DISPOSITIONAL OPTIMISM AND LEARNING STRATEGIES AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG PUPILS IN PUBLIC PRIMARY SCHOOLS IN NAKURU COUNTY, KENYA

JOEL K. BUNDI

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DECLARATION

I confirm that this research thesis is my original work and has not been presented in any other university/institution. The thesis has been complemented by referenced works duly acknowledged. Where text, data, graphics, pictures or tables have been borrowed from other works - including the internet, the sources are specifically accredited through referencing in accordance with anti-plagiarism regulations.

Signature _____ Date _____

Joel K. Bundi

E83/28179/2014

Department of Educational Psychology

We confirm that the work reported in this thesis was carried out by the candidate under our supervision as University supervisors.

Signature _____ Date _____

Dr. Doyne K. Mugambi

Senior Lecturer, Department of Educational Psychology

Kenyatta University

Signature _____ Date _____

Dr. Peter A.M. Mwaura

Senior Lecturer, Department of Educational Psychology

Department of Educational Psychology

Kenyatta University

DEDICATION

I dedicate this thesis to my parents, Samuel Kaburu and Mary Nyaruai for investing in my education despite the financial challenges they had to go through. I sincerely thank them for constant encouragement and believing in me.

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ABBREVIATIONS AND ACRONYMS

AEQ	Academic Emotions Questionnaires
ANOVA	Analysis of Variance
APEL	Accreditation of Prior Experiential Learning
AR	Augmented Reality
CSI	Coping Strategies Inventory
DLS	Deep Learning Strategies
DO	Dispositional Optimism
ESL	English as a Second Language
GSE	General Self Efficacy
GPA	Grade Point Average
HSD	Honest Significant Difference
KCPE	Kenya Certificate of Primary Education
KNBS	Kenya National Bureau of Statistics
KNEC	Kenya National Examination Council
LOESS	Locally Estimated Scatterplot Smoothing
LOT- R	Life Orientation Test-Revised
MBI-SS	Maslach Burn Out Inventory- Student Survey
MOE	Ministry of Education
M.S	Mean Score
NACOSTI	National Commission for Science, Technology and Innovation

ODL	Open Distance Learning
R-SPQ-2F	The Revised Two Factor Study Process Questionnaire
SES	Social Economic Status
SLS	Surface Learning Strategies
SPSS	Statistical Package for Social Sciences
UNESCO	United Nations Educational, Scientific and Cultural Organization

ABSTRACT

Academic achievement of pupils from public primary schools in Nakuru County in national examination has constantly been skewed towards lower mean scores. This problem has continued to persist despite considerable effort made by teachers, psychologists, educational researchers, guidance and counseling professionals. The below average academic achievement has detrimental consequences to the learner, family, society and the nation. The affected learners miss out on the schools of their choices and become disoriented in career aspirations at this foundation stage, lose focus and hope. The family may be in stress looking for school to place the learner while the society and the nation may be in deficit of human resource capital required for socio-economic transformation and national development. To address this issue, the following objectives were formulated; To determine the relationship between dispositional optimism and academic achievement, to determine the relationship between learning strategies (deep, surface) on academic achievement, to establish if there exists significant sex differences in pupil's learning strategies and dispositional optimism, to establish if there exists significant differences in learning strategies and dispositional optimism based on socioeconomic status of pupils and to establish the prediction equation of academic achievement from pupil's learning strategies (surface, deep) and dispositional optimism having controlled for demographic factors. The study was based on learning approaches model by Marton and Saljo (1976) and dispositional optimism theory by Scheier et al. (1994). The study adopted convergent parallel mixed research design. All the 41524 standard eight pupils enrolled in 2021 in 747 public primary schools in the county formed the study's target population. The accessible population was 1364 class eight pupils from 16 public primary schools and who were targeted to sit for 2021 KCPE. The sample consisted of 400 standard eight pupils selected from 16 public primary schools selected using Israel (1992) sampling table. Probability sampling procedures, namely stratified and simple random and purposive sampling which is a non-probability sampling procedure were used in the selection of the schools and the respondents. Questionnaires and interview guide were used to collect data. A pilot study was conducted among 30 class eight pupils to establish the validity and reliability of the research instruments. The study used both descriptive and relevant inferential statistical procedures to analyze the data. The results showed that dispositional optimism and academic achievement had a moderate, positive and significant correlation, r (366) = .31, p < .05. There was a moderate, positive and significant correlation between deep learning strategies and academic achievement, r (281) = .40, p < .05. The study established that there was no statistically significant relationship between surface learning strategies and academic achievement, r (71) = .11, p > .05. The mean differences in deep learning strategies among boys and girls were not statistically significant, t (281) = 0.92, p = .36. The mean differences in surface learning strategies among boys and girls were not statistically significant, t (71) = 1.29, p = .20. The mean differences in dispositional optimism between boys and girls were not statistically significant, t (366) = 0.95, p = .34. The study established that the differences in deep learning strategies based on SES were not statistically significant, F (2, 280) = 1.58, p > .05. The differences in surface learning strategies based on SES were not statistically significant, F (2, 70) = 0.04, p > .05. There were significant differences in pupil's dispositional optimism based on socio-economic status, F (2, 365) = 4.09, p < .05. Dispositional optimism, surface and deep learning strategies significantly predict academic achievement among the pupils, F (3, 364) = 147.84, P < .05. The study recommends that the MOE should enhance and regularly conduct capacity building for teachers on how to enhance pupil's dispositional optimism and deep learning strategies for better academic achievement in primary schools.

CHAPTER ONE

INTRODUCTION AND CONTEXTUALIZATION OF THE STUDY

1.1 Introduction

Chapter one presents the background to the study, statement of the problem, purpose of the study, objectives of the study and significance of the study. The limitations and delimitations of the study, assumptions of the study, theoretical and conceptual frameworks as well as operational definitions of terms are also highlighted.

1.2 Background to the Study

Primary education is fundamental to learners because it is the foundation that provides them with essential skills for their future learning (Gray Group International (GGI), 2023). It gives the learners an opportunity to grow and develop socially and academically, thus preparing them for successful transition into subsequent levels of learning (World Vision, 2023). The foundational skills acquired in primary school prepares learners not only for future learning but also for future life engagement in the workplace and active citizenship (UNICEF, 2023). Therefore, quality academic achievement in primary school is vital as it helps to achieve the overarching goal of providing children with a strong foundation that enables them to meet academic demands of higher education and increases chances of success in their future careers (GGI, 2023).

Globally, great efforts have been made to ensure no child misses the opportunity of achieving their best in this foundational education. One such effort is the development of inclusive and equitable quality education framework to promote lifelong learning opportunities for all (UNICEF, 2023). This is one of the United Nation's Sustainable

Development Goals (SDGs) to be achieved by 2030. According to UNICEF (2023), enrolment of school going children reached 87% globally in 2021, which is considered a great achievement. Nevertheless, global figures of out-of-school children and youth rose to 250 million in 2021. Out of this, 64 million comprises primary school age children.

UNESCO (2023) observes that this huge number of out-of-school children greatly undermines the UN's educational goals and urges nations around the world to make efforts to honor their national commitment towards achieving the UN SDG number 4. Since the enactment of the Kenya 2010 constitution, the country has made great efforts to conduct education reforms to ensure attainment of SDG number 4 and also to improve the quality of academic achievement. Kenya has made significant progress in this endeavor but the quality of academic achievement in most public primary schools still lags behind. High prevalence of low academic achievement in public primary schools is a major challenge facing education sector not only in Kenya but also in other countries around world.

In USA, Kokai (2021) observes that the American system of education disproportionately produces a small number of high achievers at the top, and a huge number of low-achievers at the bottom in basic education. To some extent the system has failed to empower most students from minority groups to achieve academic excellence and the development of adequate skills needed to succeed in life. In Australia, OECD's PISA report shows that about 40% of students fail to meet the national proficiency standard in numeracy and reading at age 15. Many of these come from the disadvantaged students, with learning gaps more than doubling between year 3 and year 9 students (Hunter, 2023). Similarly, European Union report (2022) notes

that there is great disparity in enrolment and achievement in basic education across the European Union countries. Even with a relatively high figure (93%) of enrolment into early childhood education and care (ECED), a large proportion of those who do not enroll are children from disadvantaged social-economic backgrounds. In addition, students from the disadvantaged-social-economic backgrounds are up to six times more likely to underperform at age 15 compared to those from favorable economic backgrounds.

Such challenges are even more pronounced in Africa. In north central Ethiopia, there is a widespread prevalence of under-nutrition among school going children which results to delayed cognitive development. This is often compounded by absenteeism at school which leads to under achievement in academics (Eniyew et al., 2020). In Ghana, Akrofi (2020) revealed that there is high prevalence of low academic achievement which was associated with poor socio-economic background, poor home environment and lack of parental involvement. The same challenge is experienced in Nigeria. Pur et al. (2019) established that underachievement in academics among pupils is caused by lateness to school, inadequate learning materials, anxiety, depression and teachers 'classroom negative attitude.

Similar trend of low academic achievement in primary schools has been observed in East African countries. In Uganda, Michael and Kinuthia (2020) found that inadequate teachers' preparation, pupils' absenteeism, parental neglect and poor school management skills contributed to high prevalence of academic under achievement among primary school pupils in Iganda District. In the neighboring Tanzania, Kahangwa (2023) established that inadequate infrastructure, weak school leadership, poor management of learning time and imbalance allocation of teachers contributed

to poor academic achievement in primary schools in the country. Still in Tanzania, Behera and Ali (2023) found that insensitive assessment methods and outdated pedagogical strategies were key contributors to high prevalence of poor academic achievement among primary school pupils in Dodoma district.

In Kenya, several studies have revealed that low academic achievement in public primary schools is an issue of concern. Muthitu et al. (2020) noted a trend of poor academic achievement in KCPE in Chuka Division, Tharaka Nithi County. Ekai (2022) also observed the challenge and noted that school-based factors were associated with poor academic achievement in English Language at KCPE level in Turkana County. Based on the last decade, 2013 - 2022 KCPE statistics (Appendix L), out of the total candidates who sat for the examination in each of these years nationally, over 50% scored less than 250 marks out of the possible 500 marks. A majority of the pupils who scored below average marks were from public primary schools.

Analysis of KCPE results from the year 2013 to 2022 (Appendices L, M and O) reveal that Nakuru County is among the counties with a relatively high failure rate, with average failure rate over this period being 62% which is 5.7% above the national failure rate of 56.3% (Appendices L and M). The results indicate that most of the candidates in primary schools in Nakuru County have been obtaining the bottom range of marks (100 and below and 101 to 200) in KCPE, with a large proportion of 87% being from public primary schools (Appendix M). For instance, the aggregate average of those who scored 200 marks and below during the years 2013-2022 were 32.8% out of the total candidature and this was 6.2% below the national statistics of 26.6%. Furthermore, the average of mean score marks for public primary schools for the

period 2013-2022 was 229.3 which was far below the average score of 307.1 marks for private schools.

Comparatively, within the same period (2013-2022), the average national mean score in KCPE was 240.8 while mean score for Nakuru county public primary schools was lower at 229.3 (KNEC, 2017, 2019, 2022). On the same note, public primary schools in Nakuru county have constantly registered the lowest mean scores among the neighbouring counties (Kiambu, 261; Baringo, 252; Nyandarua, 245; Laikipia, 244; Kericho, 243; Narok, 242; Nakuru, 229) as revealed in Appendix N. The high proportion of failure rate reflected in the skewed distribution towards the lower scores denies the pupils the opportunity to join secondary schools and other tertiary institutions of their choices consequently hindering further development of their educational potential and alignment to career aspirations. In the long run, this trend will lead to a deficiency of highly skilled human capital that will negatively impact on sustainable wealth production and socio-economic transformation in the society and national development (MOE, 2019).

From the reviewed studies, several factors are associated with low academic achievement among primary school pupils. Some of these factors include; availability of adequate infrastructure, school management practices, teachers' preparedness, teachers' attitude, adequacy of learning materials, and assessment methods, and; out-of-school factors such as parental involvement, absenteeism, poor home environment, and socio-economic factors. However, little has been done on the relationship between dispositional optimism, learning strategies and academic achievement of primary school pupils especially in the Kenyan context, a gap the current study aimed to fill.

According to Carver and Scheier (2010), dispositional optimism is the inclination to largely expect positive outcomes in life. It is a relatively stable personality trait unless greatly manipulated or disrupted by major life changes (Luyten et al., 2019). Pupils with dispositional optimism tend to have less psychological distress even when they fail to achieve in academics to their expectations (Magnano et al., 2015). There are three levels of dispositional optimism namely: low level, which is a pessimistic disposition and depicts a negative expectation about the future; moderate level, which is an average optimism disposition, and; high level, which depicts high positive expectation about the future (Celestine, 2019).

Several studies have been conducted to investigate the relationship between dispositional optimism and academic achievement and the results have demonstrated that the two variables are significantly related. In Spain, Usan et al. (2022) conducted a study to investigate the relationship among optimism, self-efficacy and academic achievement in 12 secondary schools. The results showed a significant positive relationship between optimism and students' academic achievement. In another study, Yue (2020) investigated the effect of optimism on students' academic achievement in China and the results revealed a positive correlation between the variables. Similarly, Valea et al. (2021) revealed a significant correlation among high perceived stress, low optimism, low resilience and low academic achievement among Romanian clinical students.

In Nigeria, Iro and Gurjiya (2022) found a significant and positive correlation between disposition optimism and academic achievement among undergraduate students. In the same vein, Anierobi and Unachukwu (2020) conducted a study among Nigerian post graduate students to investigate academic optimism and achievement motivation

as correlates of academic engagement. Study results revealed that academic optimism and achievement motivation were moderately and positively related to academic engagement.

Dispositional optimism of the pupils influence the learning strategies they adopt to achieve success. According to Structural Learning (2022), learning strategies are the skills and techniques that a learner uses to learn particular curriculum content and to complete tasks efficiently in both academic and non-academic settings. On the same note, Almoslamani (2022) defines learning strategies as the techniques that pupils use to learn. Learning strategies enables the learner to develop skills, build motivation and increase confidence in the learning process in order to achieve success. Pupils adopt either surface or deep learning strategies.

According to Dolmans et al. (2016), surface learning strategy entails accumulating facts and memorizing terms which can easily be remembered and reproduced for example in an examination. On the other hand, deep learning strategy entails applying a higher level of critical thinking, relating ideas, and promotes a deeper level of understanding (DeLotell et al., 2010; Ylanne et al., 2019). In deep learning strategy, learners aim at relating new information to prior knowledge, developing ideas into a comprehensible format, and critically making evaluations and conclusions (Dolmans et al., 2016). According to Ylanne et al. (2019), surface learning strategy is unreflective and utilizes memorization and reproduction of the learned material with the purpose of passing courses. The approach is also associated with students' inability to connect facts and ideas.

Research has shown that there is a connection between learning strategies and academic achievement. Almoslamani (2022) conducted a study among university

students in Saudi Arabia to investigate the influence of learning strategies on academic achievement. The study revealed a significant correlation between learning strategies and academic achievement. Similarly, Nabizadeh et al. (2019) conducted a study among university students in Iran to investigate how different learning strategies affected students' academic achievement. It was established that learning strategies affected students' academic achievement.

In another study conducted by Negash (2022) in Ethiopia among selected Public University students, the results showed no significant differences on various surface learning approaches used by different groups of students and their academic achievement. Deep learning approach however was found to significantly influence students' academic achievement. In Kenya, Obura (2019) investigated the influence of learning strategies on achievement goals and academic achievement of students in secondary schools within Nairobi County and revealed that deep learning strategy partially mediated the correlation between mastery goals and academic achievement. Similarly, surface learning strategy was found to partially mediate the correlation between performance approach goals and academic achievement.

Existing studies in this area have not independently focused on surface and deep learning strategies as correlates of academic achievement. Most of the studies have also mainly focused on university students and only few involved primary school pupils. There was therefore scanty literature addressing the target population. The current study was conducted among primary school pupils in Nakuru County to address the population and knowledge gaps.

This study also examined sex differences in dispositional optimism and learning strategies. Scanty literature exists showing studies conducted on sex differences in

dispositional optimism. Paganini et al. (2022) investigated the influence of dispositional optimism, sex and coping strategies on appearance related distress among patients who had unilateral cleft lip and palate in Sweden and found that patients with high level of dispositional optimism had low appearances related distress. This was more pronounced in female patients. This implied that increasing dispositional optimism and strengthening positive coping strategies would decrease appearances related distress. Similarly, Bjuggren and Elert (2019) investigated sex differences in optimism about the economy among Swedish household survey respondents and the results showed sex differences in optimism with men showing higher optimism than women. Men were also more prone to being wrong about the future of the economy. In the same vein, Dawson (2023) observed that men were found to be significantly more optimistic than women and so susceptible to taking more risks in the UK.

Sex differences in learning strategies has been reported in various studies. In Indonesia, Andini and Prastiyowati (2021) investigated sex differences in English learning strategies among university students. The results showed that there were sex differences with female students scoring higher than male students on use of learning strategies. Similarly, Sumarni (2019) examined Sex differences in language learning strategies among university students in Indonesia and the results revealed sex differences in language learning strategies. Almoslamani (2021) also conducted a study among Saudi University students to investigate the influence of learning strategies on students' academic achievement and established significant sex differences in use of learning strategies with female students scoring higher than male students.

In Kenya, Mutua and Oyoo (2020) conducted a study to investigate sex differences in learning strategies among secondary schools' students from Nairobi County. There were mixed results among the learning strategies that were investigated with some like elaboration learning strategy and rehearsal learning strategy showing significant sex differences, while others like organization learning strategy showing no significant sex differences. Based on existing literature, little attention has been paid to primary school pupils, a gap the current study aimed to fill.

Studies have also shown differences in dispositional optimism and learning strategies based on socio-economic background. Charlton (2021) observed that children from developing nations are more optimistic than those from developed nations. On the other hand, a study conducted in China by Zou et al. (2020) revealed that adolescents from low socio-economic background were more prone to depression. The results further revealed that adolescents from higher social economic background enjoyed greater social support and more optimism hence were less prone to depression. Bekova et al. (2021) investigated the correlation between difficulties experienced in remote learning and students' socio-economic status among students in Russia during the COVID -19 pandemic period. The results revealed that students from low income families were more likely to experience technical and self-regulation difficulties as well as a lack of requisite skills to effectively undertake remote learning.

A Yale University, (2021) report observes that students from a low socioeconomic background may experience difficulties in transitioning to college, may feel out of place, and may often consider dropping out of college. They may have limited choice of learning strategies which may make them approach learning differently. In another study carried out in Uganda among Makerere University students, Sharon (2021)

found out that there was a significant difference between social economic status and optimism levels of students whereby higher income earners were less optimistic than low income earners. Similarly, few studies have concentrated on differences in learning strategies based on socio-economic status of primary school pupils.

There is an interrelationship between dispositional optimism and learning strategies adopted by learners. However, there are limited studies that have looked at the joint relationship of the two variables and academic achievement. Most of the previous studies focused on dispositional optimism and learning strategies separately. In one study, Nabizadeh (2019) investigated the influence of learning strategies on academic achievement of medical students in Iran. The study results revealed a direct and significant correlation between learning strategies and academic achievement. Similarly, Negash (2022) investigated how students' learning strategies influenced academic achievement of university students in Ethiopia and the results showed that deep learning strategies predicted students' academic achievement. In Kenya, Masila (2022) conducted a study to investigate learning approaches and academic engagement as predictors of academic achievement among secondary school students in Machakos County and found a significant and positive relationship between deep learning strategy and academic achievement. There was also a weak positive relationship between surface learning strategies and academic achievement.

Regarding dispositional optimism, Usán et al. (2022) investigated the relationship among optimism, self-efficacy and academic achievement among secondary school students in Spain. The study found a significant correlation among optimism, self-efficacy and academic achievement. In another study conducted in the UK among undergraduate students by Icekson et al. (2019), the results showed that high

dispositional optimism improved students' academic achievement. Valea et al. (2021) also conducted a study in Romania among undergraduate medical students. The study investigated the influence of optimism, resilience, self-efficacy, and perceived stress on academic achievement and revealed a significant correlation between low resilience, low optimism and low academic achievement.

A study by Muhammad and Aziz (2019) examined learning strategies, achievement goals and language achievement among university students in Pakistan while Vizoso et al. (2018) examined dispositional optimism and academic achievement among Spanish undergraduate students. The studies indicated that each of the variables influence academic achievement of learners. This suggests that learners who are more optimistic employ effective learning strategies and perform better in academics than those who are not. There was a general scarcity of literature showing studies conducted on how dispositional optimism and learning strategies jointly predict academic achievement among primary school pupils. The current study investigated this correlation among primary school pupils in Nakuru County to fill the knowledge gap.

1.3 Statement of the Problem

In the last five years (2018-2022), academic achievement in KCPE in public primary schools in Nakuru County was below average. Over this period, the KCPE pass rate was consistently below 250 marks with the average mean score of the county being 229.3 marks. This was lower than the national mean score of 240.8 marks suggesting that a majority of the candidates scored 250 marks and below. In this County, most candidates in some primary schools have been obtaining bottom range marks (101 to

200 and 100 and below), with a large proportion (87%) being from the public primary schools.

This kind of academic achievement has led to violent protests, blame game, suicide cases among pupils, mass transfers of teachers and head teachers, loss of study time, deterioration of pupils discipline as they too join in the violent protests, assault on teachers, destruction of properties and even more poor results in the county. Furthermore, this trend of below average academic achievement in KCPE has denied the affected pupils opportunities to join secondary schools of their choice, which ought to be pathways to their world of work. In the long run, the county and the country at large may have a deficit of skilled human capital required for sustainable social and economic development.

Educational research within Nakuru county has majorly attributed the below average academic achievement in KCPE to school related factors, including parents' socioeconomic status, staffing levels, parental roles, type of school and leadership styles with studies focusing more on secondary schools. Little attention has been paid to psychological domains of primary school learners in Nakuru County with regard to the constant high failure rate in KCPE.

In this regard, there was need for the current study to focus on dispositional optimism (individual-difference domain) and learning strategies (pupil's cognitive intervention variable). Specifically, the study sought to examine the relationship between dispositional optimism, learning strategies (surface, deep) and academic achievement, and further developed a prediction model for academic achievement of primary pupils

in Nakuru County in an effort to provide research evidence that may be used to address the problem.

1.4 Purpose of the Study

The study's main purpose was to examine the relationship between pupil's dispositional optimism, learning strategies and academic achievement in public primary schools in Nakuru County. Furthermore, the study aimed to establish if there exists a significant prediction equation for academic achievement from the two variables to provide empirical evidence from the psychological perspective that may be used to enhance academic achievement in the county. The study also investigated if there exists significant sex and socioeconomic differences based on pupils' learning strategies and dispositional optimism to establish whether sex specific and socioeconomic strategies may be used to improve academic achievement in the county and even beyond.

1.5 Objectives of the Study

The study was guided by the following objectives:

i) To examine the relationship between dispositional optimism and academic achievement of public primary school pupils.

ii) To find out the relationship between learning strategies (deep, surface) on academic achievement of public primary school pupils.

iii) To establish if there exists significant sex differences in pupil's learning strategies and dispositional optimism of public primary school pupils.

iv) To find out if there exists significant differences in learning strategies and dispositional optimism based on socioeconomic status of pupils.

v) To determine the prediction equation of academic achievement from pupil's learning strategies (surface, deep) and dispositional optimism having controlled for demographic factors.

1.6 Research Hypotheses

The following were the alternative hypotheses for this study;

$H_{a1:}$ There is a relationship between dispositional optimism and academic achievement of public primary school pupils.

$H_{a2:}$ There is a relationship between learning strategies (deep, surface) and academic achievement of public primary school pupils.

$H_{a3:}$ There are sex differences in pupils' learning strategies and dispositional optimism of public primary school pupils.

$H_{a4:}$ There are differences in learning strategies and dispositional optimism based on socioeconomic status of pupils.

$H_{a5:}$ There is a prediction equation model of academic achievement from pupil's dispositional optimism and learning strategies having controlled for demographic factors.

1.7 Significance of the Study

In the research field, the findings add and expand the existing body of knowledge on the importance of dispositional optimism and learning strategies in predicting pupils' academic achievement and will even stimulate further research in the area under the current study. The findings will also inform and address reported inconsistencies on relationship among dispositional optimism, surface and deep level learning strategies and academic achievement.

The findings of the current study will offer guidance to curriculum developers as the study revealed some implications for instructional interventions for learners. For example, teaching learners to be aware of their dispositional optimism orientations, their learning strategies and skills for development and internalization of adaptive constructs and positive life orientation towards school work and academic tasks and how to regulate them for more effective learning and academic achievement**.** The MOE should enhance and regularly conduct capacity building for teachers on how to enhance pupil's dispositional optimism and deep learning strategies for better academic achievement in primary schools.

Socioeconomic status was found to influence dispositional optimism of learners and school heads, teachers, pupil counsellors and parents may use the findings to structure home and school environments to enhance psychological support for pupils who come from disadvantaged backgrounds. Hence from the findings, staffing all primary schools with guidance and counselling personnel may be considered necessary.

Also, since learners operate at different levels of dispositional optimism and adopt varying learning strategies, the findings will guide institutions and examination bodies on how to handle assessment of learners who experience traumatic events during studying and examination period. For the teacher trainers, the findings may offer guidance towards equipping teacher trainees with the necessary knowledge on dispositional optimism and learning strategies and their importance in enhancing academic achievement of the pupils.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations of the Study

The research was limited to selected public primary schools in Nakuru County and therefore this may limit the generalizability of the study findings. The participants' questionnaires and interview schedules comprised of items that were based on self-report and therefore there was likelihood of certain degree of subjectivity but the participants were encouraged to be honest and assured of confidentiality on the provided information.

