTRA COUNTY	351	262	613
13	AIC NYAYO GIRLS	KALAMA	EXTRA COUNTY	469	0	469
14	MACHAKOS GIRLS	MACHAKOS	EXTRA COUNTY	964	0	964
15	MUA GIRLS	MACHAKOS	EXTRA COUNTY	680	0	680
16	MUMBUNI BOYS	MACHAKOS	EXTRA COUNTY	1132	0	1132
17	MUMBUNI GIRLS	MACHAKOS	EXTRA COUNTY	0	473	473
18	KATHIANI GIRLS SEC	KATHIANI	NATIONAL	683	0	683
19	MACHAKOS SCHOOL	MACHAKOS	NATIONAL	1432	0	1432



**Appendix XI: Machakos County Post Primary Staffing as at 30/9/2019**

S/N	SCHOOL	SUB COUNTY	CATEGORY	ENROLMENT			SIZE	CBE	TOD			BOM				
				BOYS	GIRLS	TOTAL			MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
1	MASINGA BOYS SEC	MASINGA	EXTRA COUNTY	657	0	657	4	30	13	7	20					10
2	MASINGA GIRLS	MASINGA	EXTRA COUNTY	0	769	769	4	36	16	8	24					13
3	KATHIANI BOYS HIGH	KATHIANI	EXTRA COUNTY	850		850	4	42	18	11	35					16
4	ST. FRANCIS MISYANI SEC	KANGUNDO	EXTRA COUNTY	0	612	612	4	39	11	13	24				6	6
5	KANGUNDO HIGH SCH	KANGUNDO	EXTRA COUNTY	734	0	734	4	38	13	14	27				4	4
6	ST.MICHAEL KABAA HIGH	MWALA	EXTRA COUNTY	717	0	717	5	46	15	6	21					10
7	MUTHETHENI GIRLS SEC	MWALA	EXTRA COUNTY	0	682	682	3	28	9	12	21					10
8	VYULYA GIRLS SEC SCHOOL	MWALA	EXTRA COUNTY	0	747	747	4	38	17	9	26					2
9	MBAIKINI HIGH SCHOOL	MWALA	EXTRA COUNTY	606	0	606	3	27	14	6	20					5
10	TALA GIRLS	MATUNGULU	EXTRA COUNTY		659	659	4	31	4	23	27				1	2
11	TALA HIGH	MATUNGULU	EXTRA COUNTY	913		913	5	48	17	29	46				11	5
12	KITONYINI SEC	KALAMA	EXTRA COUNTY	351	262	613	4	28	8	9	17					3
13	AIC NYAYO GIRLS	KALAMA	EXTRA COUNTY		469	469	3	23	4	10	14				2	3
14	MACHAKOS GIRLS	MACHAKOS	EXTRA COUNTY		964	964	5	49	17	19	36				4	6
15	MUA GIRLS	MACHAKOS	EXTRA COUNTY		680	680	4	36	5	15	20				2	8
16	MUMBUNI BOYS	MACHAKOS	EXTRA COUNTY	1132		1132		49	19	23	42					9
17	MUMBUNI GIRLS	MACHAKOS	EXTRA COUNTY		473	473		23	3	15	18					5
18	KATHIANI GIRLS SEC	KATHIANI	NATIONAL		683	683	5	32	6	8	14					13
19	MACHAKOS SCHOOL	MACHAKOS	NATIONAL	1432		1432	7	68	23	33	56				3	6