1.8.2 Delimitations of the Study

The research was delimited to standard eight pupils in public primary schools in Nakuru County and focused on two predictor variables that were deemed to influence academic achievement, namely, dispositional optimism and learning strategies. While there are many methods of data collection, the study employed self-reporting questionnaire, interview and document analysis. Interview phase involved 40 who were interviewed by the researcher.

1.9 Assumptions of the Study

This study was based on two assumptions;

i. That individual pupils had varying levels of dispositional optimism and hence employed different types of learning strategies, which led to different levels of academic achievement.

ii. The respondents provided honest and reliable responses for all the items in the data collection questionnaire and the interview schedule.

1.10 Theoretical and Conceptual Framework

1.10.1 Theoretical Framework

The study was based on two theoretical models: Dispositional Optimism Theory (Scheier et al., 1994) and the Learning Approaches Model by Marton and Saljo (1976).

1.10.1.1 Dispositional Optimism Theory (Scheier et al., 1994). The dispositional optimism theory associates high level of dispositional optimism with positive future personal expectations and low level of dispositional optimism to negative future expectations (Scheier et al., 1994). Dispositional optimism theory views positive outcome expectancy as resultant of the perceived value of a goal and the learner's confidence that he or she can attain it (Carver & Scheier, 2014). This combination creates the motivation necessary for laying learning strategies to attain goals, whereas negative expectancy inhibits this attainment (Carver & Scheier, 2014; Collie & Martin, 2019). Carver and Scheier (2014) found that learners with high dispositional optimism possess high beliefs that they will perform and achieve their targets, hence engage numerous learning strategies**.** According to Kaniel (2012), the focus of dispositional optimism theory is on behaviour, meaning that the behaviour intention is enhanced or inhibited by the interplay between the outcome expectancy and its concomitant emotions.

Boman and Yates (2001) noted that dispositional optimism leads itself to high expectations, better moods, better teacher relations, determination, high self-efficacy, high self-esteem, less norm breaking behaviour, adaptive self-regulated learning strategies, greater classroom and school involvement which assures high academic

achievement. Several studies, including Buzzai et al. (2020), Nes and Segerstrom (2006) and Kaniel (2012) supported the dispositional optimism theory noting that there exists positive correlation between dispositional optimism and academic achievement, which this study investigated. The theory helped to explain the relationship between dispositional optimism and academic achievement of the pupils involved in the study.

1.10.1.2 Learning Approaches Model (Marton & Saljo, 1976). Learning approaches model was developed to explain learning approaches that learners use to achieve academic goals. It primarily focuses on the learner's motivation towards learning and the strategies they employ to achieve academic success. Marton and Saljo (1976) argued that learners use two learning strategies namely; surface approach and deep approach to accomplish learning tasks. The type of learning strategy that learners use depends on the characteristics of the learner, learning environment as well as learning outcomes. According to the proponents, deep approach involves paying keen attention to learning through the use of cognitively active behaviours in order to understand learning content. It involves learners gauging what they have learnt against general knowledge, knowledge from other sources as well as everyday experiences. Learners using deep approach strategies always seek to understand learning content for better academic achievement. Such learners aim at understanding concepts which results in quality learning outcomes.

On the other hand, learners using surface approach aim to reproduce material in a test rather than understanding the concept. Such students pay attention to memorization of learning content without necessarily understanding it. For instance, students who employ surface learning strategy in visual learning largely focus on symbols rather

than the explanation. Surface learning strategy is associated with extrinsic motivation while deep learning strategy is associated with intrinsic motivation. According to Marton and Saljo, learners who employ deep learning strategy perform better in academics than those who employ surface learning strategy.

Deep learning strategy comprises of active deep learning and practical deep learning. Active deep learning strategy involves class discussions, problem-solving activities, critical thinking and metacognitive strategies. In this strategy, learners actively engage with learning materials. They employ high level thinking abilities such as knowledge application, analysis and synthesis. On the other hand, practical deep learning strategy involves the use of learning resources for observation and manipulation. This strategy enhances understanding of abstract concepts and is very effective in efforts to improve academic achievement.

According to Xiaowen and Yeo (2020), in surface learning, learners use strategies like repetition, loud reading, listing concepts, highlighting, use of mnemonics and recitation. The use of these strategies leads to superficial understanding of learning material which results in low learning outcomes. Xiaowen and Yeo (2020) notes that deep learning strategies comprise of elaboration strategies (paraphrasing, summarizing), organization strategies (outlining the materials, soliciting main ideas, taking notes), critical thinking (applying previous knowledge to new situations, reflection, looking for evidence, evaluating alternatives, interpretation) and metacognitive strategies (planning, monitoring, self-regulations).

Previous studies anchored on Marton and Saljo model have shown that learners who employ deep learning strategy perform better than those who employ surface learning

strategy. Urhahne (2020) observed that learners who employ deep learning strategy are interested in learning and they always understand what is taught. With deep learning strategy, learners are able to demonstrate their creativity, mastery and competence in the learning areas. This enables them to develop knowledge and skills and hence are able to transfer the knowledge to various situations in life. Majority of the learners who excel in academics through the use of deep learning strategy acquire knowledge and skills that enable them to enroll in science courses that majorly focus on practical applications of knowledge. Urhahne's findings showed that learners who use surface learning strategy only focus on rote learning and they study to only pass examinations. Such learners tend to focus on only what appears to be important and memorize them. As a result they fail to see the connection between meanings and implications hence do not perform well in academics.

Use of surface learning strategies has been associated with low dispositional optimism and extrinsic motivation which is detrimental to academic achievement (Barker et al., 2002; El Amadi, 2001). Learners with low dispositional optimism, pursue performance avoidance goals, employ surface learning strategies, resort to self-handicapping mechanism due to associated pessimism which ultimately results to poor academic achievement (Migdley &Urdan, 2001; Nes et al., 2005; Wawire, 2010).

On the other hand, learners who employ deep learning strategies aim at raising and enhancing their competence with comprehension and mastering the learning material and acquiring knowledge with developing novel skills (Elliot & Mcgregor, 2001). Besides they ascribe to an optimistic, an adaptive pattern of attributions and positive

affect that will help a learner try hard, persist, enjoy and employ deep learning strategies and ultimately do better in academic tasks (Hayat et al., 2020).

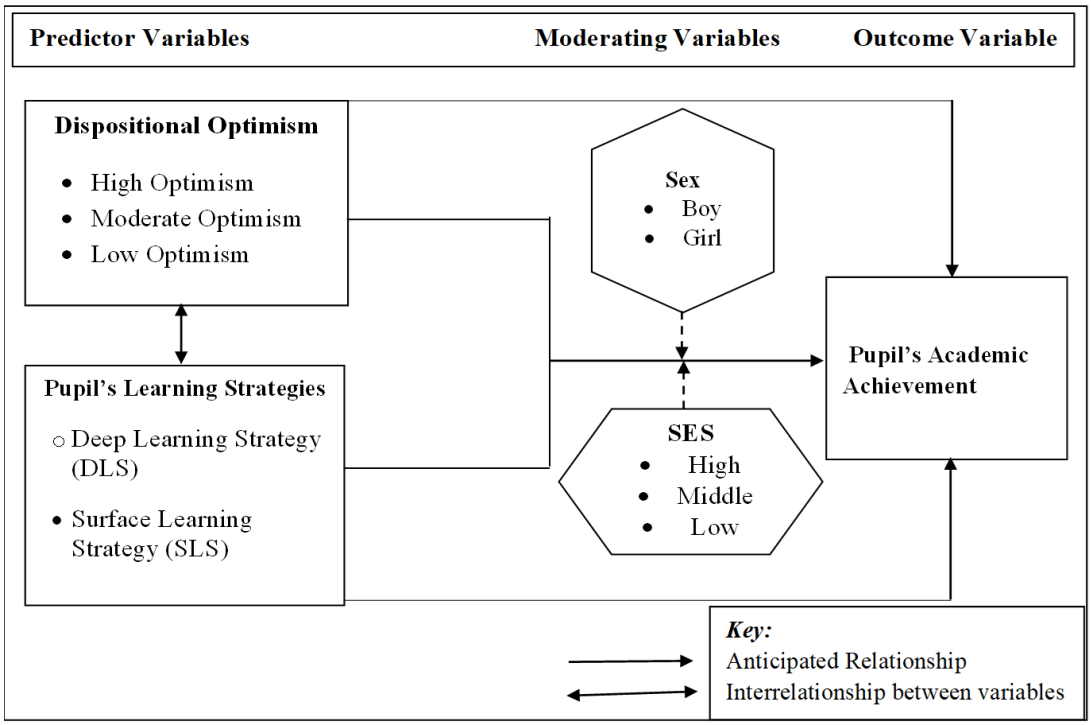
Puteh et al. (2018) also used learning approaches model and established that learning strategies have an impact on academic achievement of learners. It was established that learning strategies enable learners to complete their studies within the required time. The relationship between learning strategies and academic achievement is important as it helps to understand how best the learners can be supported so as to learn effectively and attain quality academic achievement. This model fits well in the current study since it explains how different learners are related to their academic achievement. According to this model, when students employ effective learning strategies they can perform well in academics. Informed by this model, the current study successfully examined the link between learning strategies and academic achievement of primary school pupils in Kenya.

1.10.2 Conceptual Framework

The anticipated interrelationship among the variables was as indicated in Figure 1.1.

Figure 1.1

Model for Relationship between Dispositional Optimism, Learning Strategies and Academic Achievement



Source: Researcher Conceptualization (2022).

The main study variables were; dispositional optimism, learning strategies and academic achievement. Predictor variables were learning strategies and dispositional optimism. Moderating variables were pupil's sex and parent's socio-economic status while academic achievement was the outcome variable. The level of pupil's dispositional optimism and type of learning strategies used may influence a pupil's academic achievement. A pupil with a high score in dispositional optimism is likely to have high sense of confidence, purpose driven and more expectant of higher academic achievement and employ more use of effective learning strategies to achieve the desired academic goals. The pupil is potentially most likely to score highly in academics. In contrast, a pupil with a low score on dispositional optimism is likely to have lower expectation and putiu lesser effort in use of various learning strategies and

as a result is likely to score lowly in academics. In this study, Sex and socioeconomic status differences on dispositional optimism and use of learning strategies were likely to affect how the two variables were related to academic achievement of the pupils.

1.11 Operational Definition of Terms

Academic Achievement This was the standardized mean T-score a standard 8 pupil obtained for the term examination.

Deep Learning Strategy Refers to a score regarding cognitively active learning behaviours that a standard eight pupil may employ, including elaboration strategies (paraphrasing, summarizing), organization strategies (outlining the materials, soliciting main ideas, taking notes), critical thinking (applying previous knowledge to new situations, reflection, looking for evidence, evaluating alternatives, interpretation), metacognitive strategies (planning, monitoring, self-regulations).

Dispositional Optimism The is the pupil's score on the tendency to hold generalized positive expectancies, even when faced with obstacles or difficulties in life. These generalized expectancies apply to the individual's entire life domain, including academic life.

Learning Strategies	This refers to the score on cognitive skills, techniques or behaviors pupils use for storage and retrieval of information. Two distinct categories of learning strategies standard eight pupils may use are surface and deep level learning.
Surface Leaning Strategy	This refers to the score on cognitively passive learning behaviours that pupils may employ. Entails rehearsal strategies:- reciting, naming items to be learnt**,** repetition, identifying important segments, loud reading, underlining, putting special marks, listing concepts, taking personal notes, highlighting and mnemonics memorizing and reading.
Socioeconomic Status	Participant's relative position in the society based on participant's family income, educational background and occupational prestige. In this study, the level of socioeconomic status was measured as low, middle and upper class.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this chapter, various scholarly literature has been reviewed under the following sub-headings; relationship between dispositional optimism, learning strategies and academic achievement, sex and socioeconomic differences in pupils' dispositional optimism and learning strategies. Further, a review of studies on prediction of academic achievement from dispositional optimism and learning strategies is presented.

2.2 Relationship Between Dispositional Optimism and Academic Achievement

A study by Alberto et al. (2022) conducted in Spain investigated the relationship between optimism, self-efficacy, and academic achievement among secondary school students. The study sample comprised of 1852 adolescents drawn from 12 secondary schools. The study instruments included Life Orientation Test – Revised (LOT-R) and Self-Efficacy Scale (ASES). Data were analyzed using descriptive and bivariate correlation analysis aided by IBM SPSS. The study results revealed that there existed a significant correlation between optimism, self-efficacy and academic achievement. The study focused on secondary school students and since optimism vary with level of study, there was need to focus on primary school pupils in Nakuru County to fill the gap.

Similarly, Gordeeva et al. (2019) carried out a study in Russia to investigate the link between academic achievement and optimistic attribution style. The researchers conducted a meta-analysis of 43 publications, and also conducted two additional

studies. One of the studies was cross sectional, and was carried out on a sample of 202 10th and 11th grade students. The other study was longitudinal, and was conducted on a sample of 151 university freshmen from Moscow. In all the cases, optimistic attribution styles for positive occurrences predicted student's academic achievement. The above study focused on college and high school students who may differ from primary school pupils on dispositional optimism and therefore, the current study was conducted on primary school children to fill the gap.

Another research conducted in Italy by Buzzai et al. (2020) investigated how dispositional optimism was associated with well-being in school among students. A sample of 218 students aged from 16 years to 19 years were involved in the study. Majority of the respondents came from medium and high SES. Dispositional optimism of the students was assessed using a life orientation test. To test the relationship, the data were subjected to regression analysis. The results showed that dispositional optimism significantly predicted the well-being of students in school. The current research involved primary school pupils in Nakuru County Kenya to address the population gap.

Tetzner and Becker (2018) conducted a study to establish the relationship between optimism and academic achievement among adolescents. The study looked at the functional form of the relationship, whether beginning accomplishment level moderated it, and compared the results to the impact of self-esteem. The study was done on a large German sample of 6,010 students (baseline age = 14.1) during a 5-month period with two measurement points in the middle and at the end of 7^{th} grade. Three main discoveries emerged from the estimation of LOESS curves as well as latent change-regression models. The study concluded that optimism triggered

academic achievement. However, this association reached a plateau in above-average optimism ranges and a minimum value in below-average optimism ranges. High optimism had a higher favorable effect for high-achieving adolescents when the achievement level was mitigated. Optimism, on the other hand, had a generally beneficial outcome on self-esteem. However, the study involved adolescent students while the current research involved pre-adolescents in Kenya to bridge the gap in the local context.

A study done in Sicily, Italy by Buzzai et al. (2020) on the well-being or depressed mood has piqued the interest of the literature. The study sought to investigate the relationship between some contextual interpersonal interactions (dispositional optimism) and academic achievement, general well-being, and school helplessness in adolescent students. The findings revealed that need-supportive personal and social conduct, attitudinal hopefulness, positive affectivity, and flexible explanatory style all predicted general well-being, while negative affectivity predicted it negatively. Meanwhile, need-thwarting intra - personal conduct, negative affectivity, and dysfunctional behavior all predicted school helplessness. There was need for a similar research to establish if this would be the same in the Kenyan context among primary school pupils.

A study by Vizoso et al. (2018) investigated how coping techniques, dispositional optimism, academic burnout influenced academic achievement. A total of 532 Spanish undergraduate students were selected for data collection. Participant's data were collected through questionnaires; the LOT-R to gauge optimism, the CSI to assess coping mechanisms both adaptive and maladaptive coping mechanisms, and the MBI-SS to assess academic burnouts of exhaustion, cynicism and efficacy. The

students' grade point average was calculated to assess academic achievement (GPA). Academic burnout was found to have direct and positive association with maladaptive coping, although adaptive coping was found to be directly and adversely connected with academic burnout. Furthermore, optimism deemed to be a substantial and unfavorable forecaster of emotional tiredness. Finally, academic burnout was also found to be a significant predictor of academic achievement. Furthermore, the results showed that adaptive coping and optimism both aid in the prevention of academic burnout and, as a result, had a positive impact on academic achievement. The research involved undergraduate university students while the current research involved primary school pupils in Kenya to establish if similar results can be obtained with the age gap.

In another study by Icekson et al. (2019) found that despite the fact that optimistic expectations frequently improve students' academic achievement, it can moreover contribute to student's failure if accompanied by unlikely expectations of achievement. The study looked at how personality factors such as conscientiousness and sex influenced the relationship between dispositional optimism and academic achievement among students in Nigeria. To achieve this, a total of 175 undergraduates' (123 women, 52 men) levels of dispositional optimism and conscientiousness levels were evaluated as predictor variables of their average academic score. The results from multiple hierarchical regressions confirmed that conscientiousness and sex have a moderating effect on the association between dispositional optimism and academic success. Results from post-hoc analysis revealed that high dispositional optimism improved educational outcomes in women with high cognition while having a negative effect on academic achievement in men

with low conscientiousness. These results imply the possibility of high conscientiousness to counteract negative impacts of increased optimism, for example unreasonable potentials and overconfidence.

Regionally and locally, only a few, such as the fore-discussed studies may have directly examined the relationship existing between dispositional optimism and academic achievement of primary school pupils or any other level. In the present study, convergent parallel mixed method research design was used, probability sampling procedures were followed, LOT-R was applied, GPA was obtained from school records and it was a one-time study with a larger and more similar sample drawn from primary school level.

2.3 Relationship between Learning Strategies and Academic Achievement

In Malaysia, Sabri et al. (2020) conducted a study to investigate how learning strategies influenced academic achievement of tertiary college students of business and accounting courses. The study adopted a quantitative research design. The study sample was 312 business and accounting undergraduate students. The researcher collected data using a questionnaire that adapted the learning strategies scale. The instrument measured different students' cognitive and metacognitive strategies and also how students managed different sources. Descriptive and correlation analysis was conducted. Correlation analysis of results showed that effort regulation strategy positively correlated with the student's academic achievement. The study did not focus on surface learning and deep learning strategies; key components of learning strategies, which the current study focused on to fill the knowledge gap.

Neroni et al. (2019) also investigated the influence of learning strategies on academic achievement of students undertaking distant learning in Netherlands. The study

sample comprised of 758 university students. Data were collected using an online questionnaire. Data were subjected to mixed model analyses. The study results revealed that use of complex cognitive strategy and management of time and effort positively predicted students' academic achievement. There was need to focus on surface learning and deep learning strategies advance knowledge in this area.

A research by Fen et al. (2021) found that motivational strategies based on Vroom's Expectancy theory encourage students to engage actively towards goal achievement and academic content learning. The students engaged in hybrid learning program and the researchers used motivational strategies to satisfy valence, instrumentality, and expectancy. The program lasted for 10 weeks, and a total of 82 university students from Pakistan's Metropolis City took part in the research. SPSS version 20 was used to conduct the independent sample t-test, ANOVA and Pearson's Correlation for hypothesis testing. The hybrid learning approach significantly impacted on academic achievement of the students. However, the study was based on university students and did not specifically examine how each of the types of learning strategies influence academic achievement, a gap the current research addressed.

In Malysia, Tan et al. (2021) conducted a study to compare the academic achievement of undergraduate students with different learning strategies. A total of 400 undergraduates from an open distance learning (ODL) university participated in this quantitative study. This study employed a correlational research design. Archival data and a questionnaire were used to collect information. SPSS was used to run independent t-tests as well as Pearson's correlation analysis. The results showed that regular students performed marginally better than Accredited Prior Experiential Learning (APEL) students. The learning strategies employed by APEL and regular

participants were not significantly different. The study also found that there was no link between cognitive abilities and academic achievement. Regular entrants' academic achievement was not significantly related to APEL entrants' meta-cognitive self-regulation and help-seeking, which were found to affect the students' academic success. This research was limited to a sample of university students. As a result, the generalizability of the findings may not be done to a sample of primary school pupils.

In Uganda, Ludigo et al. (2019) conducted a study to find out the influence of pedagogical strategies on academic achievement of public university students. The study investigated student-centred, teacher-student, and teacher-centred pedagogical strategies. The study used a correlation design with a study sample of 383 university students. Data were collected using questionnaires and then analyzed using descriptive and inferential statistics. Out of the three strategies investigated, regression analyses results showed that only the student-centred strategy showed a positive correlation with students' academic achievement. This showed the importance of student-centred strategy for students' academic achievement. The study focused on university students whose learning strategies differ from those of primary school pupils due to differences in academic demands in the two levels of learning. The current study focused on primary school pupils to fill the population gap.

In another study conducted in Tanzania, Mwakapina (2020) investigated the efficacy of strategies and methods used in communication skills course teaching and learning. The study also investigated the appropriateness of the methods and strategies used in upgrading tertiary students' communications skills. The study used a sample of 593 tertiary students. Data were collected using group discussions, interviews and questionnaires. The study results showed that various instruction methods were used,

out of which web browsing, questions and answers and library research were perceived to be the most suitable. Similarly, students used various learning strategies out of which listening to English conversations, group discussions, and web browsing were perceived to be the most suitable. The study used descriptive design and therefore it did not reveal how the study variables were correlated. The current research used convergent parallel design to address the methodological gap.

In Kenya, Stephen et al. (2018) conducted a research to establish the association between study skills and student performance in physics. Specifically, it aimed at determining the relationship between self-regulated strategies and physics achievement in Nakuru East Sub-County. The study was based on structuralism theory of learning and Bandura's social cognitive theory. The study used a correlational research design and the sample comprised of principals, physics teachers, and physics students. Krejcie and Morgan (1970) formula was used to calculate the sample size with 95% confidence level. To select the principals and physics teachers, purposive sampling was used. The research tools included questionnaires, interview schedule and content analysis. Cronbach alpha reliability coefficient was calculated to establish the instruments' internal consistency. The study found a positive relationship between self-regulation strategies and academic success. The current research used learning approaches model and involved primary school pupils to address the theoretical and population gaps.

Relatedly, Mutua and Oyoo (2020) examined whether academic achievement is linked to cognitive strategies among secondary school students in Nairobi County. The study also aimed to determine if there were Sex differences in cognitive strategies and educational success among the students. The researchers employed sequential

explanatory mixed methods design. Purposive, stratified and simple random sampling procedures were employed to select 488 participants who were drawn from ten public secondary schools. Data were collected through the use of questionnaires and interview guides. The study found significant sex differences in rehearsal and elaboration learning strategies. However, there was no significant sex differences in organizational learning strategy. Finally, the sex differences in the various learning strategies were linked to differences in academic achievement. To enhance knowledge in this area, the current research focused on primary school pupils from a different county.

2.4 Sex Differences in Pupils' Dispositional Optimism and Learning Strategies

This section presents sex differences in pupils' dispositional optimism and learning strategies

2.4.1 Sex Differences in Pupils' Dispositional Optimism

A number of studies have investigated sex differences in dispositional optimism and the findings have been largely inconsistent and inconclusive. In Ecuador, Ismael and Rodrigo (2020) conducted a study to investigate sex differences in dispositional optimism, anxiety, depression and stress among university students. The study adopted a cross-sectional, comparative, descriptive, and predictive research design. The study sample comprised of 288 university students from a university in Ambato. The study results revealed that there was a correlation between dispositional optimism and depression, with no noted sex differences. There was also a slight and significant correlation between dispositional optimism, stress, and anxiety with no noted sex differences. The study focused on university students while the current study focused on primary school pupils in Nakuru County to fill the population gap.

In Indonesia, Prastuti (2020) investigated students' optimism while undertaking online learning during the COVID-19 pandemic. The respondents were 37 high school students who were engaged in online learning. Data were collected using online questionnaires while data analysis was conducted via descriptive statistics. The study results showed that female students had higher levels of optimism than male students. The study used a relatively small sample and focused on high school students and therefore the results may not be generalized to primary school pupils in Kenya. The current study focused on primary school pupils with a relatively large sample to fill the gap.

In another study conducted in Pakistan, Akram and Suneel (2023) examined the correlation between optimism and academic achievement among university students. The study sample was 296 randomly selected students. Data were collected by use of questionnaires that adopted the Revised Life Orientation Test (LOT-R) that measures levels of optimism and pessimism. The results showed that male students significantly differed from females in terms of academic achievement, but no significant difference was noted on optimism. There was also no significant relationship recorded between optimism and academic achievement. The study focused on university students whose optimism may differ from that of primary school pupils. The current study focused on sex differences in pupil's dispositional optimism in Nakuru county to fill the population gap.

Gomez et al. (2018) conducted a study to establish the relationship between optimism and resilience among a group of Spanish university students. A total of 132 students used in the study were selected from the University of Cádiz. From the first to the last year of the trials, quota sampling was used to choose the participants. Majority of the

students were female (72.5%) with a mean age of 21.71 (range = 18–48, *SD* = 3.75). The Wagnild and Young Resilience Scale and the Life Orientation Test were completed by the participants. Using hierarchical multiple regression analysis, the study findings showed that optimism described 25% of resilience among college students. There were no sex or age differences in optimism and resilience. There was need to find out if similar results would be obtained among primary school pupils.

In Kerala University in India, John (2020) carried out a systematic analysis examining dispositional optimism and coping skills in young adults. The study comprised of 160 college students aged 20 to 25 years' old who were attending various colleges in the Trivandrum district. For his investigation, the researcher used a quantitative research approach. Data collected through questionnaires were analyzed to understand the trends. The findings showed that with regard to dispositional optimism, there was no significant difference between male and female students and in terms of pessimism, there was insignificant difference between male and female students. Recommendation for further research was made to focus on learners from various geographical locations and the current research involved primary school pupils in Kenya to address the population gap. Further, since little research has been done in Kenya on sex differences in dispositional optimism, the current study aimed to fill this gap.

2.4.2 Sex Differences in Pupils' Learning Strategies

Buchner (2021) explored learning strategies and their impact on academic achievement students in USA. A sample of 56 primary school learners took part in the study. They were randomly assigned to either experimental or control group to learn with augmented reality (AR) learning materials. The experimental group learned

using AR as well as additional generative learning mechanisms such as self-explanation and self-testing. Only AR was used to teach the control group. It was explored whether adding learning methodologies to AR will result in a decrease in positive sentiments regarding the technology as a learning tool. The results showed that there were significant sex variations in the approachability subscale; male participants believing that AR technology was simpler to use outside of the classroom than female participants. The research used experimental research approach while the present study used survey approach to establish if similar results can be obtained.

Voyer et al. (2021) examined sex differences in cognitive processes. Across a multilevel meta-analysis, the study looked at 802 effect sizes from a sample of 478 in 284 papers. The findings demonstrated the variation of sex differences across tasks in the whole sample. Cued tasks (g =.079, 95 percent CI (030, 128) and free recall tasks (g =.145, 95 percent CI (.102, 188) had a significant female benefit. Whereas complex span (g =.042, 95 percent CI (.083, .002) had a male advantage, and there were no sex differences in serial recall (g =.003, 95 percent CI (.055, .050). Within each task, the findings showed stimulus type, memory, presentation format, answer format, and age all accounted for considerable variance.

Also, Alejandra (2021) who studied sex-based differences in EFL learners' language learning strategies and productive vocabulary revealed that there was no statistically significant difference between sex regarding productive vocabulary. The sample included 51 EFL learners (20 males and 31 females) in the second year of Spanish non-compulsory secondary education. Alejandra Montero- Saiz Aja (2021) results replicated Sunjung (2020) who simultaneously examined the roles of sex, aptitude,

motivation, learning strategy use, language processing experience and sex in the development of the Breadth and Depth of EFL learners' vocabulary knowledge.

The sample comprised of 492 Korean university level learners and employed multi group structural equation modelling (SEM) and reported that there were no effects obtained for participants' sex in the model. Findings of studies that have investigated sex differences in learning strategies have largely been inconsistent and inconclusive and focused on learners in high schools, college and universities. The current research involved primary school pupils in Kenya to address the population gap. Further, since little research has been done in Kenya on sex differences in surface and deep learning strategies among primary school pupils, the current study aimed to fill this gap.

In a study conducted in Uganda, Kwarikunda et al. (2022) investigated how learners' cognitive and metacognitive learning strategies related with learners' intrinsic motivation, sex, and perceived autonomy support. The study sample was 576 ninth grade students drawn through random sampling from six schools from central Uganda. Data were collected through self-reporting questionnaires. The study identified four learner profiles namely struggling user, competent strategy user, deep level learner and surface-level learner profiles. Data were analysed via descriptive and inferential statistics. The results revealed sex differences in favor of girls with regard to organization and elaboration strategies in learning Physics. There were also significant differences noted in sex, perceived autonomy support and intrinsic motivation with respect to profile membership. The study focused on secondary school students who may adopt different learning strategies compared to primary school pupils. The current study focused on primary school pupils to fill the knowledge gap in terms of age.

Mukingambeho et al. (2021) conducted a study in Rwanda to investigate the variability of study skills among Rwandan undergraduate students. The study employed a cross-sectional research design methodology. The study sample comprised of 398 students drawn from National Police College who were undertaking three different programs namely law, computer science and professional police studies at the University of Rwanda. Data were collected using questionnaires and analysis was done using SPSS. Descriptive and inferential statistics were computed. The study results indicated that study skills were influenced by several features including sex, age, year of study and working experience. Student sex specifically influenced test preparation and test taking, with male students recording higher mean than female students in both cases. The study focused on university students whose learning behaviour is different from primary school pupils. The current study focused on primary school pupils in Nakuru County to fill the population gap.

In Kenya, Bacho (2022) investigated the influence of Jigsaw cooperative learning strategy on mathematics achievement among secondary school students in Laikipia County. The study adopted a quasi-experimental research design. The study used a sample of 188 form three students, drawn from 67 schools from the County using purposive sampling. Data were collected using mathematics achievement test instrument. Data were analyzed using descriptive and inferential statistics. The study results showed no sex differences in students' mathematics achievement when the students were instructed using the Jigsaw Cooperative Learning Strategy. The study focused on secondary school students. Since little research has been done in Kenya on sex differences in surface and deep learning strategies among primary school pupils, the current study aimed to fill this gap.

2.5 Socioeconomic Differences in Pupils' Dispositional Optimism and Learning Strategies

This section presents related literature on socioeconomic differences in pupils' dispositional optimism and learning strategies.

2.5.1 Socioeconomic Differences in Pupils' Dispositional Optimism

Grounded on data from two million children collected over a ten-year period through three general transition systems in Turkey, Suna et al. (2020) assessed the effect of socioeconomic status and school type on academic successes. Covariance analysis were utilized to compare the mean scores for public and private schools after controlling for the effect of student's socioeconomic status. The findings showed that students in private schools had considerably higher academic achievement scores in language subjects, mathematics, and science assessments. The results were consistent across all the three transition systems. Having placed all the pupils into high schools by means of a nationwide assessment, the influence of one's socioeconomic status on kids' performance reached its highest value. When socioeconomic status was controlled, the mean scores of private school pupils declined significantly in all systems.

Oberle et al. (2018) examined how early adolescent relationship experiences in school (peer group belonging, peer victimization and caring adult connections) were related to their dispositional optimism, both at the individual and school levels and across time in Canada. Data were collected from 4000 4^{th} and 7^{th} graders in order to identify students' supportive relationships, well-being, and resilience. Tax filer information was used to create a household income indicator (SES). Beyond the impact of sex, age, English as a Second Language (ESL), and socioeconomic status, multilevel

modeling found that better peer belonging, fewer instances of peer victimization, and higher levels of adult support in school were connected to higher dispositional optimism. Furthermore, school levels of peer belonging and adult support (indications of a supportive social school climate) were substantial positive predictors of optimism at the school level. Longitudinally, gains in students' optimism from 4th to 7th grade were linked to school peer belonging in Grade 4. The learning environment in Canada is different from the one in Kenya and therefore this may relate differently with dispositional optimism of the learners. The current research aimed to fill this population and knowledge gap since little has been done in Kenya.

Nabunya et al. (2022) conducted a study in Southern Uganda to investigate self-efficacy, academic achievement and transition from primary to post primary school among orphaned adolescents. The study adopted a longitudinal research design. The study sampled 1410 adolescents aged between 10 and 16 years. Data were collected at baseline and follow ups done after 12, 24, 36 and 48 months. Regression analysis was conducted to establish the correlation between the adolescents' self-efficacy, academic achievement, and transition to post primary education. Study results revealed that students' self-efficacy was associated with better primary leaving exam (PLE) grades, and a higher likelihood of students' transition to post primary education. The findings show the importance of inculcating self -efficacy among the poor and vulnerable in order to improve their academic achievement. The study did not directly focus on disposition optimism but on self-efficacy which is related to optimism (Rand, 2017). The current study focused on socioeconomic differences in pupil's disposition optimism to fill the knowledge gap.

In Tanzania, a related study by Nyamubi (2019) investigated the influence of students' socio-economic status on the student's English language achievement. The study sample was drawn from English Language students from secondary schools in selected regions. The study adopted a cross-section survey design and used a sample size of 350 students from sixteen secondary schools. Data collection instruments included questionnaires and achievement tests. Data were analyzed using both descriptive and inferential statistics. The study results revealed that students' social economic background determined the type of primary school they attended, the class year they started learning the English language and the regularity of usage of the English language at home. Parental encouragement and moral support, regularity of use of the English language at home and in school boosted students' English achievement. The study focused on secondary school students and did not focus on dispositional optimism. The current study focused on primary school pupils and socioeconomic differences in pupils' disposition optimism to fill the population and knowledge gaps.

In Kenya, Muoki et al. (2021) conducted a study to examine the influence of students' socio-economic background on their KCSE performance. The study sample was 1501 students, 301 teachers, and 29 principals from 29 public secondary schools from Kisii County. Participating schools, teachers and students were selected through simple random sampling, while purposive sampling was used to select the principals. The study results revealed a correlation between socio-economic background and students' academic achievement. The lower the socio-economic background, the lower the student grade and vice versa. The study focused on secondary school students and did not focus on dispositional optimism. The current study focused on

primary school pupils and socioeconomic differences in pupils' disposition optimism to fill the population and knowledge gaps.

2.5.2 Socio-Economic Differences in Pupils' Learning Strategies

In Spain a study was carried out by Bonal and González (2020) to examine socio economic differences and learning of students. The closure of schools in the country due to COVID-19 had a massive societal and educational impact. Without prior planning or government rules, schools and households were forced to adapt quickly to new teaching and learning strategies. Some of the schools were better equipped to adapt to the new way of life than others in this situation. Similarly, inequalities in learning opportunities for children from different backgrounds were caused by the structure and status of families' economic, social, and cultural resources.

The study was conducted in Catalonia to evaluate the impact of lockdown on learning gaps between children from different socio-economic backgrounds. The study sample comprised of 35,419 children in an online survey sent to families with children aged 3 to 18 years. The results showed that learning opportunities differed significantly across different socio-economic categories. Children from high and middle-class families were able to maintain high educational quality standards but children from low-income homes had limited learning opportunities, both in terms of time and learning experiences. The findings varied depending on type of school the students were enrolled in (public/private), family economic status, social, cultural and family living situations.

In Vietnam, Tran et al. (2020) investigated the various learning methods the children at home used when schools were closed during COVID-19 period. The study revealed

the diverse learning patterns of students as a result of different socioeconomic status and career goals during the pandemic. It focused on the differences in students' learning practices between private and public schools, as well as between students planning to pursue Science, Technical, Engineering and Mathematics-related courses and those planning to pursue social sciences careers. The findings showed that students with diverse learning opportunities, motivation, and self-regulation had noticeable variance in their learning habits. Regression results revealed that students in private schools spent more time learning during this period than students in public schools. Furthermore, pupils in private schools received more parental support than their peers in public schools. Learners in private schools engaged themselves more in online learning, offline learning, and learning with instruction than students in public schools. There was no significant sex difference in learning patterns. The study findings concluded that parents and instructors have the greatest influence on students' learning habits. This current research aimed to establish if this was the case among Kenyan pupils.

Olanrewaju et al. (2021) conducted a study to examine the effects of digital gaps on e-learning in secondary schools across rural and remote communities in Nigeria during the COVID-19 pandemic. The study used a concurrent mixed method design research approach for data collection. The study sampled 90 respondents drawn from 24 rural communities' secondary schools from six Nigeria states of Ekiti, Kwara, Ebonyi, Adamawa, Bayelsa, and Kano. The study results revealed serious digital gaps in remote communities that disadvantages students from such areas to benefit from online learning during the pandemic. Key drivers of these gaps were identified as high poverty levels, poor internet connectivity and lack of ICT strategies and policy

in Nigeria. The study pointed to the importance of bridging the digital gap in order to ensure inclusive and equitable quality education for learners. The study focused on secondary school students in Nigeria and results may not apply to learners in Kenya due to socio economic differences between the two countries. The current study focused on primary school pupils to fill the locale and population gaps.

Anlimachie and Avoada (2020) conducted a study in Ghana to investigate what strategies would be effective in closing the rural-urban gap in pre-tertiary education, and the socio-economic impact this would have. The study sample comprised of 120 teachers from 30 schools in rural districts. The researchers also analyzed documented data across the school, district and national levels. The study revealed a wide rural-urban inequality coupled with low learning outcomes in pre-tertiary education. There was also noted a 50% annual loss in productivity or human capital as a result of the rural urban gap in pre-tertiary education. The study recommended extra investment to be done to enhance equity and utilization of context -based strategies in the rural areas. The study focused on secondary school teachers therefore the results would not apply to primary to primary school pupils. The current study focused on primary school pupils to fill the population gap.

Muoki et al. (2021) studied the extent to which parents' socioeconomic situation influenced the children's academic achievement in public day secondary schools in Marani Sub-County, Kisii County. A descriptive survey design was used in this investigation. The research focused on 29 public day secondary schools in Marani Sub-County. A sample of 1,501 form four pupils, 29 principals, and 301 teachers participated in the research. Schools, teachers, and students were sampled using simple random sampling whereas principals were sampled using purposive sampling

technique. According to the findings of the study, the students' average grade was associated with parents' social economic status. The present study involved primary school pupils in Nakuru County and aimed at establishing if there exists socioeconomic differences in pupils' pupils' learning strategies.

2.6 Prediction of Academic Achievement from Dispositional Optimism and Learning Strategies

There exists scanty studies globally and locally, that have investigated the relative predictive weight of dispositional optimism and learning strategies on academic achievement. There is little research available on the prediction of academic achievement from surface and deep learning and dispositional optimism. Kayali et al. (2018) carried out research to examine how superficial and deep learning approach affect academic achievement. The study involved 159 students. Revised two-factor version of the Study Process Questionnaire (R-SPQ-2F) was administered to first, second-, and third-year medical students at Alfaisal University. To validate the tool, an exploratory factor analysis was performed and Cronbach's alpha was used to assess its reliability. Different learning styles were investigated using regression analysis to predict academic achievement. The differences across learning styles, different study approaches, and average study time were investigated using ANOVA and independent samples t-test. Students' academic achievement was highly predicted by deep learning approach. Students who studied for more than 8 hours per day performed better in deep learning strategies than students who studied for 4–6 hours (p = 0.024) or 2–4 hours (p = .01). Furthermore, students who frequently read rated themselves higher in deep learning strategies and methods. With p values of .038 and .019, those who

watched videos and used the internet to increase their medical knowledge had better scores in deep learning strategies.

A research carried out by Hayat et al. (2020) examined the importance of metacognitive learning techniques and learning-related feelings in mediating the role of self-efficacy on academic achievement of medical students in Iran. The research was conducted on a sample of 279 medical students at Shiraz University of Medical Sciences. Questionnaires on academic emotions (AEQ), metacognitive learning techniques, and academic self-efficacy were issued for data collection. Data collected were analyzed using SPSS and Smart PLS3. The findings of structural equation modeling demonstrated that students' self-efficacy impacted their metacognitive learning strategies which influenced their academic achievement. Furthermore, learning-related feelings were found to alter metacognitive learning techniques, which in turn intermediated the effect of emotions on academic achievement. The current research examined how learning strategies directly predict academic achievement among primary school pupils.

Shirmohammadi et al. (2021) carried out research among female students in Kermanshah, Iran. The researchers evaluated the relationship between self-compassion and academic achievement, as well as the meditating influence of academic stress and academic optimism. The sample consisted of 226 female students who were chosen using a stratified random sampling procedure. Academic well-being scale, self-compassion scale, academic stress questionnaire, and life orientation test were used to collect data. The findings revealed a significant link between self-compassion and academic optimism, academic optimism and academic well-being. Furthermore, there was a negative relationship between self-compassion and

academic stress. There was no statistically significant link amid self-compassion and academic achievement. According to the path analysis results, subjective academic stress and academic optimism played a moderating role in the relationship between self-compassion and academic achievement.

Majority of reviewed studies on prediction of academic achievement from dispositional optimism and learning strategies (deep, surface) were from developed countries, most applied cross-sectional and longitudinal research designs, drew samples mainly from secondary schools, colleges and universities and their results have been largely conflicting and inconclusive. The present study employed convergent parallel mixed research design and was conducted among public primary school pupils with an aim of establishing if there exists a prediction equation model of academic achievement from pupil's learning strategies (surface, deep) and dispositional optimism, having controlled for demographic factors.

In Uganda, Bwenvu (2023) investigated the correlation between students' self-efficacy and academic achievement. The study adopted a cross-sectional survey design. The study sample was 117 students from the college of education and external studies, Makerere University. Data were collected using an online questionnaire and then analyzed using SPSS. The study findings did not reveal any significant relationship between student's self-efficacy and academic achievement. This implied that high student self-efficacy did not necessarily translate to high academic achievement. The study focused on university students focusing on self-efficacy. The current study focused on prediction of academic achievement from dispositional optimism and learning strategies among primary school pupils in Nakuru County to fill the population gap and knowledge gaps.

In another study conducted in Tanzania, Msimbe and Mwila (2023) investigated the strategies adopted by secondary school teachers to develop learners' competencies in the English language within Kinondoni Municipality, Dar es Salam. The study adopted a mixed research design and the sample comprised of 204 students, 14 subject teachers and 5 English language departmental heads. Data were collected using questionnaires, observations, document reviews and interviews. Data were analyzed using descriptive statistics and thematic analysis. The findings revealed that English language teachers were not familiar with the contemporary English language teaching strategies. This was worsened by lack of learning and teaching resources which made even the traditional strategies ineffective. The current study focused on prediction of academic achievement from dispositional optimism and learning strategies among primary school pupils in Nakuru County to fill the knowledge gap.

In Kenya, there are limited studies on the prediction of academic achievement from dispositional optimism and learning strategies. Kogei (2021) conducted a related study to investigate the influence of academic motivation and self-efficacy on academic achievement of form three students from Kitui County. The study adopted an ex post facto research design. The study sample comprised of 193 students drawn using stratified random sampling from 31 secondary schools from the County. Academic efficacy and academic motivation scales were adapted for measuring self-efficacy and academic motivation. Students' examination records were used to measure student's academic achievement. Data were analyzed by use of descriptive and inferential statistics. The study findings revealed a significant positive correlation between self-efficacy, academic motivation and academic achievement. The current study focused on prediction of academic achievement from dispositional optimism

and learning strategies among primary school pupils in Nakuru County to fill the knowledge gap.

2.7 Summary of Literature Reviewed and Gap Identification

Majority of the reviewed studies on dispositional optimism, learning strategies and academic achievement have largely been conducted in developed countries with disproportional emphasis being on students in the secondary schools, colleges and universities. In addition, the results on relationship between predictor variables (dispositional optimism and learning strategies) and outcome variable (academic achievement) have been conflicting and largely inconclusive. Besides, majority of the reviewed local studies have addressed psychological domains related to studied self-efficacy, academic identity status, self-handicapping and defensive pessimism, self-regulated learning, academic buoyancy, academic motivation, achievement goals, academic resilience, causal attributions, academic mindsets, learning strategies, academic self-concept and examination anxiety. Moreover, very few studies on dispositional optimism and learning strategies and academic achievement of primary school pupils or any other level were readily available regionally and locally in Kenya. Hence there was need in the Kenyan context to investigate the influence of dispositional optimism and learning strategies in predicting academic achievement among primary school pupils so that the findings may guide instructional interventions to enhance academic achievement among primary school pupils. Sex and socioeconomic differences in pupils' learning strategies and dispositional optimism were studied and appropriate intervention measures should be prioritized to reduce the differences which may likely lead to dismal performance in academic achievement.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter outlines the research design and variables, location of the study, target population, sampling techniques and sample size determination, research instruments, pilot study, validity and reliability of the tools, data collection, analysis, logistical and ethical considerations.

3.2 Research Methodology

The study adopted a mixed research methodology which entails utilization of both qualitative and quantitative research methods in order to help answer the research questions. This is a pragmatic approach that combines the positivist worldview of quantitative researchers with the constructivist worldview of qualitative researchers (Tashakkori & Newman, 2010). Quantitative and qualitative data on dispositional optimism, learning strategies and academic achievement were collected which were then used to establish the relationship among the variables.

3.3 Research Design

The study adopted convergent parallel mixed methods design to investigate the relationship between dispositional optimism, learning strategies and pupils' academic achievement. According to Creswell and Creswell (2018) in this design, quantitative and qualitative data are collected at the same time, analysis conducted separately and then the results are merged to test the research hypotheses. This design is appropriate because it allows for in depth analysis of the research problem. Additionally, McCombes (2021) notes that convergent parallel mixed methods design integrates

both aspects of quantitative and qualitative analysis and hence gives a more complete picture of the problem under study as well as strengthening the credibility of the conclusion.

3.4 Research Variables

The main predictor variables in this study were dispositional optimism and learning strategies and both were measured using adapted scales in the respective area. Interval scale was used to measure the predictor variables. The outcome variable was academic achievement which was measured at interval scale. The variable total scores was examination scores obtained from school records for Mathematics, English, Kiswahili, Science and Social Studies being the five examinable subjects sat by standard eight pupils for term one, year 2021. The moderating variables were pupil's sex and socio-economic status while academic achievement was the outcome variable. Pupil's sex was measured on nominal scale while socio-economic status was measured on ordinal scale.

3.5 Location of the Study

This study was undertaken in Nakuru County (Appendix R) which is largely a peri-urban cosmopolitan county and occupies about 540 square kilometres, with an estimated urban population of 3.0 million. There were 767 public primary schools with pupils enrolled up to class eight. Analysis of KCPE results from 2013 to 2022, indicate that candidates in primary schools in this county have been obtaining the bottom range of marks (100 and below and 101 to 200) in KCPE, with a large proportion at 87% being from the public primary schools (Appendices M and O). For instance, the aggregate average of those who scored 200 marks and below during the

years 2013-2022 were 32.8% out of the total candidature and this was 6.2% below the national statistics of 26.6% (Appendices L and M).

Furthermore, the average KCPE mean score for the public primary schools was 229.3 which was lower than that of private primary schools' average score of 307.1(Appendix O). On the same note, Nakuru county public primary schools' KCPE average mean score for the period 2013 to 2022 was 229.3 which was lower than national mean score of 240.8. Since 250 marks is rated the failure border line, the general academic attainment of pupils in public primary schools in Nakuru County was considered to be generally dismal by many stakeholders in the education sector**.** Many would expect primary school pupils to excel in their studies, join secondary schools of their choices, transit to secondary education and other vocational training institutions and eventually be transformed to skilled human capital for sustainable socioeconomic development. The described trends in low pass rate and the heterogeneous context which was hoped to provide a target population and sample that may cater adequately for socio-economic and socio-cultural diversity in Kenya further inspired the choice of the location of the study.

3.6 Target Population

The target population comprised of 41524 (21020 boys and 20504 girls) standard eight public primary school pupils in 767 schools in Nakuru County who were projected to undertake KCPE in 2021. The accessible population was 1364 class eight pupils from 16 public primary. The choice for inclusion of the schools in the study was based on the consideration that they had presented pupils in the past three national examinations (2018, 2019 and 2020). Standard eight pupils were selected because they were considered to be focused on their study subjects and therefore expected to

have established consistent dispositional optimism and learning strategies that would be reliably measured. These pupils more than ever before were expected to be more serious and concentrating on their studies because they were preparing for national examinations. In addition, pupil's dispositional optimism and learning strategies were necessary components of the candidate's future life and academic expectations, learning motives and strategies that also go along with hard work at this level of primary school cycle completion.

3.7 Sampling Techniques and Sample Size Determination

3.7.1 Sampling Techniques

The study used three types of sampling techniques; purposive sampling, stratified sampling and simple random sampling to ensure representativeness of schools and participants. A sample size of 16 schools was obtained from the 767 public primary schools in Nakuru County using the formula recommended by Nassiuma (2000), Appendix P. Purposive sampling was used to select Nakuru County and standard eight for the study while stratified sampling was used to select 13 day primary schools and 3 boarding schools. A school was considered boarding if class seven and eight pupils were accommodated within the school. Sixteen public primary schools were involved in the study. More specifically, a sample of 400 pupils was selected from sixteen schools, that is 25 pupils from each school through simple random sampling. In 3 boarding schools, 75 participants were selected and 325 from the 13 day schools and hence a total sample size of 400 was used in the study. The pupils selected to participate in the interview phase were 40. According to Bernard (1995), a sample size of 30 to 60 interviewees are considered adequate for convergent parallel mixed research design.

3.7.2 Sample Size and Sampling Frame

According to Israel (1992)**,** a sample of 400 participants in a population of 41524 pupils was considered appropriate at a confidence level of 95%, $p = 0.05$ (See Table for sample size determination in Appendix Q). Table 3.1 presents sample size of schools and the pupils involved in the study.

Table 3.1

Sampling Frame

Type of School	Population			Sample Size		
	Schools	Pupils		Schools	Pupils	
		Boys	Girls		Boys	Girls
Day	749	20005	19541	13	180	145
Boarding	18	1015	963	3	37	38
Sub Total	767	21020	20504	16	217	183
Total	767	41524		16	400	

Source: County Director of Education Office, Nakuru (2022).

3.8 Research Instruments

To undertake this study the researcher used pupils' self-report questionnaire, interview schedule and document analysis of academic achievement records.

3.8.1 Pupils' Questionnaire

The pupils' questionnaire (Appendix C) consisted of three parts. Part I consisted of questions that sought the participant's demographic information. Part II and III comprised of two measurement scales, dispositional optimism scale and learning strategies scale. The time taken to complete the questionnaire was approximately 40 minutes while those selected for interview phase spent 40 to 45 minutes to respond to the research questions.

3.8.1.1 Dispositional Optimism Scale (LOT-R). The researcher adapted Life Orientation Test – Revised (Scheier et al. 1994), a 10 – item measure with 4 filler items and 6 scale items, of which 3 are positively–recorded items, and 3 are reverse-coded items. To measure dispositional optimism using Life Orientation Test – Revised (Scheier et al. 1994), respondents were asked to indicate their level of agreement with each of the items on a 5-point scale (from agree a lot to disagree a lot) which gave a possible score range of 6 to 30. Total scores were calculated by adding the 3 positively worded and the 3 negatively worded items (reverse coded). The lowest score was 14 and the highest was 30. Based on the scores, dispositional optimism of the respondent was categorized into three; low (6-14), moderate (15-22) and high (23-30). The higher the score in the overall scoring rate, the higher the dispositional optimism (Scheier et al. 1994).

3.8.1.2 Learning Strategies Scale. To measure students' learning strategies, the Revised Two Factor Study Process Questionnaire (R-SPQ-2F) by Biggs et al. (2001) was used. The R-SPQ-2F is a self-report instrument with a Likert-type scale that ranges from 1 (Never true of me) to 5 (Always true of me). Two different types of learning strategies were assessed namely surface learning strategies and deep learning strategies according to the scoring system (Appendix C) provided by Biggs et al. (2001**).** Each participant was given separate scores on deep motive and strategy, surface motive and strategy and thus deep and surface learning approaches. The score of each approach was calculated using the sum and participants were identified as deep or surface learners based on the score each obtained. Participants with equal scores for both approaches were not categorized into either category, but were separately categorized as equal.

3.8.2 Interview Schedule

An in-depth interview schedule (Appendix D) was used in the study in order to complement the participants' quantitative data collected in the LOT-R and R-SPQ-2F sub scales which allowed deep analysis of the research problem.

3.8.3 Pupils' Academic Achievement Proforma

Document analysis of school records, such as mark books and mark sheets provided the individual pupil's academic achievement in terms of aggregate score obtained from the five subjects examined for the term one examinations, year 2021. The participant's score was recorded in the proforma table that was designed specifically for this purpose (Appendix E). To render these scores comparable among the sixteen different schools, the scores were transformed first to Z-scores and then to T-scores. The scores were categorized into three levels namely; low (0-40), middle (41-60) and high (61 and above). The teacher's assessment of pupil's family socioeconomic status was based on KNBS Economic Survey Guide (2020), Appendix E.

3.9 Pilot Study

Prior to the commencement of the actual study**,** the researcher conducted a pilot study which involved 30 participants selected from three public primary schools, which were not among those included in the actual study. One boarding school and two day schools were purposively selected. Isaac and Michael (1995) suggested that 10 to 30 participants are suitable for pilot study in survey research. Six participants, 2 from boarding and 4 from day primary schools were selected through simple random sampling for interview phase. Piloting helped to test the validity and reliability of the instruments and assess whether the period of 40 minutes allocated for completing

the questionnaire and 40 to 45 minutes for interview guide were adequate. It also helped in spotting any problem in the study the researcher might have overlooked.

3.9.1 Validity of the Research Instruments

To ensure content validity, the researcher sought guidance from the supervisors as well as opinion from peer review. The suggestions offered were incorporated and necessary modification done to enhance the validity of the questionnaires. The university supervisors also checked content validity of the interview guide. Construct validity was ascertained through the use of standardized tools. The researcher adapted the questionnaires with permission from the authors.

3.9.2 Reliability of the Research Instrument

Cronbach's Coefficient Alpha was used to compute the internal consistency, which is a method of estimating reliability of test scores by the use of a single administration of a test as suggested by Frankel et al. (2015).

Table 3.2

Reliability Statistics

Scale		Questions	α(Authors)	α (Pilot Study)
Life Orientation Test Scale-Revised (LOT-R)		6	.72	.79
The Revised Two Factor Study Process Questionnaire (R-SPQ-2F)	Surface	10	.76	.71
	Deep	10	.80	.73

The reliability was assessed using Cronbach coefficient alpha (α). The Cronbach alpha coefficient for life orientation scale was .79 while for study process was .71 and .73 for surface approach and deep approach respectively. The scales were reliable since

Pallant (2005) stated that the reliability coefficient of 0.7 and above is considered desirable for internal consistency levels of items.

The reliability of the interview guide was established through intercoder agreement approach. Different themes were generated from the responses by the research assistants and then compared to establish if the questions consistently elicited similar responses. In cases where inconsistencies were noted, the questions were reviewed to attain the dependability threshold.

3.10 Data Collection Techniques

The researcher first obtained approval from the Graduate School and thereafter sought the research permit from the National Commission for Science, Technology and Innovation (NACOSTI).

Once research permit was obtained from NACOSTI and permission was granted by head teachers to visit the selected schools, the researcher administered the questionnaires during the normal lesson time. The researcher gave the participants' instructions on how to complete the two scales. The participants took approximately 40 minutes to complete the questionnaire. Those selected to participate in the interview phase took 40 to 45 minutes. The class teachers for standard eight pupils were asked to provide academic achievement records, such as mark books and mark sheets to enable the researcher obtain the participant's subjects' and aggregate scores from the five subjects examined at the end of term one, year 2021 (Appendix E). Researcher's and class teacher's assessment of pupil's family SES using socioeconomic operation definition guide based on Economic Survey 2020 by Kenya National Bureau of Statistics was used (Appendices E and F).

3.11 Data Analysis

Data analysis involved quantitative and qualitative data.

3.11.1 Analysis of Quantitative Data

SPSS version 25 was used to analyze the quantitative data obtained from the respondents' questionnaire. The results were presented using both descriptive and inferential statistical methods. Specifically, descriptive statistics such as frequencies, percentages, means and standard deviation were used to analyze quantitative data. Significance of each null hypothesis was tested using relevant inferential statistical procedures. The following were the specific null hypothesis together with statistical tests that were used in the study;

H_{01}: There is no significant relationship between dispositional optimism and academic achievement. Statistical test: Pearson's product moment correlation coefficient.

H_{02}: There is no significant relationship between learning strategies (deep, surface) and academic achievement. Statistical test: Pearson's product moment correlation coefficient.

H_{03}: There is no significant sex differences in pupils' learning strategies and dispositional optimism. Statistical test: t-test for independent samples.

H_{04}: There is no significant differences in pupils' learning strategies and dispositional optimism based on socioeconomic status of pupils. One- Way ANOVA.

H_{05}: There is no significant prediction model of academic achievement from dispositional optimism and learning strategies having controlled for demographic factors. Statistical test. Multiple Regression analysis.

3.11.2 Analysis of Qualitative Data

Qualitative data were analyzed using thematic analysis. The qualitative data obtained from interviews were analyzed using deductive coding method. The researcher analyzed each sentence individually to get a better understanding of what the respondent intended to communicate. The data was segmented into smaller, but meaningful parts for detailed analysis (Creswell and Creswell, 2018). The respondents were then categorized into dispositional optimism levels and learning strategies orientations (deep, surface) using prominent themes. By utilizing the concepts from Bernard and Ryan (2010), the themes were identified by counting repetition, similarities, and differences from the responses. The themes were identified through two broad approaches: Deductively by identifying the issues raised by the participants in their responses, and using the explicit research objective variables from the response guide to highlight the parts of the discussion devoted to each specific variable.

The findings were used to answer the following research questions;

i. Does the dispositional optimism determine academic achievement of pupils?
ii. Do learning strategies (deep, surface) determine academic achievement of pupils?

3.12 Logistical and Ethical Considerations

3.12.1 Logistical Considerations

The researcher ensured the following logistical considerations were undertaken: Research Authorization: In order to be able to visit the sampled schools and collect

data, the researcher first obtained approval from the Graduate School, thereafter sought the research permit from the National Commission for Science, Technology and Innovation (NACOSTI).

Familiarization Meeting: After obtaining the authorization letters and research permit, the researcher visited the sampled schools and held familiarization meetings with each school head teacher. The purpose and expected benefit of the study were explained and suitable day and time for collecting data were arranged.

3.12.2 Ethical Considerations

The researcher contacted parents/guardians of participants to seek permission for their involvement in the research and briefed them on the intended purpose of the research and obtained their consent to participate in the study (Appendix A). The researcher explained to the participants the freedom to participate (or not) and to withdraw at whatever stage of the study. The participants were assured of utmost anonymity and confidentiality of their responses. The information given was utilized for the intended research and that the findings may be used in enhancing academic achievement.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings of the study, the interpretation and discussions as per the study objectives. It comprises of general and demographic data of the respondents, quantitative and qualitative results of the study using descriptive, inferential statistics and thematic analysis according to the research objectives. It also presents interpretation and discussion of the results according to each study objective.

4.2 General and Demographic Data

In this section, the return rate of the questionnaires and background information of the pupils involved in the study are presented.

4.2.1 Return Rate of the Research Instruments

The study was carried out in 16 primary schools among 217 boys and 183 girls. Table 4.1 shows the questionnaire return rate.

Table 4.1

Questionnaire Return Rate

School Category	SS	QA		RR			
		Boys	Girls	Boys	%	Girls	%
DS	13	180	145	159	88	137	94
BS	3	37	38	36	97	36	95
Sub Total	16	217	183	195	90	173	95
Total	16	400		368 (92%)			

Note. SS = Schools sampled; QA = Questionnaires administered; RR = Return rate; DS = Day schools; BS = Boarding schools.

A total of 13 day schools with 180 boys and 145 girls were involved in the study. From this category of schools, 159 questionnaires were returned from the boys which translated to a return rate of 88% while 137 questionnaires were returned from the girls which translated to a return rate of 94%. In the boarding schools, 37 questionnaires were administered to the boys and 38 questionnaires were administered to the girls. The return rate for boys from boarding schools was 97% while the return rate from girls was 95%. In general, 195 questionnaires were returned from the boys and 173 questionnaires were returned from the girls translating to 90% and 95% return rate respectively. Finally, 368 questionnaires out of the 400 questionnaires were returned which translated to 92% overall return rate.

4.2.2 Sex of the Respondents

The researcher analysed the sex of the pupils and the results are presented in Table 4.2.

Table 4.2

Sex of the Pupils

	f	%
Boy	195	53.0
Girl	173	47.0
Total	368	100.0

Note. *f* = frequency.

As shown in Table 4.2, 195 respondents (53%) were boys while 173 respondents (47%) were girls. The results show that the number of boys was slightly higher than that of girls.

4.2.3 Age of the Pupils

The study also collected data on the age of the pupils and the results are presented in Table 4.3.

Table 4.3

Descriptive Statistics of Age of the Pupils

	n	Range	Min	Max	*M*	*SD*
Age of the Pupils	368	5.00	12.00	17.00	13.86	.79

Note. *n* = 368; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

As shown in Table 4.3, 368 questionnaires were used in data analysis. The range for the age of the pupils was 5.00 with the maximum age being 17.00 and the minimum age being 12.00. The mean age of the pupils was 13.86 with a standard deviation of 0.79. The results suggested that most of the pupils were 13-14 years old, the age of majority of the KCPE candidates in Kenya.

4.2.4 Cross-tabulation of Age by Sex

The researcher further examined the age of the pupils by sex as illustrated in Table 4.4.

Table 4.4

Descriptive Statistics of Age by Sex

Sex	*n*	Range	Min	Max	*M*	*SD*
Boy	195	4.00	12.00	16.00	13.99	0.76
Girl	173	5.00	12.00	17.00	13.73	0.81
Total	368	5.00	12.00	17.00	13.86	0.79

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

As illustrated in Table 4.4, the range for the boys was 4.00 with a minimum of 12.00 years and a maximum age of 16.00 years. The mean age for boys was 13.99 and the standard deviation was 0.76. The girls had a range of 5.00 years with a minimum age of 12.00 and a maximum age of 17.00 years. The mean age for girls was 13.73 years with a standard deviation of 0.81. The results showed that the boys were slightly older than the girls.

4.2.5 Age by School Type

The study also explored the age of the pupils based on the type of school they were in and the results were as shown in Table 4.5.

Table 4.5

Descriptive Statistics of Age of the Pupils by School Type

School Type	*n*	Range	Min	Max	*M*	*SD*
Day	296	5.00	12.00	17.00	13.92	0.83
Boarding	72	2.00	13.00	15.00	13.65	0.56
Total	368	5.00	12.00	17.00	13.86	0.79

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation.

As illustrated in Table 4.5, the range for pupils from day schools was 5.00 with the minimum age being 12.00 years and the maximum age being 17.00 years. The range for pupils from boarding schools was 2.00 with the maximum age being 15.00 years and the minimum age being 13.00 years. In general, the pupils from day schools were slightly older than their counterparts from boarding schools.

4.2.6 Descriptive Statistics of Socio-Economic Status (SES) of the Parents/Guardians

The research also studied the socio economic status of the pupils as shown in Table 4.6.

Table 4.6

Descriptive Statistics of Socio-Economic Status (SES) of the Parents/Guardians

	f	*%*
Low SES	117	31.8
Middle SES	236	64.1
High SES	15	4.1
Total	368	100.0

Note. *f* = frequency; SES = Socio-economic status.

As illustrated in Table 4.6, the low SES had a count of 117 pupils (31.8%), middle SES had a count of 236 pupils (64.1%) and high SES had a count of 15 pupils (4.1%). This showed that majority of the pupils were from the middle SES. It was also established that a significant number of the pupils were from low SES.

4.2.7 Socio-Economic Status of the Parents/Guardians and Sex of the Pupil

The study also examined the socio-economic status and the sex of the pupils as shown in Table 4.7.

Table 4.7

Socio-Economic Status (SES) and Sex Cross Tabulation

		SES			Total
		Low SES	Middle SES	High SES	
Sex of the Pupil	Boy	62 (53%)	123(52%)	10(67%)	195
	Girl	55(47%)	113(48%)	5(33%)	173
Total		117	236	15	368

Note. SES = Socio-economic status.

As shown in Table 4.7, more boys than girls came from the low SES that is, 53% of the boys and 47% of the girls were from low SES. Those from the middle SES were 123 boys (52%) and 113 girls (48%) while those from high SES were 10 boys (67%) and 5 girls (33%). The study also analyzed SES based on school type and the results were as shown in Table 4.8.

Table 4.8

SES and School type Cross Tabulation

		SES			Total
		Low SES	Middle SES	High SES	
School type	Day	116 (99%)	167(71%)	13(87%)	296
	Boarding	1(1%)	69(29%)	2(13%)	72
Total		117	236	15	368

Note. SES = Socio-economic status.

As shown in Table 4.8, there were 116 pupils (99%) from day schools and 1 pupil (1%) from boarding school pupils who came from low SES. The pupils from middle

SES were 167 representing 71% in day schools and 69 pupils representing 29% were in boarding schools. Those from high SES were 13 pupils (87%) from day schools and 2 pupils (13%) from boarding schools.

4.3 Results on Relationship Between Dispositional Optimism and Academic Achievement

The first objective of this study was to find out the relationship between dispositional optimism and academic achievement. This section presents the descriptive statistics of dispositional optimism scores, academic achievement scores, hypothesis testing and discussion of the results.

4.3.1 Descriptive Statistics of Dispositional Optimism and Academic Achievement

Table 4.9 shows the description of responses on dispositional optimism.

Table 4.9

Description of the Responses on Dispositional Optimism

	DL	DA	U	AB	AL	*M*	*SD*
1. In uncertain times, I usually expect the best.	9.5%	12.2 %	13%	32.6 %	32.6 %	3.67	1.30
2. If something can go wrong for me, it will.	32.9 %	13.3 %	21.2 %	21.7 %	10.9 %	2.12	1.35
3. I'm always optimistic about my future.	3.5%	0.3%	4.9%	12.5 %	78.8 %	4.63	0.88
4. I hardly ever expect things to go my way.	29.6 %	23.4 %	14.1 %	17.4 %	15.5 %	2.34	1.45
5. I rarely count on good things happening to me.	31.8 %	14.1 %	8.4%	13%	32.6 %	2.80	1.69
6. Overall, I expect more good things to happen to me than bad.	2.7%	3.5%	2.4%	10.9 %	80.4 %	4.63	0.91

Note. DL=Disagree alot; DA=Disagree a little; U=Undecided; AB=Agree a bit; AL=Agree a lot; *M*= Mean; *SD*= Standard deviation.

To measure dispositional optimism, the pupils were required to respond to the 6 statements shown in Table 4.9. The results showed that 9.5% of the respondents disagreed a lot, 12.2% disagreed a little, 13% were undecided, 32.6% agreed a bit while another 32.6% agreed a lot that they could expect the best in uncertain times. The mean of the scores was 3.67 with a standard deviation of 1.30. This implied that most of the students agreed that they expect the best in uncertain times.

Concerning if something can go wrong for me, it will, 32.9% of the pupils disagreed a lot, 13.3% disagreed a little, 21.2% were undecided, 21.7% agreed a little bit whereas 10.9% agreed a lot with the statement. The mean score was 2.12 with a standard deviation of 1.35 showing that a majority of them disagreed that if something wrong was to happen, it will happen. When asked whether they were always optimistic about their future, 3.5% disagreed a lot, 0.3% agreed a little bit, 4.9% were undecided, and 12.5% agreed a little bit while 78.8% agreed a lot. The mean score was 4.63 with a standard deviation of 0.88 which shows that the largest number of pupils were always optimistic about their future.

Concerning the statement, I hardly ever expect things to go my way, 29.6% of the pupils disagreed a lot, 23.4% disagreed a little bit, 14.1% were undecided, and 17.4% agreed a little bit while 15.5% agreed a lot that they could hardly expect things to go their way. The mean score was 2.34 and the standard deviation was 1.45 which implied that majority of the pupils were undecided on expecting things to go their way. On the statement that I rarely count on good things happening to me, 31.8% disagreed a lot, 14.1% disagreed a little bit, 8.4% were undecided, 13% agreed a little bit while 32.6% agreed a lot. The mean score was 2.80 with a standard deviation of 1.69 which implied that most of the students were undecided.

Regarding the pupils who on overall expect more good things to happen to them than bad, 2.7% disagreed a lot on the statement, 3.5% disagreed a little bit, 2.5% were undecided, 10.9% agreed a little bit whereas 80.4% agreed a lot. A mean score of 4.63 and a standard deviation of 0.91 were obtained implying that most of the pupils were looking forward to have more good things happen to them than bad things. The researcher further conducted combined descriptive statistics on dispositional optimism of the respondents and the results are shown in Table 4.10.

Table 4.10

Dispositional Optimism Descriptive Statistics

	n	Range	Min	Max	*M*	*SD*	*Sk*	*Kur*
DO	368	16.00	14.00	30.00	22.79	3.43	-0.28	0.05

Note. n = 368; DO = Dispositional optimism; Min = Minimum; Max = Maximum; M = Mean; SD = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The range of dispositional optimism scores of the pupils was 16.00 with the minimum score being 14.00 and the maximum score being 30.00. The mean score and standard deviation were 22.79 and 3.43 respectively. The skewness coefficient was -0.28 and the kurtosis coefficient was 0.05 indicating that the scores were approximately normally distributed. The researcher further explored dispositional optimism by the sex of the respondents as shown in Table 4.11.

Table 4.11

Dispositional Optimism Descriptive Statistics by Sex

Sex	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Male	195	14.00	30.00	16	22.95	3.53	-0.09	-0.49
Female	173	14.00	30.00	16	22.61	3.31	-0.56	0.50

Note. n = Sample size; Min = Minimum; Max = Maximum; M = mean; SD = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The male respondents had a minimum score of dispositional optimism of 14.00 and a maximum score of 30.00 giving a range of 16.00. The mean score was 22.95 with a standard deviation of 3.53. The female respondents had minimum score of

dispositional optimism of 14.00 and a maximum score of 30.00 giving a range of 16.00. The mean score was 22.61 with a standard deviation of 3.31 which was slightly lower than that of the male students. Generally, the male respondents had a slightly higher dispositional optimism compared to their female counterparts. A further analysis on the dispositional optimism by the type of school in which the pupils were in was conducted as shown in Table 4.12.

Table 4.12

Dispositional Optimism Descriptive Statistics by School Type

School type	*n*	Range	Min	Max	*M*	*SD*	*Sk*	*Kur*
Day	296	16.00	14.00	30.00	22.53	3.47	-0.19	-0.09
Boarding	72	15.00	14.00	29.00	23.88	0.56	-0.62	0.71

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The respondents in day schools had a maximum score of 30.00 and a minimum score of 14.00 (range =16.00). The mean score was 22.53 (*SD* = 3.47). The respondents in boarding schools had a maximum score of dispositional optimism of 29.00 and a minimum score of 14 (range =15.00) and a mean of 23.88 (*SD* = 0.56) which was slightly higher than their day school counterparts. The researcher further examined the dispositional optimism of the respondents by their SES as shown in Table 4.13.

Table 4.13

Dispositional Optimism Descriptive Statistics by SES

SES	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Low	117	14.00	30.00	16.00	22.05	3.43	-0.05	-0.23
Middle	236	14.00	30.00	16.00	23.14	3.36	-0.37	0.18
High	15	14.00	29.00	15.00	23.13	3.83	-0.75	0.95

Note. *n* = Sample size; SES = Socio-economic status; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The low SES pupils had a minimum score of 14.00 and a maximum score of 30.00 with a mean score of 22.05 (*SD*=3.43) and a range of 16.00. The respondents from the middle SES had a minimum score of 14.00 and a maximum score of 30.00 with a

range of 16.00. The mean score and standard deviation were 23.14 and 3.36 respectively. Students from high SES had a minimum score of 14.00 and a maximum score of 29.00 (range = 15.00). The mean score was 23.13 (*SD* = 3.83). The skewness and kurtosis coefficients indicated that the scores of dispositional optimism in all the school categories were approximately near normal distribution. The researcher also studied the levels of dispositional optimism of the respondents as displayed in Table 4.14.

Table 4.14

Levels of Dispositional Optimism

	f	%
Low	33	9.0
Moderate	176	47.8
High	159	43.2
Total	368	100.0

Note. f = frequency.

The respondents with low dispositional optimism were 33 translating to 9% while those with moderate dispositional optimism were 176 (47.8%). Those with high dispositional optimism were 159 (43.2%). The results showed that majority of the participants had moderate level of dispositional optimism. The researcher also studied the levels of dispositional optimism by sex and the results were as shown in Table 4.15.

Table 4.15

Levels of Dispositional Optimism by Sex

		Sex of the Pupil		Total
		Boy	Girl	
DO Levels	Low	13(39%)	20(61%)	33
	Moderate	95(54%)	81(46%)	176
	High	87(55%)	72(45%)	159
Total		195(53%)	173(47%)	368

Note. DO = Dispositional optimism.

The boys with low level of dispositional optimism were 13 (39%) while the girls were 20 (61%). For moderate dispositional optimism, there were 95 boys and 81 girls translating to 54% and 46% respectively. The boys had a higher dispositional optimism (55%) than their female counterparts.

4.3.2 Academic Achievement Descriptive Statistics

Academic achievement of the pupils was measured using the marks they scored at the end of term one examination in 2021. This section presents the descriptive statistics of the raw scores of academic achievement and the descriptive statistics of the standardized scores of academic achievement. Table 4.16 shows that descriptive statistics of the raw scores of academic achievement.

Table 4.16

Academic Achievement Raw Scores

	n	Range	Min	Max	*M*	*SD*	*Sk*	*Kur*
Raw scores of academic achievement	368	325	108	433	262.35	81.93	0.45	-0.92

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The raw scores of academic achievement had a minimum score of 108 marks and maximum of 433 marks with a range of 325 marks. The mean score was 262.35 with a standard deviation of 81.93. The skewness and kurtosis coefficients indicate that the scores were approximately normally distributed. The descriptive statistics of the standardized scores of academic achievement were as shown in Table 4.17.

Table 4.17

Academic Achievement Standardized Scores

	n	Range	Min	Max	*M*	*SD*	*Sk*	*Kur*
Standardized scores of academic achievement	368	42.52	27.52	70.04	49.95	10.03	0.28	-0.93

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The range of the standardized scores was 42.52 (minimum = 27.52 and maximum = 70.04). The mean score was 49.95 with standard deviation of 10.03. The skewness coefficient was 0.28 while the kurtosis coefficient was -0.93. This suggested that the scores were near normal distribution.

The study explored the descriptive statistics of academic achievement based on the sex of the respondents and the results are shown in Table 4.18.

Table 4.18

Descriptive Statistics of Academic Standardized Achievement by Sex

Sex	*n*	Range	Min	Max	*M*	*SD*	*Sk*	*Kur*
Boy	195	39.51	30.26	69.77	50.28	9.74	0.33	0.87
Girl	173	42.45	27.52	70.04	49.58	10.36	0.25	-0.99

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

As observed in Table 4.18, the range for the boys and girls was 39.51 and 42.45 respectively. The maximum score was 69.77 and 70.44 for the boys and girls respectively. The minimum score for the boys was 30.26 and girls it was 27.52. The mean score for the boys was 50.28 and 49.48 for the girls. The standard deviation was 9.74 and 10.36 for boys and girls respectively. Further analysis of academic achievement based on the school type was done and the results are shown in Table 4.19.

Table 4.19

Descriptive Statistics of Academic Achievement by School Type

School Category	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Day School	296	27.52	69.38	41.86	47.41	8.79	0.47	-0.40
Boarding School	72	38.11	70.04	31.92	60.37	7.86	-0.93	-0.09

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

As observed in Table 4.19, the range of the scores of pupils from day schools and boarding schools was 41.86 and 31.92 respectively. The maximum score was 69.38 and 70.04 for the pupils from day schools and boarding schools respectively. Minimum score for pupils from day schools was 27.52 and 38.11 for pupils from boarding schools. The mean score for pupils from day schools was 47.41(*SD* = 8.79) and that of those from boarding schools was 60.37(*SD* = 7.86). Analysis was also conducted to establish how the pupils performed in academics based on socio economic status (SES). The results were as shown in Table 4.20.

Table 4.20

Descriptive Statistics of Academic Achievement and SES

SES	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Low	117	27.52	68.60	41.08	44.39	7.62	0.56	0.18
Middle	236	31.57	69.77	38.20	52.56	10.00	0.04	-1.17
High	15	33.54	70.04	36.50	52.24	9.86	0.04	-0.03

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The results show that the range of the scores for low SES, middle SES and high SE were 41.08, 38.20, and 36.50 respectively. The maximum scores were 68.60, 69.77 and 70.04 for the three categories of SES in that order. The minimum scores were 27.52, 31.57 and 33.54 for the low, medium and high SES respectively. The mean scores were 44.39 (*SD* = 7.62), 52.56(*SD* = 10.00) and 52.24(*SD* = 9.86) for low, medium and high SES respectively. This showed that the respondents from the middle

SES had the highest mean score in academic achievement while those from low SES had the lowest mean score. Academic achievement scores were further categorized into levels and the results are presented in Table 4.21.

Table 4.21

Levels of Academic Achievement

	f	%
Low	65	17.7
Moderate	233	63.3
High	70	19.0
Total	368	100.0

Note. f = frequency.

As seen in Table 4.21, less than a quarter (17.7%) of the respondents had low level of academic achievement. A majority representing 63.3% of the respondents had moderate level of academic achievement while 19% of the pupils had high level of academic achievement. Generally, most of the participants had moderate level of academic achievement.

4.3.3 Hypothesis Testing

The study hypothesized that there is no significant relationship between dispositional optimism and academic achievement. The hypothesis was tested using Pearson's product moment correlation and the results are presented in Table 4.22.

Table 4.22

Correlation Between Dispositional Optimism and Academic Achievement

		Academic Achievement
Dispositional Optimism	Pearson Correlation	.31**
	Sig. (2-tailed)	.00
	n	368

Note. n = 368.

The study established that dispositional optimism and academic achievement had a moderate, positive and significant correlation, r (366) = .31, p < .05. Therefore, the

study rejected the null hypothesis. The results suggest that an increase in dispositional optimism leads to an increase in academic achievement and vice versa. Dispositional optimism was categorized into three levels and therefore further analysis was conducted to establish how the pupils performed based on the level of dispositional optimism and the results were as shown in Table 4.23.

Table 4.23

Levels of Dispositional Optimism and Academic Achievement

Dispositional Optimism Levels	*n*	Academic Achievement Mean Score	*SD*
Low	33	44.82	9.19
Moderate	176	48.30	9.23
High	159	52.84	10.25
Total	368	49.95	10.03

Note. *n* = Sample size; *SD* = Standard deviation.

The pupils with high level of dispositional optimism were 159 with the highest mean score of 52.84 (*SD* = 10.25). Those with moderate level of dispositional optimism scored a mean of 48.30 (*SD* = 9.23). Pupils with low level of dispositional optimism scored the lowest mean score of 44.82 (*SD* = 9.19). A majority of the pupils had a moderate level followed by high levels of dispositional optimism.

To establish if the mean differences in academic achievement based on the level of dispositional optimism were statistically significant, the researcher conducted one-way ANOVA and the results are presented in Table 4.24.

Table 4.24

ANOVA for the Mean Score Differences in Academic Achievement

	Sum of Squares	*df*	Mean Square	*F*	Sig.
Between Groups	2670.00	2	1335.00	14.23	.00
Within Groups	34233.63	365	93.79		
Total	36903.63	367			

The mean differences in academic achievement among pupils with different levels of dispositional optimism were statistically significant, F (2, 365) = 14.23, $p < .05$. Further analysis was conducted using Tukey HSD to establish if the mean difference of each category was statistically significant and the results are presented in Table 4.25.

Table 4.25

Tukey HSD for the Mean Differences in Academic Achievement

(I) DO Levels	(J) DO Levels	Mean Difference (I-J)	Std. Error	Sig.
Low	Moderate	-3.48	1.84	.14
	High	-8.01*	1.85	.00
Moderate	Low	3.48	1.84	.14
	High	-4.53*	1.06	.00
High	Low	8.01*	1.85	.00
	Moderate	4.53*	1.06	.00

Note. DO = Dispositional optimism.

The mean differences in academic achievement among pupils with low and moderate dispositional optimism was not statistically significant. The rest of the mean differences (low and high and moderate and high) were statistically significant.

4.3.4 Qualitative Results on Dispositional Optimism

The researcher complemented the quantitative data collected by conducting interviews among the 40 selected pupils seeking their opinions on various statements that were structured in line with the research objectives. Analysis was done by comparing responses for each question from each of the 40 respondents. The questions used in the interview guide were open ended.

The qualitative data collected from the respondents were analyzed thematically. The analysis was done in a series of stages and in a systematic manner to provide

information that effectively responded to the objectives of this study. The qualitative data analysis was done in two stages as described below:

4.3.4.1 Coding Method. Qualitative data is very important in determining the frequency of traits and characteristics of a particular data set (Bahsin, 2020). The use of multiple data sources helped researchers to get deeper understanding of various aspects of the study that could otherwise be ignored because of the use of data from single sources (Stake, 2010). By utilizing the set of instructions proposed by Creswell (2014), the whole data set was indexed using the themes as labels to mark specific segments of the transcripts where the discussion/ interview relates to each theme. The framework developed through the themes was then used to segment the data for detailed analysis of each data segment, then to link these analyses together to develop narratives from the data that respond to the research questions (Bahsin, 2020; Lewinskil et al., 2021). The qualitative data reliability was confirmed through inter-coder agreement approach to facilitate logical and objective interpretations of each theme under study.

4.3.4.2 Codebook Development. The codebook was then developed based on the themes identified utilizing the inclusion and exclusion set by the researcher. The relevant responses that formed the themes were given priority in the codebook and were arranged depending on the questions that were being investigated by the researcher. This was achieved by utilizing the set of procedures highlighted by Stake (2010). The findings are presented in Table 4.26.

Table 4.26

Codebook for General Questions

Parameters	Topic
Coded as	Identification of other subjects aside the five core examinable subjects
Description	The pupil being able to fully identify the other subjects taken by the pupil in addition to the five examinable subjects. The overall impact of these subjects is not prioritized over the examinable subject since they have no impact on their securing good schools in high school.
Inclusion criteria	The pupil being able to identify all the 3 non examinable subjects. The pupils do not have an option in dropping these subjects since it is part of the curriculum as provided by the Ministry of Education.
Exclusion criteria	No response or wrong identification of subjects
Typical exemplars	When asked to identify non examinable subjects, majority identified all of them.
Coded as	Helpfulness/Importance of non-examinable subjects to the pupil
Description	Perceptions of pupils on the non-examinable subjects as important/helpful or not.
Inclusion criteria	Indication that the non-examinable subjects are helpful to the pupils hence high expectations
Typical exemplars	When asked whether the non-examinable subjects are important to the pupils, the response were largely positive.
Coded as	The option of dropping non-examinable subjects
Description	Pupils' response given a choice to drop the non-examinable subjects at the time this interview was conducted.
Inclusion criteria	Indication that the pupils had no intention of dropping the non-examinable subjects, if the option was given.
Exclusion criteria	The pupils had the intention of dropping the non-examinable subjects, if option was given.
Typical exemplars	When asked whether they would drop the non-examinable subjects if given such as option, most of the pupils responded they will not drop the subjects.
Coded as	Careers after completing education
Description	The pupils response on whether they intend to pursue various careers after completing education
Inclusion criteria	Indication that the pupils had future expectations to pursue various future careers
Exclusion criteria	Pupils had no future expectations of pursuing various careers after school
Typical exemplars	When asked what career (s) would they wish to get into after completing their education, the pupils replies were diverse
Coded as	Future plans and expectations after primary education
Description	Pupils indication that they intend to join higher levels of education
Inclusion criteria	Indication that the pupil had future expectations to go to high school
Exclusion criteria	Indication that the pupil had no future expectations to go to high school
Typical exemplars	When asked what future plans they had after primary school education, the pupils largely indicated their future expectations/intentions as to join high school

a) Dispositional optimism

Table 4.27 shows dispositional optimism code book.

Table 4.27

Codebook for Dispositional Optimism

Parameters	Topic
Coded as	Future expectations on performance on the non-examinable subject if the government makes them examinable
Description	The pupil response on whether they will perform highly on non-examinable subjects if they were made examinable.
Inclusion criteria	The pupils indication that they will perform well on the non examinable subjects if made examinable
Exclusion criteria	No response or indication that the pupils will not perform well on the three subjects
Typical exemplars	When asked how they would expect to perform in the added three subjects, most responses indicated high performance.
Coded as	Impacts of additional subjects on overall performance
Description	The pupils' future expectations on their overall performance if the non examinable subjects were added. Indication of no effect, raise or to lower their performance
Inclusion criteria	Responses indicating that they would raise pupil overall performance
Exclusion criteria	Pupil's indication of no effect or addition of non examinable subjects would lower overall performance
Typical exemplars	When asked whether the addition of examinable subjects would lower their overall performance, most were of contrary opinion.
Coded as	Actions taken when faced with challenges in life
Description	Pupil's response on whether he or she attempts to overcome challenges in life or ignores them
Inclusion criteria	Indication that the pupil attempts to counter and overcome the challenges in life
Exclusion criteria	No responses or the pupils indicating that they never act to overcome the challenges
Typical exemplars	When asked whether they usually attempt to overcome a challenge when faced with one, the responses indicated that most pupils made an effort to overcome.

Coded as	Ignoring and forgetting difficult situations without putting effort
Description	Category of the actions taken by pupils when faced with difficult situations.
Inclusion criteria	Indication that the pupils put effort to overcome difficult rather than ignoring and forgetting situations
Exclusion criteria	Pupils indicating no action or effort at all including ignoring the situation
Typical exemplars	When asked whether they ignored or forget difficult situations rather than finding a solution, there was mixed response, some acting and others ignoring.
Coded as	Expectations on overcoming difficult situation in life
Description	Pupils expectations on overcoming difficult situation in life
Inclusion criteria	Indication that the pupil expected to overcome difficult situations in life
Exclusion criteria	Pupil having no expectations to overcome difficult situations
Typical exemplars	When asked whether they expected to overcome difficult situation in life, most of the students affirmed.
Coded as	Giving up when faced with difficult situation
Description	Pupil responses on whether they gave up when faced with difficult situation
Inclusion criteria	Responses that resonates with the act of not giving up when faced with challenges
Exclusion criteria	Responses that resonates with giving up when faced with challenges
Typical exemplars	When asked if they give up when faced with challenges, majority indicated they do not give up. A few indicated they give up.
Coded as	Feeling of difficult situation being beyond control/helplessness
Description	Indication of whether pupil gets feeling of difficult situation being beyond control/helplessness
Inclusion criteria	Pupil expression that pupil does not get feeling of difficult situation being beyond control/helplessness
Exclusion criteria	Pupil expression that pupil gets feeling of difficult situation being beyond control/helplessness or no response
Typical exemplars	When pupils were asked if they get feelings of difficult situation being beyond control/helplessness, most gave contrary opinion. A few pupils indicated they get feeling of situations being beyond control/helplessness but they try to overcome

Forty pupils (40) were interviewed and the findings on the levels of dispositional optimism are presented in Table 4.28 below.

Table 4.28

Levels of Dispositional Optimism by Sex

		Sex of the Pupil		Total
		Boy	Girl	
DO Levels	Low	2(5%)	3(7.5%)	5(12.5%)
	Moderate	10(25%)	11(27.5%)	21(52.5%)
	High	9(22.5%)	5 (12.5%)	14 (35%)
Total		21(52.5%)	19(47.5%)	40

Note. DO = Dispositional optimism.

The results indicate that 52.5% of the respondents were boys while 47.5% were girls. Out of the five pupils (12.5%) who had low dispositional optimism, 5% were boys while 7.5% were girls. The pupils who had moderate dispositional optimism were the majority with 25% being boys while 27.5% girls, a total representation of 52.5%. Among those who had high dispositional optimism 22.5% were boys while 12.5% were girls, a total representation of 35%.

Qualitative data is very important in determining the frequency of traits and characteristics of a particular data set (Bernard & Ryan, 2010). The use of multiple data sources helps researchers to get deeper understanding of various aspects of the study that could otherwise be ignored because of the use of data from single sources (Stake, 2010). When the respondents were asked to state other non-examinable subjects they were taking in standard eight other than the usual five (Mathematics, English, Kiswahili, Science, Social Studies) examined in KCPE, all the respondents indicated that they took life skills, creative arts, and physical education. When asked whether these non-examinable subjects they were taking were important to them, a majority of the respondents indicated that they were important. On whether they would drop the non-examinable subjects if given a choice, majority of the respondents indicated that they will not drop the subjects. Most of the pupils had positive expectations on the three subjects, though non-examinable. This is a clear indication

that non-examinable subjects were important to the pupils. This was in agreement with the research done by Ongorok (2010) while studying the role of non-examinable subjects. Ongorok arrived at a conclusion that the non-examinable subjects contributed to the acquisition of useful and practically applicable life skills.

Further investigation was done to establish the impact of non-examinable subjects studied in standard eight on the overall performance of students if the subjects were to be made examinable. Majority of the respondents indicated that they would perform highly in the added subject. On whether the added subjects would lower their overall performance, majority of the respondents indicated that it would not lower their performance because of the additional workload and only a few indicated that it would lower their performance. On careers the participants expect to join after completing school, most indicated doctors, judges, lawyers, military cadets, policemen, engineers, teachers, chefs, journalists, welder, fashion designer, business person and ship captain. Majority of the participants indicated that they plan to join good high schools after completing primary school education. Overall, the results indicated that majority of the respondents had moderate level of dispositional optimism.

The participants were further asked to give their opinion on statements that best suits their lives, the responses were as follows. When asked to give their opinions on whether they usually attempt to overcome challenges they faced in their lives, majority of the respondents indicated that they made an attempt to overcome them and only a few did not attempt to overcome the challenges they faced. Concerning whether they usually preferred ignoring and forgetting some difficult situations rather than putting effort to walk out of them, majority of the respondents indicated that they usually prefer ignoring and forgetting some difficult situation rather than giving their

effort to it. A few of the participants indicated that at times they preferred ignoring and forgetting some difficult situations rather than giving their effect to it. Regarding the statement, I always expect to overcome difficult situations in my life, majority of the respondents agreed with this statement and said that they did not give up easily under such circumstances. When asked on feelings some situations were difficult and beyond their control, majority indicated they always tried their best and did not give up easily. A few indicated they give up when faced with situations they feel is beyond their control. General assessment of the responses provided showed that majority of the pupils had moderate levels of dispositional optimism.

4.3.5 Major Theme Identified

4.3.5.1 Future Expectations even when Faced with Challenges (General, Academic and Career). The theme was identified through two broad approaches: Deductively by identifying the issues raised by the participants in the discussion, and using the explicit research objective variables from the interview guide to highlight the parts of the discussion devoted to each specific variable.

The major theme and subthemes were framed based on the repeated responses that met the set inclusion criteria. The themes and subthemes enabled the researcher to make an informed decision on the level of dispositional optimism of the respondents. The responses for each pupil were compared to help in formulating the themes and subthemes in making informed decision.

The dispositional optimism was categorized into three levels namely high, moderate and low. Majority of the respondents had moderate dispositional optimism. This is shown by the responses from all the respondents interviewed who indicated that the non-examinable subjects were important to them, and that given a choice to drop the

non-examinable subjects, majority indicated they will not. The majority further affirmed that they would perform highly if all subjects studied were examinable and that the additional subjects would not lower overall performance if the non-examinable subjects were made examinable. Majority of the pupils indicated that they will try to find a solution to challenges encountered no matter how difficult they are rather than running away from them.

The responses of selected pupils who were interviewed are presented.

Sally: On interview questions, when she was asked what other subjects other than the usual five subjects which are Mathematics, English, Kiswahili, Science and Social studies that everyone else took, she said that she did physical education (P.E), Life Skills (L/S) and Creative Arts. She said that non-examinable subjects were important to her. If Sally could have been given a chance to drop the non-examinable subjects at that point, she could not have dropped them. On what career she could wish to pursue after completing her education, she said that she wanted to become a teacher. Her plans after primary education were to go to high school. When asked how she expected to perform in academics she said 'high' but also indicated that the additional subjects would most likely lower her academic achievement. Whenever she was faced with challenges in life, she made efforts to overcome them and she did not prefer to ignore and forget some difficult situations. Sally indicated that she expected to overcome difficult situations in her life and she did not give up when faced with difficult situations. This indicated that the respondent had high level of dispositional optimism.

Nicholas: Other than the basic five subjects taken in primary school, he took life skills, creative arts and Physical education and he stated that the three subjects are not as

important to him as the other five subjects but still if given a chance to drop these subjects he would not. His career choice was to become a comedian and he also had a plan to get to a nice high school after primary school. If the government of Kenya decides to make all the subjects examinable at class eight level, he expected to perform highly in the subjects and he further said that it would not lower his performance. However, whenever faced by challenges he attempted to overcome them and he would not ignore or forget difficult situations and also puts effort to walk out of them. He as well expects to overcome the difficult situations in his life, and he did not give up when he was faced with difficult situations. He said that he does not give up even if a situation in life is beyond his control. Based on the narrative given by Nicholas, he has a high level of dispositional optimism.

Kevin: This respondent just like the first two, does the three non-examinable subjects and deems them important that if given a chance he still cannot drop them. He wants to become a judge after completion of his studies and would love to go to a good school after his primary school studies. If the government of Kenya makes all the subjects examinable, Kevin has a high expectation that he will perform well and that the three added subjects will not make his performance to drop. Whenever Kevin faces challenges, he tries to overcome them but usually he prefers ignoring or forgetting some difficult situations. He also said that he does not give up easily, but only after trying. The responses provided by Kevin indicate that he had moderate level of dispositional optimism. His academic achievement was also moderate. The results corroborate quantitative data results which showed that that there was a positive relationship between dispositional optimism and academic achievement.

Joan: She said that the other non-examinable subjects are important to her and would not drop any of them at any given point. Her career wish is to become a surgeon and to help her family and friends is part of her plans after she is through with schooling. She expects to perform well in the added subjects in case the government makes them examinable. Mary indicated that she does not expect the additional subjects to lower her performance. When Mary faces challenges, she makes attempts to solve them and at times prefers ignoring and forgetting some difficult situation rather than giving her effort to it. She expects to overcome any difficult situation in her life because she is strong willed. Joan does not give up when faced with difficult situations unless after trying. The results obtained indicate that she had moderate level of dispositional optimism.

Mary: This learner said that she took three extra subjects and she regarded them as important even though they are not examined. The participant indicated, she would not drop the subjects if given an option. After completing her studies, she wanted to become a lawyer. Her plans after primary school was to join a high school. When asked how she expected to perform in the added subjects, she said that she could perform well. If the three were added, they would not affect the overall performance. Whenever faced with challenges in life, she usually attempts to overcome them. She did not prefer ignoring and forgetting some difficult situations rather but put effort to overcome them. She always expected to overcome difficult situations in her life and she did not give up. Whenever she felt difficulty of situations in life that are beyond her control, she did not give up. The results implied that she had high levels of dispositional optimism.

In general, the pupil's dispositional optimism was associated with the way the pupil regarded education, academic, career, their future life expectancies outcomes and the effort put to achieve those goals. Such behaviour determines academic achievement of the pupils. Therefore, dispositional optimism of the pupil influence academic achievement. The findings supported quantitative data results which showed that there is a significant relationship between dispositional optimism and academic achievement.

4.3.6 Discussion of the Results

In the first objective of this study, the researcher aimed to find out the association between dispositional optimism and academic achievement. The research found that the two variables were significantly related. The findings of this study also revealed that the mean differences in academic achievement among pupils with different levels of dispositional optimism were statistically significant, F (2, 365) = 14.23, $p < .05$. This confirmed that academic achievement is significantly related to dispositional optimism. These results were consistent with the findings of earlier studies conducted in this area. Icekson et al. (2019), in their research on "Does optimism predict academic achievement?' found that optimism significantly predicted academic achievement. The results demonstrate that dispositional optimism plays a significant role in academic achievement.

Another study done by Buzzai et al. (2020) that investigated the relationship between contextual (need-supportive interpersonal behavior and need-thwarting interpersonal behavior) and dispositional variables (dispositional optimism, positive/negative

affectivity, explanatory style), well-being and hopelessness in school context came up with similar findings. Their findings revealed the existence of a positive association between contextual and dispositional variables, academic achievement, general well-being, and school hopelessness in adolescent students. Relatedly, Alberto et al. (2022) conducted a study in Spain to investigate the relationship between optimism, self-efficacy, and academic achievement among secondary school students. The study sample comprised 1852 adolescents drawn from 12 secondary schools. Study results revealed that there existed a significant correlation between optimism, self-efficacy and academic achievement.

Similarly, Gordeeva et al. (2019) carried out a study in Russia to investigate the link between academic achievement and optimistic attribution style. The researchers conducted a meta-analysis and also conducted two additional studies. One of the studies was cross sectional, and was carried out on a sample of 202, grade 10 and 11 students. The other study was longitudinal, and was conducted on a sample of 151 university freshmen from Moscow. In all cases, optimistic attribution styles for positive occurrences predicted student's academic achievement. The results demonstrate that dispositional optimism is an important factor in learning and school achievement. Based on the results, the level of learning does not affect the relationship between dispositional optimism and academic achievement because the current study involved a sample of primary school pupils while Gordeeva et al. (2019) studies involved secondary school and university students.

4.4 Results on the Relationship between Learning Strategies and Academic Achievement

The second objective was to investigate the relationship between learning strategies and academic achievement. This section presents the descriptive statistics of learning strategies, hypothesis testing and discussion of the results.

4.4.1 Descriptive Statistics of Pupils Learning Strategies

Table 4.29 presents the descriptive statistics of the responses on learning strategies.

Table 4.29

Descriptive Statistics of Deep Learning Strategies

	1	2	3	4	5	*M*	*SD*
1. I find that at times studying gives me a feeling of deep personal satisfaction.	7.6%	24.7%	9.5%	23.6%	34.5%	3.53	1.38
2. I find that I have to do enough work on a topic so that I can form my own conclusions before I am satisfied.	5.2%	16.0%	11.7%	29.6%	37.5%	3.78	1.25
5. I feel that virtually any topic can be highly interesting once I get it.	4.6%	13.3%	9.0%	27.2%	45.9%	3.96	1.22
6. I find most new topics interesting and often spend extra time trying to obtain more information about them.	5.7%	9.0%	10.9%	31.3%	43.2%	3.97	1.19
9. I find that studying academic topics can at times be as exciting as a good novel or movie.	15.5%	9.2%	13.3%	26.1%	35.9%	3.58	1.44
10. I test myself on important topics until I understand them completely.	3.8%	11.7%	9.0%	31.5%	44.0%	4.00	1.16
13. I work hard at my studies because I find the material interesting.	13%	10.3%	9.5%	26.6%	40.5%	3.71	1.42
14. I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes.	12.2%	14.4%	16.0%	24.5%	32.9%	3.51	1.39
17. I come to most classes with questions in mind that I want answering.	10.3%	20.9%	17.7%	24.2%	26.9%	3.36	1.35
18. I make a point of looking at most of the suggested readings that go with the lessons.	7.6%	12.2%	11.7%	32.1%	36.4%	3.77	1.27

Note. *M* = Mean; *SD* = Standard deviation; 1= This item is never or only rarely true of me, 2 = This item is sometimes true of me 3 = This item is true of me about half

the time, 4 = This item is frequently true of me, 5 = This item is always or almost always true of me.

Ten statements were used to measure deep approach to learning among the pupils. The results revealed that 7.6% of the respondents indicated that it was rare for them to find that at times studying gives them a feeling of deep personal satisfaction, 24.7% indicated sometimes it was true of them, 9.5% indicated it was true to half of the time, 23.6% said it was frequently true of them and 34.5% of the pupils indicated always true for them to feel a deep personal satisfaction when studying. The mean score was 3.53 with a standard deviation of 1.38 showing that most of the students felt a deep personal satisfaction whenever they study.

On the statement, I find that I have to do enough work on atopic so that I can form my own conclusions before I am statistfied, 5.2% of the respondents said that it was rare of them, 16.0% said it is sometimes true of them, 11.7% indicated sometimes was true of them half of the time, 11.7% indicated it was true to half of time, 29.6% said it was frequently true of them and 37.5% of the pupils indicated always true for them. The mean score was 3.78 with a standard deviation of 1.25 suggesting that most of the pupils indicated that they find that they have to do enough work on a topic so that they can form their own conclusions before they are statistfied.

On the statement that I feel that virtually any topic can be highly interesting once I get into it., 4.6% of the respondents said that it was rare of them, 13.3% indicated sometimes was true of them, 9.0% indicated that it was true to half of the time, 27.2% said it was frequently true of them and 45.9% of the pupils indicated always true for them to find any topic interesting once the pupils got to them. The mean score was

3.96 with a standard deviation of 1.22 showing that most of the pupils found any topic to be interesting once they decided to work on it.

On the statement, I find that studying academic topics can at times be as exciting as a good novel or movie, 15.5% of the respondents said that it was rare of them to find academic topics exciting, 9.2% said is sometimes true of them, 13.3% indicated sometimes was true of them half of the time, 26.1% said it was frequently true of them and 35.9% of the pupils indicated always true for them. The mean score was 3.58 with a standard deviation of 1.44 suggesting that most of the pupils found out that while studying academic topics they can at times be as exciting as a good novel or movie.

Regarding the statement that I test myself on important topics until I understand them completely, 3.8% of the respondents said that it was rare of them to do so, 11.7% indicated sometimes was true of them while 9% said it was true to half of the time whereas 31.5% said it was frequently true of them and 44% of the pupils indicated always true for them. The mean score was 4 with a standard deviation of 1.16 showing that most of the pupils found out that they can test themselves on important topics until they understand them completely.

When asked whether they worked hard at their studies because they find the material interesting, 13% of the pupils indicated that this was rarely true of them, 10.3% said this was sometimes true of them, 9.5% indicated that this was true half of the time, 26.6% indicated that this was frequently true of them and 40.5% indicated that this was almost always true of them. The mean score of the responses was 3.71 (*SD* = 1.42) indicating that it was true for most of the students that they work hard because they find the material interesting.

Concerning spending a lot of time trying to know more about interesting topics, 12.2% of the pupils indicated that this was rarely of them, 14.45% said that it was sometimes true, 16% indicated that it was true half of the time, 24.5% indicated frequently true and 32.9% stated always true. The mean score was 3.51 with a standard deviation of 1.39. The pupils were also asked to state whether they came to class most of the time with questions in mind, 10.3% indicated rarely, 20.9% indicated sometimes, 17.7% indicated half the time, 24.2% indicated frequently and 26.9% indicated almost always. The mean score of the responses was 3.36 with a standard deviation of 1.35 suggesting that a majority of the students were undecided on this question.

On the statement, I make a point of looking at most of the suggested readings that go with the lessons, 7.6% of the respondents said that it was rare of them to look at the suggested readings, 12.2% indicated sometimes it was true of them, 11.7% said it was true half of the time, 32.1% indicated frequently and 36.4% of the pupils indicated always. The mean score was 3.77 with a standard deviation of 1.27 implying that most of the pupils frequently make a point of looking for most of the suggested readings.

The study also explored the descriptive statistics of the responses on the surface approach strategy and the results are presented in Table 4.30.

Table 4.30

Description of the Responses on Surface Learning Strategies

	1	2	3	4	5	*M*	*SD*
3. My aim is to pass the course while doing as little work as possible.	17.1%	16.3%	14.7%	12.8%	39.1%	3.40	1.54
4. I only study seriously what's given out in class or in the course outlines.	28.5%	19.6%	19.3%	15.2%	17.4%	2.73	1.46
7. I do not find my studies very interesting so I keep my work to the minimum.	47.8%	11.4%	13.9%	16.6%	10.3%	2.30	1.46
8. I learn some things by rote, going over and over them until I know them by heart even if I do not understand them.	35.9%	27.4%	12.2%	14.4%	10.1%	2.35	1.36
11. I find I can get by in most assessments by memorizing key sections rather than trying to understand them.	16.6%	21.2%	22.0%	16.3%	23.9%	3.10	1.41
12. I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra.	40.5%	16.6%	11.4%	17.9%	13.6%	2.48	1.50
15. I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with topics.	10.3%	12.5%	16.3%	14.7%	46.2%	3.74	1.41
16. I believe that teachers shouldn't expect students to spend significant amounts of time studying material everyone knows won't be examined.	38.9%	12.2%	14.7%	15.8%	18.5%	2.63	1.56
19. I see no point in learning material which is not likely to be in the examination.	13.3%	15.8%	13.3%	16%	41.6%	3.57	1.48

20. I find the best way to pass examinations is to try to remember answers to likely questions.	36.4%	20.4%	11.4%	13.9%	17.9%	2.57	1.53

Note. *M* = mean; *SD* = Standard deviation; 1= This item is never or only rarely true of me, 2 = This item is sometimes true of me *3* = This item is true of me about half the time, 4 = This item is frequently true of me, 5 = This item is always or almost always true of me.

On the statement my aim is to pass the course while doing as little work as possible, 17.1% of the respondents said that it was rare of them to aim to pass the course having done as little work as possible, 16.3% indicated sometimes, 14.7% stated half of the time, 12.8% said it was frequently true of them and 39.1% of the pupils indicated always true. The mean score was 3.40 with a standard deviation of 1.54 showing that most of the pupils believed that half of the time that they could pass the subject while doing as little work as possible.

Asked whether they studied seriously what they were given in class, 28.5% of the pupils indicated rarely, 19.6% indicated rarely, 19.3% stated sometimes, 15.2% indicated half of the time and 17.4% indicated frequently (*M* = 2.73; *SD* = 1.46). Concerning the statement that I do not find my studies very interesting so I keep my work to the minimum, 47.8% of the respondents said that it was rare of them, 11.4% indicated sometimes was true of them, 13.9% indicated it was true half of the time, 16.6% said it was frequently true of them and 10.3% of the pupils indicated always. The mean score was 2.30 with a standard deviation of 1.46 showing that sometimes the pupils did not find their studies interesting thus they kept their work to the minimum.

Concerning using rote learning until they understand concepts, 35.9% of the respondents indicated that this was rarely true, 27.4% indicated sometimes true, 12.2% stated that it was true half of the time and 14.4% while 10.1% indicated that

this was always true. The mean score was 2.35 with a standard deviation of 1.46 implying that most of the pupils sometimes used rote learning in their studies. On memorizing key sections rather than trying to understand them, 16.6% of the respondents said that it was rare of them, 21.2% indicated sometimes was true of them while 22% indicated it was true to them half of the time whereas 16.3% said it was frequently true of them and 23.9% of the pupils indicated always true for them. The mean score was 3.10 with a standard deviation of 1.41 showing that most of the pupils sometimes like memorizing the content.

About the statement, I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra, 40.5% of the respondents said that it was rare of them, 16.6% indicated sometimes was true of them while for 11.4% indicated it was true half of the time whereas 17.9% said it was frequently true of them and 13.6% of the pupils indicated always true for them. The mean score was 2.48 with a standard deviation of 1.50 showing that most of the pupils rarely restricted themselves from studying specifically for what is set deeming it unnecessary.

Concerning the statement that studying in depth is not helpful, 10.3% of the pupils indicated never, 12.5% said sometimes, 16.3% indicated half of the time, 14.7% indicated frequently true while 46.2% indicated almost always. The mean score was 3.74 with a standard deviation of 1.41 suggesting that a majority of the pupils considered studying in depth as a waste of time. When asked whether teachers should not expect students to spend significant amount of time studying what cannot be examined, 38.9% of the pupils indicated never, 12.2% indicated sometimes true, 14.7% said it was true half the time, 15.8% indicated frequently true while 18.5% indicated always. The mean score was 2.63 (SD = 1.56) which indicates that

sometimes the pupils believed that it was unnecessary to study what cannot be examined.

On enquiry about the statement, I see no point in learning material which is not likely to be in the examination, 13.3% of the respondents said that it was rare of them, 15.8% indicated sometimes was true of them while for 13.3% it was true to half of the time whereas 16% said it was frequently true of them and 41.6% of the pupils indicated always true for them. The mean score was 3.57 with a standard deviation of 1.48 showing that most of the pupils saw no point in learning material that was not likely to be in the examination. On whether the best way to pass examinations is to try to remember answers to likely questions, 36.4% of the pupils indicated never, 20.4% said sometimes, 11.4% indicated half of the time, 13.9% indicated frequently while 17.9% indicated always. The mean score was 2.57 with the standard deviation of 1.53. The study also looked at the distribution of learning strategies among pupils. The results are presented in Table 4.31.

Table 4.31

Distribution of Learning Strategies Among the Pupils

Learning Strategy	*f*	%
Equal	12	3.3
Deep	283	76.9
Surface	73	19.8
Total	368	100.0

Note. *f* = frequency

As per the results in Table 4.31, pupils who were not categorized into either deep or surface learning orientation were 12 (3.3%). Majority of the pupils representing 76.9% used deep approach to learning while 19.8% of the pupils used surface approach to learning. Further analysis was conducted to examine the descriptives of the surface and deep approach to learning and the results are given in Table 4.32.

Table 4.32

Descriptive Statistics of Learning Strategies

	n	Range	Min	Max	*M*	*SD*	*Sk*	*Kur*
DLS	283	19.00	19.00	38.00	28.92	4.36	-0.06	0.56
SLS	73	20.00	16.00	36.00	25.88	3.95	0.08	- 0.12

Note. *n* = Sample size; DLS = Deep learning strategy; SLS = Surface learning strategy; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The range of the scores of pupils with deep approach orientation was 19. The minimum score was 19 while the maximum score was 38. The mean score was 28.92 (*SD* = 4.36). Their counterparts with surface approach orientation had a range of 20.00 with a mean of 25.88 (*SD* = 3.95). The minimum score of students with surface approach was 16 while the maximum score was 36. The researcher went further to examine the description of learning strategies by sex of the pupils. The results are as shown in Table 4.33.

Table 4.33

Descriptive Statistics of Learning Strategies by Sex

	Sex	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Deep	Boy	153	16	36	20	26.08	4.21	0.13	-0.29
	Girl	130	17	36	19	25.65	3.63	-0.08	0.04
Surface	Boy	34	19	37	18	29.62	4.69	-0.37	-0.83
	Girl	39	21	38	17	28.31	4.02	0.18	-0.27

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

On deep approach to learning, the range of the scores for boys was 20 with mean score of 26.08(*SD* = 4.21). For the girls the range was 19 with a mean score of 25.65(*SD* = 3.63). The boys with surface approach strategy had a range of 18 and mean score of 29.62 (*SD* = 4.69). The girls had a range of 17 and a mean score of 28.31(*SD* = 4.02). Further, the descriptive statistics for learning strategies by school type was conducted and the outcome is given in Table 4.34.

Table 4.34

Learning Strategies Descriptive Statistics by School Type

	School Type	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Deep	Day	219	16	36	20	25.27	3.84	0.14	0.09
	Boarding	64	20	36	16	27.95	3.63	-0.07	-0.37
Surface	Day	66	21	37	16	28.79	4.23	0.05	-1.01
	Boarding	7	19	38	19	30.14	5.70	-1.11	0.12

Note. n = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

Day scholars with deep learning strategies had the lowest mean of 25.27 (*SD* = 3.84). The range of the scores was 20 (min=16, max=36). The pupils from boarding schools scored a higher mean of 27.95 (*SD* = 3.63). The range of the scores was 16 (min=20 max=36). The learners from day schools with surface learning strategies had mean of 28.79 (*SD*=4.23). The range of the scores was 16 (min=21; max=37). Their boarding school counterparts scored a higher mean of 30.14 (*SD* = 5.70) with a range of 19 (min = 19; max = 38). The researcher also examined the deep learning strategies by SES as shown in Table 4.35.

Table 4.35

Learning Strategies Descriptive Statistics by SES

	SES	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Deep	Low	18.00	35.00	17.00	25.34	3.47	0.31	0.22
	Middle	16.00	36.00	20.00	26.08	4.15	-0.04	-0.15
	High	20.00	33.00	13.00	27.40	4.20	-0.13	1.10

Note. SES = Socio-eeconomic Status; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The pupils from low SES had lowest mean score of 25.34 (*SD* = 3.47). Those from middle SES followed with a mean of 26.08 (*SD* = 4.15) while those from high SES had the highest mean of 27.40 (*SD* = 4.20). The range of the scores for pupils from low SES was 17 with 18 as the minimum score and 35 as the maximum score. For pupils from middle SES the range was 20 (min = 16; max = 36). The range of the

scores for pupils from high SES was 13 with minimum score being 20 and maximum score being 33.

The results of descriptives of surface learning strategies are presented in Table 4.36.

Table 4.36

Descriptives of Surface Learning Strategies Scores Based on SES

	SES	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Surface	Low	21.00	35.00	14.00	28.83	3.76	-0.28	-0.42
	Middle	19.00	38.00	19.00	28.91	4.80	0.00	-0.99
	High	28.00	32.00	4.00	29.67	2.08	1.29	0.00

Note. SES = Socio-economic Status; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

Pupils from low SES had the lowest mean score of 28.83 *SD*=3.76), those from middle SES followed with a mean score of 28.91 (*SD* = 4.80) while those from high SES scored the highest mean score of 29.67(*SD* = 2.08). The minimum score for pupils from low SES was 21 while the maximum score was 35 (range = 14). For pupils from middle SES the minimum score was 19 while the maximum score was 38 with a range of 19. The minimum score for pupils from high SES was 28 while the maximum score was 32 with a range of 4.

4.4.2 Hypothesis Testing

The second objective of this study was to investigate the relationship between learning strategies (deep, surface) and academic achievement. The following hypothesis was advanced;

There is no significant relationship between learning strategies (deep, surface) and academic achievement. Statistical test: Pearson's product moment correlation coefficient.

The hypothesis was tested using Pearson correlation and the results are presented in Table 4.37.

Table 4.37

Correlation Between Learning Strategies and Academic Achievement

		Academic Achievement
Deep Learning Strategies	Pearson Correlation	.40**
	Sig. (2-tailed)	.00
	n	283
Surface Learning Strategies	Pearson Correlation	.11
	Sig. (2-tailed)	.38
	n	73

Note. n = Sample size.

As shown in Table 4.37, there was a moderate, positive and significant correlation between deep strategies to learning and academic achievement, r (281) = .40, $p < .05$. Therefore, the null hypothesis that there is no significant relationship between deep learning strategies and academic achievement was rejected. The results imply that increase in the use of deep learning strategies leads to increase in academic achievement and vice versa. However, the study established that there was no statistically significant relationship between surface learning strategies and academic achievement, r (71) = .11, $p > .05$.

The study further examined if there were mean differences in academic achievement of pupils who used deep learning, surface learning and equal learning strategies. Table 4.38 presents learning strategies and academic achievement mean scores.

Table 4.38

Learning Strategies and Academic Achievement Mean Scores

Learning Strategy	*n*	Academic Achievement Mean Score	*SD*
Deep Learning Strat.	283	51.80	9.67
Surface Learning Strat.	73	44.06	8.97
Equal	12	42.16	6.75

Note. n = Sample size; SD= Standard deviation.

From the results shown in Table 4.38, pupils who used deep learning strategies scored a mean of 51.80 in academic achievement while those who used surface learning strategies scored a mean of 44.06. The ones who used the strategies equally scored a mean of 42.16. The pupils who used deep learning strategies had the highest mean score while those who had equal scores in the two sub scales had the lowest mean score in academic achievement.

To establish if the mean differences were statistically significant, ANOVA was conducted and the results were as shown in Table 4.39.

Table 4.39

ANOVA for Learning Strategies and Mean Differences in Academic Achievement

	SS	*df*	*MS*	*F*	Sig.
Between Groups	4228.04	2	2114.02	23.61	.00
Within Groups	32675.59	365	89.52		
Total	36903.63	367			

Note. SS = Sum of squares; *MS* = Mean squares

The results in Table 4.39 showed that the mean differences in academic achievement based on learning strategy were statistically significant, F (2, 365) = 23.61, $p < .05$. The results suggest that pupils who used deep learning strategies performed better than those who used surface learning strategies.

Further analysis was conducted using Tukey HSD to establish if the mean difference in academic achievement between any two learning strategies was statistically significant and the results are presented in Table 4.40.

Table 4.40

Tukey HSD for Learning Strategies and Academic Achievement

(I) LS categories	(J) LS categories	Mean Difference (I-J)	*SE*	Sig.
Equal	DLS	-9.64*	2.78	.00
	SLS	-1.90	2.94	.79
DLS	Equal	9.64*	2.78	.00
	SLS	7.73*	1.24	.00
SLS	Equal	1.90	2.94	.79
	DLS	-7.73*	1.24	.00

Note. DLS = Deep learning strategies; SLS = Surface learning strategies; *SE* = Standard error.

Mean difference in academic achievement among pupils with equal and SLS was not statistically significant. The rest were statistically significant (equal and DLS; DLS and SLS).

4.4.3 Qualitative Results on Learning Strategies

The series of activities and steps taken by the pupils to facilitate learning is a general definition of learning strategies provided by Shi (2017). The teachers are at the center of ensuring that the pupils use the right learning strategy by carefully choosing the right teaching methodology. They should focus on teaching learners ways of understanding learning strategies to facilitate their own initiated learning. The code book for learning strategies is presented in Table 4.41.

Table 4. 41

Codebook for Learning Strategies

Parameters	Topic
Coded as	Feelings when doing personal studies
Description	Responses on whether pupils get feeling of deep personal satisfaction when doing their studies
Inclusion criteria	Indication that pupils get deep level of feelings when doing their studies
Exclusion criteria	No responses or pupils getting no deep feelings/satisfaction levels when studying personal studies
Typical exemplars	When asked to state their personal feelings when doing their studies, majority indicated that they get deep personal feelings
Coded as	Attention or pupil doing enough work on a particular topic before making decision, becoming satisfied or forming conclusion
Description	Indication of whether pupil did enough or focused on a particular topic before being satisfied, making a decision or conclusion on topic
Inclusion criteria	Indication of pupil doing enough or to the satisfaction level or focused on a topic
Exclusion criteria	No response or indication that pupil did not do enough on the topic or focused to the satisfaction level
Typical exemplars	When asked whether they always focused on a topic so that they can form their own conclusion, the pupils indicated that they focused on any given topic before making a conclusion on their satisfaction level
Coded as	Satisfaction gained when they pass examination after doing little work as possible
Description	Pupil response on whether they gain satisfaction if they pass examination having done little
Inclusion criteria	Indication that pupil gained or obtained some satisfaction level if passed examination having done little work.
Exclusion criteria	Pupils giving no response or indication of low satisfaction if pass having done little work
Typical exemplars	When asked whether they were satisfied if they passed examination while having done little work as possible, majority indicated that they were satisfied
Coded as	Studying seriously or attention given to the teachers' assignments or course outlines given in class
Description	Responses on how the pupils took their assignments and course outline given by their teachers
Inclusion criteria	Indication that the pupils paid attention or took the assignments or course outlines given in class seriously
Exclusion criteria	Pupils giving no response or indication that the pupils paid nil or little attention on the assignments or course outlines given in class

Parameters	Topic
Typical exemplars	When asked whether they normally studied seriously what the teachers gave out in class or the course outlines provided, majority indicated that they studied seriously what the teachers gave out in class or the course outlines provided
Coded as	Feelings and forming interest on any topic once they get into it
Description	Pupils' feelings on a particular topic once they get a better understanding of it
Inclusion criteria	Indication that the pupil develops interest or not once they make a decision to understand the new topic better
Exclusion criteria	Pupil indicating no response or responses not related to the question
Typical exemplars	When asked whether any topic can be highly interesting once they get into it, majority indicated that the topic can be interesting when they decide to get on it
Coded as	Development of interest on a new topic
Description	The pupil response on whether they enjoy most new topics and if they went an extra mile to find out more, even if it means obtaining more information on them
Inclusion criteria	Indication that they enjoy most new topics and look for more information on a new topic
Exclusion criteria	No response or indication that they don't enjoy most new topics and don't look for more information on a new topic
Typical exemplars	When asked if they enjoy new topics and often get an extra time trying to obtain more information on them, most affirmed.
Coded as	Memorizing versus understanding of the topics and subtopics
Description	Responses on whether pupil rely on memorizing key sections rather than trying to understand them
Inclusion criteria	Responses that indicate that the pupil sought understanding of the topics taught
Exclusion criteria	No responses or responses that indicate the pupil relied on memorizing
Typical exemplars	When asked whether they relied on memorizing key section rather than trying to understand them, the pupils provided mixed reactions
Coded as	Views on doing extra work to gain more knowledge
Description	Responses on whether pupil restrict self to what is specifically set by the teacher or do extra work to get a better understanding of the topic/subtopic
Inclusion criteria	Responses on restriction to what the teacher taught and feelings about extra work
Exclusion criteria	Views that it is unnecessary to do extra work or no response
Typical exemplars	When asked whether their studies were generally restricted to what was specifically set by the teacher rather than doing extra work, the pupils provided mixed reactions

Parameters	Topic
Coded as	Passing examination and studying in depth
Description	If giving up is an option when faced with difficult situation
Inclusion criteria	Responses related to passing examination and studying in depth
Exclusion criteria	No response/Indication of giving up when faced with difficult situation.
Typical exemplars	When asked if passing examination was more important than studying in depth, most agreed
Coded as	Teachers' expectations on pupils studying topics/materials/articles that won't be examined
Description	Responses on teachers' expectations on whether pupils should spend significant amount of time studying materials that are non-examinable
Inclusion criteria	Responses related to teachers expecting that the pupils should spend time studying non-examinable topics/materials/articles
Exclusion criteria	Views that learners should not expect learners to spend significant time to study non-examinable materials/topics or no response
Typical exemplars	When asked if the teachers should not expect learners to spend significant amount studying materials that won't be examined, the pupils provided mixed responses

In this study, the researcher identified three types of learning strategies adopted by the pupils who were interviewed. The three include equal, deep approach and surface approach. Table 4.42 indicates the results.

Table 4.42

Distribution of Learning Strategies Among the Pupils

Learning Strategy	*f*	*%*
Equal	0	0
DLS	24	60
SLS	16	40
Total	40	100.0

Note. DLS = Deep learning strategies; SLS = Surface learning strategies.

From the Table 4.42 above, the majority (60%) of the pupils used deep approach as their learning strategy while the minority (40%) used surface approach as their learning strategy. This implies that majority of the pupils, as their learning strategy, employed deep approach.

On the learning strategies, the respondents were asked to give their opinions on various statements. When asked whether they got the feeling of deep personal satisfaction when doing their studies, majority of the respondents agreed to this statement while a few stated otherwise. On whether they focused on a topic so that they form their own conclusions before being satisfied, most of the respondents agreed with this statement. When asked whether they were satisfied if they passed the examination while having done as little work as possible, majority of the respondents indicated that they were satisfied while a few indicated that they were not satisfied.

Regarding whether they normally studied what teachers gave out in class, majority of the respondents said that they did while a few indicated that they did not study seriously what the teacher gave out in class. On whether any topic can be highly interesting once they get into it, most of the respondents agreed to this statement. When asked whether they enjoyed most new topics and often spent extra time trying to obtain more information on them, majority of the respondents agreed to this statement while a few were of a contrary opinion.

The researcher further asked the respondents whether they relied on memorizing key sections rather than trying to understand them and majority of the respondents agreed that they relied on memorizing key sections rather than trying to understand them. On whether their studies were generally restricted to what is specifically set by the teacher as they thought it unnecessary to do extra work, majority of the respondents agreed to this statement while a few respondents indicated that they go an extra mile of reading outside what has been taught by the teacher. The respondents were further asked whether passing examination was more important than studying in-depth, majority of

the respondents indicated that passing examination was a priority and did not see the point of struggling to study in-depth.

When further asked to give their opinions on whether the teachers should not expect learners to spend significant amount studying materials that won't be examined, most of the respondents concurred with this statement while a few of the respondents were of contrary opinion that the teachers should expect learners to spend significant amount of time and resources studying things that will not be examined. In conclusion, based on the results obtained majority of the respondents adopted deep approach strategy and a few were more inclined to surface approach strategy.

The responses of selected pupils who were interviewed are presented.

Sally: When asked if she felt a deep personal satisfaction when doing her studies, she agreed. The respondent said that while studying, she focused on a topic so that she may form her own conclusion. Sally indicated that she was not satisfied if she passed her exam while having done very little. She did study seriously what the teacher gave out in class and also often created extra time to try and obtain information on new topics. The girl tried to understand the learning content rather than trying to memorize it. She worked as required by the teacher and considered any extra work as necessary. She viewed passing of examinations and studying in depth as priorities. It was also revealed that she did not believe that teachers should not expect learners to spend significant amount of time and resources on things that will not be examined. The results indicated that this pupil was more inclined to deep learning strategies.

Nicholas: indicated that he feels deep personal satisfaction when he does his studies. He also said that focuses on a topic to form his own conclusion before he gets satisfied

with it. The respondent indicated that he is satisfied if he passes exams after having put very little effort but he is very serious and studies what the teachers give out in class. He also said that any topic can be interesting when he decides to get on it and can get into it to gain more knowledge. Nicholas does not rely on memorizing key concepts alone and he also does not think reading beyond what has been set is a burden. He believes more in in-depth studying than to just pass exams. His opinion is that teachers should not expect learners to spend significant amount of time studying things which will not be examined. Based on the description, the respondent employs deep learning strategies to some extent.

Kevin: stated that he experiences deep personal satisfaction when doing his studies and he always focuses on a topic so as to form his own conclusions for satisfaction. The respondent also said he gets satisfied if he passes exams while having done minimal work though he still seriously studies what the teacher gives out in class. Any topic can become interesting to him once he decides to get serious on it and can go to the extent of using extra time to obtain more information on them. He disagreed that he relies on memorizing key concepts rather than understanding them and he can therefore go to the extent of reading outside what is provided by the teacher. Kevin indicated that teachers should expect learners to spend significant time and resources studying things that will not be examined. Kevin largely employs deep learning strategies of studying. Owing to the orientation towards deep learning strategies and in line with the quantitative results, he performed well in academics.

Joan: The participant indicated that she gets a deep feeling of satisfaction when doing her studies and will always focus on a topic in order to form her own decisions. She also indicated that she gets personal satisfaction if she passes exams which she has

done little work on. Joan studies seriously what teachers give in class and she as well finds the topics to be interesting. She relied more on memorizing key concepts instead of understanding the concepts. She stated that her studies are restricted to what the teacher gives to avoid unnecessary extra work. Passing of exams is more important to her than deeper understanding. Joan concurred that teachers should lower their expectations of a learner to study things that will not come in exams. From the results, Joan largely uses surface approach learning strategy. The findings on academic achievement showed that this respondent did not perform well in academics.

Mary - The respondent was required to respond to a number of statements to establish the preferred learning strategies. The student indicated that she gets a feeling of deep personal satisfaction when doing studies. The respondent indicated that she always focused on a topic so that she can form her own conclusion. She was not satisfied if she passed an examination while having done very little work. She indicated that she normally studied seriously what teachers gave out in class. It was also established that the girl was interested in studying any topic once she got into it. She as well enjoyed most new topics and often spent extra time trying to obtain more information on them. She said her studies were not limited or generally restricted to what the teacher specifically set for the exam. For her, passing examination is not more important than studying in depth. The respondent said that teachers should expect learners to spend significant amount studying materials that won't be examined. The responses provided indicate that the pupil was more inclined to the use of deep learning strategies.

4.4.4 Major Themes Identified

4.4.4.1 Deep Learning Strategies. The researcher arrived at a conclusion that most of the respondents adopted deep learning strategies so as to achieve their dream of performing well in academics. This is indicated by majority of the respondents who indicated that they got deep personal satisfaction when doing their studies. Majority focused on the topics before making their own conclusions which brought about personal satisfaction. The respondents who indicated that they study seriously what the teacher gave out in class further revealed they used deep leaning strategies. Most of them were of the opinion that they went an extra mile by getting time to try to obtain more information on new topics.

4.4.4.2 Surface Learning Strategies. The other theme that was notable from the qualitative data was surface learning strategies amongst the pupils. Some of the pupils' opinions were indicative of the unwillingness to do much more than expected by the teachers in order to pass their examinations. The respondents, majority of whom were girls, indicated that they were satisfied if they passed the examination while having done little work as possible. The implication is that they were unwilling to study deeper to understand concepts. Furthermore, majority of the girls relied on memorizing key concepts rather than making an effort trying to understand them. Some of the respondents were of the opinion that it was not necessary to go beyond what the teacher taught in class. The surface learning orientation was further affirmed when the majority of the respondents indicated that the teacher should not expect learners to spend significant amount studying materials that will not be examined.

In conclusion, the findings revealed that pupils who were more inclined to deep learning strategies exhibited learning behaviour geared towards understanding the

learning content. Such pupils dedicated more time to their studies and were determined to succeed, character traits that result in better academic achievement. On the other hand, pupils who were more inclined to surface approach to learning strategy put very little effort in their studies and were not willing to go beyond what they are taught in class. The findings suggest that use of deep learning strategies are associated with better performance in academics as demonstrated by quantitative results.

4.4.4 Discussion of the Results

The current study found that there was a significant relationship between deep learning strategies and academic achievement. However, surface learning strategies were not significantly related to academic achievement. The pupils who used deep learning strategies had the highest mean score while those who had equal scores in the two sub scales had the lowest mean score in academic achievement. The results showed that the mean differences in academic achievement based on learning strategies were statistically significant, F (2, 365) = 23.61, $p < .05$. The results were in line with a number of studies carried out in the past.

A study by Ylänne et al. (2018) that investigated surface approach in academic settings, as well as the reasons that underlie variances in its application found similar results. The 61 students involved in the research were enrolled in different faculties. From each program, one mandatory course was chosen. There were five different surface approach profiles, ranging from a full surface approach to a deep approach with rote memorization. Despite having equal high scores on the surface approach scale, the students used surface-level processes in different ways. However, the

different surface approach processes did not have a significant impact on academic achievement.

Tan et al. (2021) posted similar results while investigating the relationship between learning strategies and academic achievement: a comparison between accreditation of prior experiential learning (APEL) and regular entry undergraduates. The correlation analysis conducted indicated that meta-cognitive self-regulation, time and study environment management, effort regulation and help seeking are positively correlated with academic achievement. The students who used learning strategies aimed to enhance content mastery performed better than students who used strategies that focused on getting favorable judgment.

In Malaysia, Sabri et al. (2020) found similar results in a study conducted to investigate how learning strategies influenced academic achievement of tertiary students of business and accounting courses. The results showed that effort regulation strategy positively correlated with the student's academic achievement. Neroni et al. (2019) also investigated the influence of learning strategies on academic achievement of students undertaking distant learning in Netherlands. The study results revealed that use of complex cognitive strategy and management of time and effort positively predicted students' academic achievement.

The results are also consistent with the findings of Ludigo et al. (2019) in a study conducted to find out the influence of pedagogical strategies on academic achievement of public university students. The study investigated student-centred, teacher-student, and teacher-centred pedagogical strategies. The results showed that only the student- centred strategy showed a positive correlation with students'

academic achievement. This showed the importance of student-centred strategy for students' academic achievement.

In Tanzania Mwakapina (2020) found similar results. The study investigated the efficacy of strategies and methods used in communication skills course teaching and learning. The study also investigated the appropriateness of the methods and strategies used in upgrading tertiary students' communications skills. Study results showed that students used various learning strategies out of which listening to English conversations, group discussions, and web browsing were perceived to be the most suitable.

Similar results were also found by Stephen et al. (2018) while investigating the relationship between learning strategies and physics performance in public secondary schools in Nakuru County. Their findings revealed that self-directed learning strategies had positive impact on academic achievement. The researcher concluded that the students who adopted self-directed strategies performed better than those who occasionally used them. The sample study for this research was 210 students. The results demonstrated the importance of learning strategies in achievement. This shows that regardless of the measure of achievement in school, deep approach to learning play a key role in academic achievement.

In Kenya, not much attention has been given to deep and surface learning strategies and academic achievement. In a related study, Mutua and Oyoo (2020) found similar results in their study in Nairobi City. Even though the study did not specifically focus on surface and deep learning strategies, the results demonstrated that learning strategies were significantly related to academic achievement. The current study

established that a significant number of pupils employed deep learning strategies in learning but based on academic achievement of the pupils, this learning strategies was not effectively used. Therefore, the below average academic achievement experienced in the area of study may be associated with this factor.

4.5 Sex Differences in Pupil's Dispositional Optimism and Learning Strategies

In the third objective, the study sought to establish if there are sex differences in pupil's learning strategies and dispositional optimism. This section presents the descriptive statistics of learning strategies and dispositional optimism based on the sex of the pupil, hypothesis testing and discussion of the results.

4.5.1 Descriptive Statistics of Dispositional Optimism and Learning Strategies Based on Sex

The study also explored the descriptive statistics of dispositional optimism based on the sex of the students and the results were as shown in Table 4.43.

Table 4.43

Description of Dispositional Optimism by Sex

Sex	*n*	*M*	*SD*
Boy	195	22.95	3.53
Girl	173	22.61	3.31

Note. *n* = Sample size; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The results showed that the boys had a higher mean score of 22.95 (*SD* = 3.53) than the girls who scored a mean of 22.61 (*SD* = 3.31).

Table 4.44 shows the descriptive statistics of learning strategies by sex.

Table 4.44

Description of Learning Strategies by Sex

	Sex	*n*	*M*	*SD*
Deep Learning Strategies	Boy	153	26.08	4.21
	Girl	130	25.65	3.63
Surface Learning Strategies	Boy	34	29.62	4.69
	Girl	39	28.31	4.02

Note. *n* = Sample size; *M* = Mean; *SD* = Standard deviation.

In the deep learning strategies, the boys scored a mean of 26.08 (*SD* = 4.21) while the girls scored a mean of 25.65 (*SD* = 3.63). The boys scored a higher mean in deep learning strategies than the girls. In the surface learning strategies, the boys scored a mean of 29.62, (*SD* = 4.69) while the girls scored a mean of 28.31 (*SD* = 4.02). In this strategy, also the boys scored a higher mean than the girls.

4.5.2 Hypothesis Testing

The researcher hypothesized that there exists no significant sex differences in pupils' learning strategies and dispositional optimism.

On pupil's learning strategies, the following supplementary hypotheses were tested;

i. There exists no significant sex differences in deep learning strategies

ii. There exists no significant sex differences in surface learning strategies

The hypotheses were tested using independent samples t-test and the results are presented in Table 4.45.

Table 4.45

Independent Samples T test for Sex Differences in Deep Learning Strategies

	F	Sig	*t*	*df*	Sig. (2-tailed)	Mean Difference	*SED*
Equal variances assumed	2.47	.12	.92	281	.36	.43	.47
Equal variances not assumed			.93	280.95	.35	.43	.47

Note. SED =Standard error difference.

The mean differences in deep approach to learning among boys and girls were not statistically significant, t (281) = 0.92, p = .36. Therefore, the null hypothesis was retained. The results suggest that boys and girls did not differ significantly in their use of deep learning strategy.

Regarding the sex differences in surface approach to learning, the results are presented in Table 4.46.

Table 4.46

Independent Samples T test for Sex Differences in Surface Learning Strategies

	F	Sig.	*t*	*df*	Sig. (2-tailed)	Mean Difference	*SED*
Equal variances assumed	2.23	.14	1.29	71	.20	1.31	1.02
Equal variances not assumed			1.27	65.48	.21	1.31	1.03

Note. SED = Standard error difference.

The mean differences in surface learning strategies among boys and girls were not statistically significant, t (71) = 1.29, p = .20. Based on the results, the null hypothesis was retained. Therefore, the way the boys and girls used surface learning strategies was not significantly different.

Regarding dispositional optimism, the following supplementary hypothesis were tested;

There exists no significant sex differences in dispositional optimism of the pupils

The hypothesis was tested using independent samples t-test and the results are presented in Table 4.47.

Table 4.47

Independent Samples T test for Sex Differences in Dispositional Optimism

	F	Sig.	*t*	*df*	Sig. (2-tailed)	Mean Difference	*SED*
Equal variances assumed	1.33	.25	0.95	366	.34	0.34	0.36
Equal variances not assumed			0.96	364.79	.34	0.34	0.36

Note. *SED* = Standard error difference.

The mean differences in dispositional optimism between boys and girls were not statistically significant, t (366) = 0.95, p = .34. This led to the retention of the null hypothesis implying that boys and girls did not differ significantly in their dispositional optimism.

4.5.3 Discussion of the Results

The results revealed that there were no significant sex differences in both surface and deep approach strategies of learning and dispositional optimism. The mean differences in deep approach to learning among boys and girls were not statistically significant, t (281) = 0.92, p = .36. Therefore, the null hypothesis was retained. The results suggest that boys and girls did not differ significantly in their use of deep learning strategy. The mean differences in dispositional optimism between boys and girls were not statistically significant, t (366) = 0.95, p = .34.

Studies done previously reveals mixed results on the sex differences in pupil's learning strategies and dispositional optimism. In a study conducted in Pakistan, Akram and Suneel (2023) examined the correlation between optimism and academic achievement among university students. The results showed that males significantly differed from females in terms of academic achievement, but no significant difference was noted on optimism. The results were similar to the findings of the current study. In Indonesia, Prastuti (2020) found contradictory results. The study investigated students' optimism while undertaking online learning during the COVID-19 pandemic. The study results showed that female students had higher levels of optimism than male students.

Contradictory results were also reported in a study conducted in Uganda by Kwarikunda et al. (2022). The study investigated how learners' cognitive and metacognitive learning strategies related with learners' intrinsic motivation, sex, and perceived autonomy support. The study identified four learner profiles namely struggling user, competent strategy user, deep level learner and surface-level learner profiles. The results revealed sex differences in favor of girls in respect to organization and elaboration strategies in learning Physics. There were also significant differences noted in sex, perceived autonomy support and intrinsic motivation with respect to profile membership.

Mukingambeho et al. (2021) conducted a study in Rwanda to investigate the variability of study skills among Rwandan undergraduate students and reported contradictory results. The study sample comprised of students drawn from National Police College who were undertaking different programs at the University of Rwanda. The results indicated that study skills were influenced by several features including

sex. Student sex specifically influenced test preparation and test taking, with male students recording higher than female students in both cases.

The results of the current study support the findings of Bacho (2022). The study investigated the influence of Jigsaw cooperative learning strategy on mathematics achievement among secondary school students in Laikipia County. The results showed no sex differences in students' math achievement when the students were instructed using the Jigsaw Cooperative Learning Strategy. This was consistent with the findings of the current study. Similar results had been obtained by Mutua and Oyoo (2020). The researchers reported no significant sex differences between boys and girls on the learning strategies adopted and academic achievement. The researchers attributed these results to the work done by UNESCO in promoting sex equity in Kenya, which was gaining momentum and yielding positive results.

4.6 Differences in Pupil's Dispositional Optimism and Learning Strategies based on Socio-Economic Status

In the fourth objective, the study aimed to investigate the differences in pupil's learning strategies and dispositional optimism based on socio-economic status. This section presents the descriptive statistics of dispositional optimism scores based on SES, hypothesis testing and discussion of the results.

4.6.1 Descriptive Statistics of Dispositional Optimism and Learning Strategies *by SES*

SES was grouped into three categories namely; low, middle and high. Table 4.48 shows the descriptive statistics of dispositional optimism and SES.

Table 4.48

Descriptive Statistics of Dispositional Optimism by SES

SES	*n*	*M*	*SD*
Low	117	22.05	3.43
Middle	236	23.14	3.36
High	15	23.13	3.83

Note. *n* = Sample size; *M* = Mean; *SD* = Standard deviation.

The results in Table 4.48 show that pupils from the low SES scored a mean of 22.05 (*SD* = 3.43), those from middle SES scored a mean of 23.14 (*SD* = 3.36) and those from high SES scored a mean of 23.13 (*SD* = 3.83). The results showed that pupils from middle SES had the highest mean score in dispositional optimism while those from low SES had the lowest mean score in dispositional optimism.

The study also examined learning strategies based on SES and the results are presented in Table 4.49.

Table 4.49

Descriptive Statistics of Deep Learning Strategies by SES

	SES	*M*	*SD*
DLS	Low	25.34	3.47
	Middle	26.08	4.15
	High	27.40	4.20

Note. DLS = Deep learning strategies; SES = Socio-economic status; *M* = Mean; *SD* = Standard deviation.

In the classification of deep learning strategies, the pupils from low SES scored a mean of 25.34 with a standard deviation of 3.47, those from middle SES scored a mean of 26.08 (*SD* = 4.15) and the pupils from high SES scored a mean of 27.40 (*SD* = 4.20). This shows that the pupils from the high SES embraced more the deep learning strategies. Pupils from low SES had the lowest mean score in deep approach strategy.

The descriptive statistics of surface learning strategies by SES are presented in Table 4.50.

Table 4.50

Descriptive Statistics of Surface Learning Strategies by SES

	SES	*M*	*SD*
SLS	Low	28.83	3.76
	Middle	28.91	4.80
	High	29.67	2.08

Note. SLS = Surface learning strategies; SES = Socio-economic status; *M* = Mean; *SD* = Standard deviation

As shown in Table 4.50, pupils from low SES scored a mean of 28.83 (*SD* = 3.760) and those from middle SES scored a mean of 28.91 (*SD* = 28.91). The pupils from high SES scored a mean of 29.67 with a standard deviation. The pupils from low SES scored the lowest mean in surface learning strategies while those from high SES scored the highest mean.

4.6.2 Hypothesis Testing

The fourth objective of this research was to investigate if there were significant differences in pupil's dispositional optimism and learning strategies based on SES. To achieve this, the researcher put forward the following hypothesis.

H_{o4}: There exists no significant differences in pupils' learning strategies and dispositional optimism based on SES.

The hypothesis was tested using ANOVA and the results were as presented.

Table 4.51

ANOVA Results for Differences in Deep Learning Strategies and SES

	SS	*df*	*MS*	*F*	Sig
Between Groups	49.19	2	24.59	1.58	.21
Within Groups	4354.73	280	15.55		
Total	4403.92	282			

Note. SS = Sum of squares; *MS* = Mean squares

The study established that the differences in deep learning strategies based on SES were not statistically significant, F (2, 280) = 1.58, $p > .05$. Based on the results, the null hypothesis was retained. The results suggest that SES did not significantly influence deep learning strategies among primary school pupils.

The ANOVA results for differences in surface learning strategies and SES are presented in Table 4.52.

Table 4.52

ANOVA Results for Differences in Surface Learning Strategies and SES

	SS	*df*	*MS*	*F*	Sig.
Between Groups	1.85	2	.93	.04	.95
Within Groups	1369.65	70	19.56		
Total	1371.51	72			

Note. SS = Sum of squares; *MS* = Mean squares

The results indicate that the differences in surface approach strategy based on SES were not statistically significant, F (2, 70) = 0.04, $p > .05$. Therefore, the null hypothesis was retained. The results imply that SES did not have significant influence on the pupil's surface learning strategies.

The ANOVA results for differences in dispositional optimism based were as shown in Table 4.53.

Table 4.53

ANOVA for Differences in Dispositional Optimism and SES

	SS	*df*	*MS*	*F*	Sig.
Between Groups	94.49	2	47.25	4.09	.01
Within Groups	4219.81	365	11.56		
Total	4314.30	367			

Note. SS = Sum of squares; *MS* = Mean squares

As shown in Table 4.53, there were significant differences in pupil's dispositional optimism based on socio-economic status, F (2, 365) = 4.09, $p < .05$. Based on the results, the null hypothesis was rejected suggesting that SES had a significant influence on the pupil's dispositional optimism.

To establish how each of the mean scores in dispositional optimism differed based on SES, post hoc analysis was conducted using Tukey HSD and the results are presented in Table 4.54.

Table 4. 54

Tukey HSD for Dispositional Optimism and SES

(I) SES	(J) SES	Mean Difference (I-J)	SE	Sig.
Low SES	Middle SES	-1.08*	.38	.01
	High SES	-1.08	.93	.47
Middle SES	Low SES	1.08*	.38	.01
	High SES	.00	.91	1.00
High SES	Low SES	1.08	.93	.47
	Middle SES	-.00	.91	1.00

Note. SES = Socio-economic status; SE = Standard error

The mean difference in dispositional optimism between pupils from low SES and middle SES was statistically significant. The rest (low and high; middle and high) were not statistically significant.

4.6.3 Discussion of the Results

This study established that there were significant differences in pupil's dispositional optimism based on SES. However, the pupil's learning strategies did not differ significantly based on SES. The results imply that SES play a key role on how optimistic the learners are with regard to their academics. A study by Suna et al. (2020) conducted in Turkey evaluated the impact of socioeconomic status of parents and the type of school on academic achievement of the pupils. The longitudinal study examined data from two million students over a period of 10 years running through three national transition systems. Every of the three transition systems has its own examination at national level and the data was from students who sat for these exams and completed them. The mean scores of public schools and private schools were compared after controlling for the effect of socio economic levels of the students at the various schools. It was found out that most of the students in private schools were socioeconomically better and had significantly higher academic achievement in language, mathematics, and science tests compared to most of their counterparts in public schools. This was consistent with the results of the current study which showed that socio economic status of the parents of learners determines their dispositional optimism which affects the way the pupils perform in school.

A study by Nsirim-Worlu (2020) conducted in Nigeria also reported similar results. The research looked at social classes and learners' performance in academics. The population for this study comprised of learners from different social status classes who were obtained using purposive sampling method. The results of the study showed that academic achievement of the students was dependent on the social class of the family from which the students came from. Social class was found to have an effect on

academics because learners from lower social class had a limitation in resources to accomplish academic tasks. Therefore, SES may be influencing the learning behaviours of the pupils which in turn influence academic achievement of the pupils in Nakuru County.

Another study conducted by Njuguna (2021) on the effect of socio economic status on the academic achievement of pupils reported similar results. The study was conducted in public primary schools found within the County of Murang'a. The respondents comprised of pupils, teachers and deputy head teachers. Among the factors that were most considered were the level of education of the parents and the type of work the parents were doing for a living and to sustain their families. The research established that most of the pupils from low SES were unable to study at home because they lived in very small houses without enough space to carry out academic matters and they could as well not find enough lighting to study during the night. Because of abject poverty, some of the parents could not even manage to purchase some academic materials such as text books or even get access to the internet which is the current trend in learning. The parents who engage in laborious work hardly find enough time to attend school meetings in order to actively track their children's' acade23mic progress. Based on the results, in the Kenyan set up there is a high level of unemployment which makes it difficult for most of the parents/guardians to satisfactorily meet the academic needs of their children. This negatively affects the pupils' dispositional optimism and learning strategies to succeed in school which may result to poor academic achievement in the area of the study.

A study by Okore (2018) on how socio-economic factors affect secondary school students' performance in school reported contradictory results. This research was

done in Kibera slums within the city county of Nairobi. The findings showed that there was no significant impact of SES on academic achievement of the students. The study concluded that there was no significant influence of SES on academic achievement among the students in Kibera in Nairobi County. The contradictory findings may be attributed to the fact that learners from informal settlements may be regarding education as the only tool they can use to break the chains of poverty. As a result, the students from low SES become more resilient and determined to succeed in academics. In such cases, SES will not have negative impact on academic achievement of the learners.

4.7 Prediction Equation for Academic Achievement from Pupil's Dispositional Optimism and Learning Strategies as Moderated by Sex and Socio-Economic Status

In the fifth objective, the study sought to develop the prediction equation for academic achievement from pupil's dispositional optimism and learning strategies as moderated by sex and socio-economic status of the pupil. To achieve this objective, the researcher explored the descriptive statistics of pupil's learning strategies, dispositional optimism, sex and SES before testing the hypothesis.

4.7.1 Descriptive Analysis of Pupil's Dispositional Optimism, Learning Strategies, Sex and SES

This section presents the descriptive statistics of sex, SES dispositional optimism, learning strategies and academic achievement. Table 4.55 presents the descriptive statistics of SES and sex of the pupils.

Table 4.55

Descriptive Statistics of SES and Sex

		f	%
Sex	Boy	195	53.0
	Girl	173	47.0
	Total	368	100.0
SES	Low SES	117	31.8
	Middle SES	236	64.1
	High SES	15	4.1
	Total	368	100.0

Note. f = frequency.

As shown in Table 4.55, 195 (53%) pupils were boys while 173 (47%) pupils were girls. Regarding SES of the pupils, 117 pupils representing 31.8% came from low SES, 236 pupils representing 64.1% came from middle SES while 15 pupils representing 4.1% came from high SES. The results indicate that a majority of the pupils came from middle SES.

The researcher explored the descriptive statistics of dispositional optimism by sex and the results are presented in Table 4.56.

Table 4.56

Dispositional Optimism Descriptive Statistics by Sex

Sex	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Boy	195	14.00	30.00	16	22.95	3.53	-0.09	-0.49
Girl	173	14.00	30.00	16	22.61	3.31	-0.56	0.50

Note. n = Sample size; Min = Minimum; Max = Maximum; M = Mean; SD = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis

The results in Table 4.56 indicate that the minimum score for male students was 14 while the maximum score was 30 with a range of 16. The mean score was 22.95 (SD = 3.53). For female students, the minimum score was 14 while the maximum score was 30 with a range of 16. The mean score was 22.61 with a standard deviation of 3.31. The skewness and kurtosis coefficients for both boys and girls indicate that the scores were approximately normally distributed.

Table 4.57 shows the results of descriptive statistics of dispositional optimism based on pupils' SES.

Table 4.57

Dispositional Optimism Descriptive Statistics by SES

SES	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Low	117	14.00	30.00	16.00	22.05	3.43	-0.05	-0.23
Middle	236	14.00	30.00	16.00	23.14	3.36	-0.37	0.18
High	15	14.00	29.00	15.00	23.13	3.83	-0.75	0.95

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur*= Kurtosis.

From the results in Table 4.57 for pupils from low SES, the range was 16 with the minimum score being 14 and the maximum score being 30. The range of the scores for pupils from medium SES was 16 (minimum = 14; maximum = 30). The range of the scores for pupils from high SES was 15 with the minimum score being 14 and maximum score being 29. The mean scores were 22.05 (*SD* = 3.43), 23.14 (*SD* = 3.36) and 23.13 (*SD* = 3.83) for the pupils from low, medium and high SES respectively. The pupils from middle SES had the highest mean on dispositional optimism while the pupils from low SES had the lowest mean score.

The researcher also explored learning strategies by sex of the pupils and the results are shown in Table 4.58.

Table 4.58

Descriptive Statistics of Learning Strategies by Sex

	Sex	*n*	Min	Max	Range	M	*SD*	*Sk*	*Kur*
DLS	Boy	153	16	36	20	26.08	4.21	0.13	-0.29
	Girl	130	17	36	19	25.65	3.63	-0.08	0.04
SLS	Boy	34	19	37	18	29.62	4.69	-0.37	-0.83
	Girl	39	21	38	17	28.31	4.02	0.18	-0.27

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur*= Kurtosis

The range of the scores for boys who used deep approach strategy was 20 with minimum score being 16 and maximum score 36. For the girls the range was 19, minimum score was 17 and the maximum score was 36. The mean score was 26.08 (*SD* = 4.21) for boys and 25.65(*SD* = 3.63) for the girls. On the other hand, the boys with deep approach towards studying had a range of 18 with minimum score being 19 and maximum score being 37. The scores of the girls had a range of 17 with a minimum score being 21 and maximum score being 38. The mean score of boys and girls was 29.62 (*SD* = 4.69) and 28.31(*SD* = 4.02) respectively. The boys scored slightly higher in surface learning strategies than the girls.

Descriptive analysis of the scores of the two learning strategies by SES was conducted and the results are as shown in Table 4.54 and Table 4.59.

Table 4.59

Descriptive Statistics of Deep Learning Strategies by SES

	SES	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
DLS	Low	18.00	35.00	17.00	25.34	3.47	0.31	0.22
	Middle	16.00	36.00	20.00	26.08	4.15	-0.04	-0.15
	High	20.00	33.00	13.00	27.40	4.20	-0.13	1.10

Note. SES = Socio-economic status; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur*= Kurtosis.

The range of the scores of pupils from low SES was 17 with minimum score being 18 and maximum score being 35. For pupils from medium SES, the range of the scores was 20 with a minimum score of 16 and a maximum score of 36. The range of the scores for pupils from high SES was 13 (minimum=20; maximum=33). The mean scores were 25.34 (*SD* = 3.47), 26.08 (*SD* = 4.15) and 27.40 (*SD* = 4.20) for the pupils from low, middle and high SES respectively. The results showed that pupils from high SES had the highest mean score of deep learning strategies, followed by pupils from middle SES and the pupils from low SES had the lowest mean score.

Surface learning strategies scores were also explored based on SES and the results were as shown in Table 4.60.

Table 4.60

Descriptive Statistics of Surface Learning Strategies by SES

	SES	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
SLS	Low	21.00	35.00	14.00	28.83	3.76	-0.28	-0.42
	Middle	19.00	38.00	19.00	28.91	4.80	0.00	-0.99
	High	28.00	32.00	4.00	29.67	2.08	1.29	0.00

Note. SES = Socio-economic Status; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur*= Kurtosis

In the surface learning strategies the range of the scores were 14 (minimum=21; maximum=35), 19(minimum=19; maximum=38) and 4 (minimum=28; maximum=32) for pupils from low, middle and high SES respectively. The mean scores for these categories were 28.83 (*SD* = 3.76) for pupils from low SES, 28.91 (*SD* = 4.80) for pupils from middle SES and 29.67 (*SD* = 2.08) for pupils from high SES. The results indicated that pupils from high SES had the highest mean score of surface learning strategies, followed by pupils from middle SES and the pupils from low SES had the lowest mean score.

The researcher also explored academic achievement scores by sex of the pupils and the results were as shown in Table 4.61.

Table 4.61

Descriptive Statistics of Academic Achievement by Sex

Sex	*n*	Min	Max	*M*	*SD*	*Sk*	*Kur*
Boy	195	30.26	69.77	50.28	9.74	0.33	0.87
Girl	173	27.52	70.04	49.58	10.36	0.25	-0.99

Note. *n* = Sample size; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis.

The minimum score for boys was 30.26 while the maximum score was 69.77 with a mean score of 50.28 (*SD* = 9.74). The minimum score for girls was 27.52 while the maximum score was 70.04. The mean of the scores for the girls was 49.48 (*SD* = 10.36). The scores distribution was approximately symmetrical. The results showed that boys performed better than girls in academic achievement.

The descriptive statistics of academic achievement by SES are presented in Table 4.62.

Table 4.62

Descriptive Statistics of Academic Achievement by SES

SES	*n*	Min	Max	Range	*M*	*SD*	*Sk*	*Kur*
Low	117	27.52	68.60	41.08	44.39	7.62	0.56	0.18
Middle	236	31.57	69.77	38.20	52.56	10.00	0.04	-1.17
High	15	33.54	70.04	36.50	52.24	9.86	0.04	-0.03

Note. *n* = Sample size; SES = Socio-economic status; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur*= Kurtosis.

Pupils from the low SES had a maximum score of 68.60 and a minimum score of 27.52 with a range of 41.08 and a mean of 44.39 (*SD* = 7.62). Those from middle SES scored had a minimum score of 31.57 and a maximum score of 69.77 with a range of 38.20 and mean score of 38.20 (*SD* = 10). Pupils from high SES had a minimum score of 33.54 and a maximum score of 70.04 with a range of 36.50 and a mean score of 52.24 (*SD* = 9.86).

Table 4.63 presents the correlation matrix of the predictor variables.

Table 4.63

Correlation Matrix of the Predictor Variables

		1	2	3
DLS	Pearson Correlation34	1		
	Sig. (2-tailed)			
	n	368		
SLS	Pearson Correlation	.09	1	
	Sig. (2-tailed)	.05		
	n	368	368	
DO	Pearson Correlation	.21**	-.05	1
	Sig. (2-tailed)	.00	.33	
	n	368	368	368

Note. *n* = Sample size; DLS = Deep learning strategies; SLS = Surface learning strategies; DO = Dispositional optimism.

The results indicate that there was a weak positive significant correlation between deep learning strategies and surface learning strategies. Dispositional optimism, deep learning and surface learning strategies were not significantly correlated. In general, most of the variables were not significantly correlated. Those that are significantly correlated have weak correlations. Therefore, the predictor variables were not highly correlated. Therefore, the assumption of multicollinearity was not violated.

4.7.2 Hypothesis Testing

4.7.2.1 Supplementary Hypothesis Testing on Sex as Moderator Variable.

The researcher hypothesized that there is no significant prediction equation for academic achievement from pupil's dispositional optimism and learning strategies as moderated by sex. This hypothesis was tested using multiple regression and Table 4.64 presents the model summary for the prediction of academic achievement.

Table 4.64

Model Summary for the Prediction of Academic Achievement

Model	*R*	R^2	Adjusted R^2	*SEE*
1	.74[a]	.55	.55	6.76
2	.74[b]	.55	.54	6.76

Note. *n* = 368; *SEE* = Standard error of estimate.

In model 1, the predictor variables were dispositional optimism, surface learning and deep learning strategies. *R* square was .55 suggesting that 55% variance in academic achievement is explained by dispositional optimism, surface learning strategies and deep learning strategies. When sex of the pupil was added in model 2, still R square was .55 implying that the sex of the pupil did not significantly moderate the prediction of academic achievement from dispositional optimism, surface learning and deep learning strategies. To establish if this prediction was statistically significant, ANOVA was conducted and the results are presented in Table 4.65.

Table 4.65

ANOVA for the Prediction of Academic Achievement

Model		*SS*	*df*	*MS*	*F*	Sig.
1	Regression	20268.99	3	6756.33	147.84	.00[b]
	Residual	16634.63	364	45.70		
	Total	36903.63	367			
2	Regression	20275.48	4	5068.87	110.65	.00[c]
	Residual	16628.14	363	45.81		
	Total	36903.63	367			

Note. SS = Sum of squares; *MS* = Mean square.

In model 1, the results indicate that dispositional optimism, surface and deep learning strategies significantly predict academic achievement among the pupils, F (3, 364) = 147.84, $p < .05$. When sex of the pupil was included in the model, the predictor variables still significantly predicted academic achievement of the pupils. The regression coefficients of the predictor variables are shown in Table 4.66.

Table 4.66

Regression Coefficients for the Academic Achievement

Model		Unstandardized Coefficients		Standardized Coefficients	*T*	Sig.
		B	*SE*	ß		
1	(Constant)	6.36	3.36		1.89	.05
	DLS	.81	.04	.67	18.02	.00
	SLS	.34	.08	.14	4.03	.00
	DO	.32	.11	.11	2.97	.00
2	(Constant)	6.85	3.61		1.89	.05
	DLS	.81	.04	.67	18.01	.00
	SLS	.34	.08	.14	3.99	.00
	DO	.32	.11	.11	2.94	.00
	Sex of the pupil	-.26	.71	-.01	-.37	.71

Note. SE = Standard error.

The results in Table 4.66 deep learning strategies had a positive significant predictive index on academic achievement, $\beta = 0.67$, $p < .05$. This suggests that a unit change in deep learning strategies leads to 0.67 change in academic achievement. Surface learning strategies also had a positive significant predictive weight on academic achievement, $\beta = 0.14$, $p < .05$. The results suggest that a unit change in surface learning strategies leads to 0.14 change in academic achievement. Dispositional optimism also had a positive significant predictive weight on academic achievement, $\beta = 0.11$, $p < .05$. A unit change in dispositional optimism leads to 0.11 change in academic achievement. When sex of the pupil was included in the model, it did not affect how learning strategies and dispositional optimism predict academic achievement. Based on the results, null hypothesis was rejected. This suggests that deep approach to learning, surface learning strategies and dispositional optimism significantly predict academic achievement regardless of the sex of the pupils. The prediction equation obtained is shown;

$\tilde{y} = 6.36 + 0.67$ DLS $+ 0.14$ SLS $+ 0.11$DO ($R^2 = .55$) $p < .05$

4.7.2.2 Supplementary Hypothesis Testing on Socio-Economic Status as Moderator Variable.

The researcher hypothesized that SES does not significantly moderate the prediction of academic achievement from learning strategies and dispositional optimism. The hypothesis was tested using moderated regression analysis and Table 4.67 presents the regression model summary.

Table 4.67

Model Summary for the Prediction of Academic Achievement

Model	*R*	R^2	Adjusted R^2	*SEE*
1	.74[a]	.55	.55	6.76
2	.76[b]	.58	.58	6.53

Note. SEE = Standard error of estimate.

In model 1, the predictor variables were surface learning strategies, deep learning strategies and dispositional optimism. In this model, *R* square was 55 implying that 55% variance in academic achievement is explained by surface learning strategies, deep learning strategies and dispositional optimism. In model 2 when SES is included *R* square is .58 suggesting that 58% variance in academic achievement is explained by dispositional optimism, deep learning strategies, surface learning strategies and SES. The results show that SES accounts for 3% variance in the prediction of academic achievement.

Table 4.68 shows the ANOVA summary table for the prediction of academic achievement from learning strategies and dispositional optimism as moderated by SES.

Table 4.68

ANOVA for the Prediction of Academic Achievement

Model		*SS*	*df*	*MS*	*F*	Sig.
1	Regression	20268.99	3	6756.33	147.84	.00[b]
	Residual	16634.64	364	45.70		
	Total	36903.63	367			
2	Regression	21405.32	4	5351.33	125.33	.00[c]
	Residual	15498.31	363	42.69		
	Total	36903.63	367			

Note. SS = Sum of squares; *MS* = Mean squares

As shown in Table 4.68, surface learning strategies, deep learning strategies and dispositional optimism significantly predict academic achievement, F (3, 364) = 147.84, $p < .05$. In model 2 when SES was included in the regression the variables still significantly predicted academic achievement, F (4, 363) = 125.33, $p < .05$. The regression coefficients of the predictor variables were as indicated in Table 4.69.

Table 4.69

Regression Coefficients for the Prediction of Academic Achievement

Model		Unstandardized Coefficients		Standardized Coefficients	*T*	Sig.
		B	*SE*	*ß*		
1	(Constant)	6.36	3.36		1.89	.05
	DLS	.80	.04	.67	18.02	.00
	SLS	.34	.08	.14	4.03	.00
	DO	.32	.10	.11	2.97	.00
2	(Constant)	4.78	3.26		1.46	.14
	DLS	.76	.04	.64	17.61	.00
	SLS	.26	.08	.11	3.19	.00
	DO	.27	.11	.09	2.57	.01
	SES	3.44	.66	.18	5.15	.00

Note. SE = Standard error.

As shown in 4.69, deep learning strategies significantly predict academic achievement, $\beta = 0.67$, $p < .05$. The results imply that a unit change in deep learning strategies leads to 0.67 change in academic achievement. Surface learning strategies were also found to significantly predict academic achievement, $\beta = 0.14$, $p < .05$. This implies that a unit change in surface learning strategies results in 0.14 change in

academic achievement. Dispositional optimism was also found to significantly predict academic achievement, $\beta = 0.11$, $p < .05$. SES significantly moderated the prediction of academic achievement from learning strategies and dispositional optimism, $\beta = 0.18$, $p < .05$.

Model 1 : $\tilde{y} = 6.36 + 0.67DLS + 0.14\ SA + 0.11DO$ ($R^2 = .55$) $p < .05$.

Model 2 : $\tilde{y} = 4.78 + 0.64DLS + 0.11\ SA + 0.09DO + 0.18\ SES$ ($R^2 = .58$) $p < .05$.

4.7.4 Discussion of Results

This study established that surface learning strategies, deep learning strategies and dispositional optimism significantly predicted academic achievement. SES significantly moderated the prediction of academic achievement from surface learning strategies, deep learning strategies and dispositional optimism while sex of the pupil did not. The findings were similar to the results of studies carried out in the past. Kayali et al. (2018) researched on the influence of learning strategies; deep and surface learning strategies on the academic attainment. The study found that the two strategies significantly predicted academic achievement. The results of the study by Kayali et al. were supported by the findings of the current study since the pupils with the tendency of studying for more hours with the aim to enhance their skills scored better in academics than their counterparts who used less of their time on academic work.

Similar results were reported by Hayat et al. (2020) in a structural equation model for the links between academic levels of self - efficacy, studying emotions, and cognitive strategies of learning and educational achievement of medical students. The study showed that the outcomes of structural equation modeling indicated that students' self-

efficacy impacts their learning-related attitudes and metacognitive strategies of learning, which significantly predicted the student's learning outcomes. Learning-related emotions were also found to affect learning approaches which moderate the impact of emotions on academic achievement. The results demonstrate that learning strategies are important constructs in learning. The academic goals that students set for themselves influence their learning strategies and dispositional optimism. Majority of the learners involved in the study had moderate levels of dispositional optimism which may be attributed to below average academic achievement of the pupils.

In a research done by Hu et al. (2021) that examined students' learning styles, the differences between them depending on university type and sex, and the impact of those styles on academic achievement found that learning styles significantly predict academic achievement. A total of 349 architecture students from two universities were involved in the study. Neither university type nor sex had a significant impact on learning styles. Deep learning strategies influenced academic achievement significantly whilst surface learning strategies negatively influenced academic achievement. The deep learning strategy was found to be the most popular among the architecture students involved in the research.

The study's overarching goal was to determine whether architecture students' learning strategies have an impact on academic achievement, with the aim of providing ways to ensure success in architectural examinations. As a result, the study found that students' learning strategies have an impact on their academic achievement. Therefore, the extent of academic achievement of learners can be predicted from the learning strategies. Similar to the results of the current study, pupils who employed deep learning strategy and had high levels of dispositional optimism performed better

than those who employed surface learning strategies and had low levels of dispositional optimism. Therefore, to enhance academic achievement of the pupils there is need to guide them to employ deep learning strategies and enhance dispositional optimism to improve learning outcomes.

Contradictory results were reported in Uganda by Bwenvu (2023). The study investigated the correlation between students' self-efficacy and academic achievement. The findings did not reveal any significant relationship between student's self-efficacy and academic achievement. This implied that high student self-efficacy did not necessarily translate to high academic achievement.

In another related study conducted in Tanzania, Msimbe and Mwila (2023) investigated the strategies adopted by secondary school teachers to develop learners' competencies in the English language within Kinondoni Municipality, Dar es Salam. The findings revealed that English language teachers were not familiar with the contemporary English language teaching strategies. This was worsened by lack of learning and teaching resources which made even the traditional strategies ineffective.

In the Kenyan context, literature on the prediction of academic achievement from dispositional optimism and learning strategies is scanty. Relatedly, Muoki et al. (2021) studied the extent to which parents' socioeconomic status influences pupils' academic achievement in Marani Sub-County in Kisii County. The researchers established that socio-economic status had an impact on academic achievement of the learners. The study's major goal was to come up with policy recommendations for dealing with the effects of socioeconomic status on students' academic achievement.

Based on the conclusion of this study, the lower the parents' socioeconomic status, the lower the pupils' average grade and academic achievement points and vice versa. The results of this study led to the conclusion that pupils' educational attainment in day schools was influenced by their parents' socioeconomic status. In the current study, SES was found to have a significant moderating effect in the prediction of academic achievement. Even though the study by Muoki et al. (2021) did not examine psychological factors, the results demonstrate the importance of SES in school achievement. SES largely determines the availability of learning resources and support that enable the pupils to achieve their academic goals. Therefore, the challenges in academic achievement experienced in Nakuru County partly may be due to the SES of the parents/guardians. Parents/guardians from low SES in most cases lack the resources to support the education of their children, a situation that leads to poor learning outcomes.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, conclusion based on the objectives of this study and the recommendations.

5.2 Summary of the Findings

The study's main purpose was to examine the relationship between pupil's dispositional optimism, learning strategies and academic achievement of pupils in the County of Nakuru. The study also explored if there were significant differences in dispositional optimism and learning strategies based on the sex of the pupils and SES. Furthermore, the study aimed to establish if there was a significant prediction equation for academic achievement as moderated by sex and SES.

The first objective of the research aimed at determining the relationship between dispositional optimism and academic achievement. The study revealed a moderate, positive significant correlation between dispositional optimism and academic achievement. Further analysis revealed that there was a significant mean difference in academic achievement among pupils with different levels of dispositional optimism. Pupils with high level of dispositional optimism performed better in academics than pupils with low level of dispositional optimism. The mean differences in academic achievement among pupils with low and moderate dispositional optimism was not statistically significant. The rest of the mean differences (low and high and moderate and high) were statistically significant.

The second objective sought to establish the relationship between learning strategies and academic achievement. The results of the study found a moderate, positive and statistically significant relationship between deep learning strategies and academic achievement. The correlation between surface learning strategies and academic achievement was not statistically significant. It was also established that there were significant mean differences in academic achievement among pupils with different learning strategies. The mean difference in academic achievement among pupils with equal and SLS was not statistically significant. The rest were statistically significant (equal and DLS; DLS and SLS).

The third objective of the study aimed at establishing if there existed sex differences in the dispositional optimism and learning strategies of the pupils. Boys had a slightly higher mean score in dispositional optimism compared to girls. Boys were more oriented to deep learning strategies while girls were more oriented to surface learning strategies. However, this research found that there were no significant sex differences in learning strategies and dispositional optimism.

The fourth objective of the study was to establish whether there existed significant differences in learning strategies and dispositional optimism based on SES. There was a statistically significant difference in the dispositional optimism of the pupils depending on socio-economic status. The mean differences in dispositional optimism between low SES and middle SES was statistically significant. There was no statistically significant difference in pupil's deep learning strategies and pupil's surface learning strategies based on socio-economic status.

In the fifth objective, the study aimed to establish if academic achievement can be significantly predicted from dispositional optimism and learning strategies as

moderated by sex of the pupil and SES. The results showed that dispositional optimism and learning strategies significantly predicted academic achievement. Deep learning strategies had the highest predictive weight while dispositional optimism had the lowest predictive weight. The sex of the pupil did not significantly moderate the prediction of academic achievement from dispositional optimism and learning strategies. SES of the pupil significantly moderated the prediction of academic achievement from dispositional optimism and learning strategies. It accounted for 3% variance in the prediction of academic achievement.

The analysis findings of qualitative data supported quantitative results on the relationship between dispositional optimism, the strategies of learning and academic achievement. The respondents who used deep learning strategies performed better than those who used surface learning strategies. Most of the pupils employed deep learning strategies as opposed to surface learning strategies.

5.3 Conclusion

The first objective of the study aimed at establishing how dispositional optimism correlate with academic achievement. The results did not support the null hypothesis of the research that there was no significant correlation between dispositional optimism and academic achievement. This study found a moderate positive significant correlation between dispositional optimism and academic achievement. Increase in dispositional optimism was associated with increase in academic achievement and vice versa. This implies that if a pupils' dispositional optimism is enhanced it will lead to improvement in academic achievement.

In objective two, the research sought to determine the correlation between learning strategies and academic achievement. The researcher hypothesized that there exists no significant correlation between learning strategies (deep, surface) and academic achievement. The results showed that the correlation between deep learning strategies and academic achievement was statistically significant. The correlation between surface learning strategies and academic achievement was not statistically significant. The results suggest that pupils who employed deep learning strategies performed better in academics than pupils who used surface learning strategies. Therefore, to enhance academic achievement of the pupils there is need to train them to enhance the use of deep strategies in learning.

The third objective of this study aimed at establishing if there were sex differences in the pupils' learning strategies and their dispositional optimism. The researcher hypothesized that there did not exist significant sex differences in pupils' strategies used in learning and dispositional optimism. The study found that there were no significant sex differences in learning strategies and dispositional optimism. Even though the boys had a slightly higher mean score in dispositional optimism than the girls, the difference was not statistically significant. It was also established that there were no significant sex differences in learning strategies. Therefore, the sex of the pupil is not an important factor in determining the learning strategies and levels of dispositional optimism of pupils.

The fourth objective of the study was to establish whether there existed significant differences in pupil's learning strategies and dispositional optimism based on SES. It was hypothesized that there existed no significant differences in pupil's learning strategies and dispositional optimism based on SES. It was established that there were

significant differences in pupil's dispositional optimism based on socio-economic status. However, the study did not find significant differences in learning strategies based on SES. The SES of parents/guardians of the pupils did not shape the pupils' learning strategies but it had an impact on their dispositional optimism. Based on the results, the pupils need to be supported to enhance their dispositional optimism with specific focus on SES.

In the fifth objective, dispositional optimism, surface learning strategies and deep learning strategies were found to be significant predictors of academic achievement. Sex of the pupil did not have significant moderating effect in the prediction of academic achievement from dispositional optimism and learning strategies. SES significantly moderated the prediction of academic achievement from dispositional optimism and learning strategies. Therefore, pupils need to be guided to enhance dispositional optimism and adopt effective learning strategies for better academic achievement.

5.4 Recommendations

Based on the results obtained, the study makes the following recommendations;

5.4.1 Policy Recommendations

i. Regarding the first objective of the study on the relationship between dispositional optimism and academic achievement, it was found that there was a significant correlation between dispositional optimism and academic achievement. Because dispositional optimism is a psychological construct, it is recommended that the teachers be trained more on how to enhance the capacity of the pupils in the primary schools so that they can be more

optimistic in their academic endeavors. The MOE should enhance capacity building programs in schools to enhance dispositional optimism of learners for better learning outcomes.

ii. The second objective sought to establish the association between learning strategies of learning and academic achievement. The results of this study showed a statistically significant relationship between learning strategies and academic achievement. It is therefore recommended that teacher trainers and guidance counselling department come up with training programs for teachers and pupils respectively to enhance effective learning strategies in order to improve academic achievement of the pupils.

iii. The third objective of the study aimed at establishing if there exists significant sex differences in pupils' dispositional optimism and learning strategies. This study found that boys and girls did not differ significantly in their learning strategies and dispositional optimism. The study thus recommends that both teachers and parents should combine their efforts in assisting the pupils to enhance dispositional optimism and adopt effective learning strategies of the pupils regardless of their sex to improve their academic achievement.

iv. The fourth objective of the study was to establish whether there existed significant differences in pupil's learning strategies and dispositional optimism based on SES. The researcher established that there were significant differences in pupil's dispositional optimism based on socio-economic status. It is therefore recommended that school heads, teachers and pupil counsellors need to enhance psychological support for pupils who come from disadvantaged backgrounds to enhance their dispositional optimism and learning strategies for better performance in academics.

5.4.2 Recommendations for Further Research

i. This study was only conducted in Nakuru County. The results cannot therefore be used to generalize the rest of the 46 counties of Kenya because dispositional optimism and learning strategies are influenced by contextual factors. Therefore, further research is necessary in other counties to establish the influence of dispositional optimism and learning strategies on pupil's academic achievement for more conclusive findings.

ii. This study was conducted in primary schools and only class eight pupils were involved. These results from only one level of education may not be generalized to other levels of education like the secondary and tertiary institutions because of the differences in academic demands. Therefore, further studies are recommended in secondary schools and tertiary institutions to enhance knowledge in this area.

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APPENDICES

Appendix A: Parent's/Guardian's Permission for Pupil's Participation in the Study

My name is Joel Kaburu, a Ph.D student in the Department of Educational Psychology, Kenyatta University. I am undertaking a research which aims at examining how pupils plan to achieve their academic goals guided by learning strategies and dispositional optimism. The research findings are expected to help in providing effective guidance for enhancing pupils' positive life and academic orientations as well as engaging appropriate learning strategies for better performance in examinations.

Your child has been selected to participate in the research.

The purpose of this introductory letter is to seek your consent for your daughter/son to participate in the study.

All the information provided by the participant will be treated with utmost confidentiality.

Kindly indicate your consent by signing in the space provided if you agree for your child to participate in the study.

(……) I give consent for the requested participation in the study.

Thank you very much.

Yours Respectfully,

Joel Bundi Kaburu.

Ph.D student, Kenyatta University

Appendix B: Consent to Participate in the Study

Dear Participant

This research aims at examining how pupils plan to achieve their academic goals guided by learning strategies and dispositional optimism. The research findings are expected to help in providing effective guidance for enhancing pupils' positive life and academic orientations as well as engaging appropriate learning strategies for better performance in examinations.

Please ensure you complete all parts of this research questionnaire to help in this noble study. Remember that all the information you offer will be treated with utmost confidentiality.

Kindly indicate your consent by signing in the space provided if you agree to participate in the study.

(……) I agree to participate in this study.

Thank you very much.

Yours Respectfully,

Joel Bundi Kaburu.

Ph.D student, Kenyatta University

Appendix C: Pupils' Questionnaire

PART I

Background Information

Please read the following questions carefully and fill in the blank spaces or put a tick (√) in the brackets where appropriate. Be correct and honest as possible.

1. Code no. _____
2. Sex: Boy ( ) Girl ( )
3. Age in years ( )
4. Name of school_____
5. Type of school: Day school ( ) Boarding ( )

Social Economic Information

6. Please indicate whom you consider to be your family at the moment.
   i. Biological Parent(s) ....Guardians ie :i. Sister.....ii. Brother.....iii. Friend.....
   v. Adopted.....vi. Foster family.....vi. Street family.....vii. Other type (Please specify).....
7. Please indicate who supports your education in this school.....
8. Please indicate the highest level of education attained by your father……. (Write N/A if this question is irrelevant)
9. Please indicate the highest level of education attained by your mother…….. (Write N/A if this question is irrelevant)
10. Please indicate the highest level of education attained by your Guardian……..(Write N/A if this question is irrelevant)
11. What is your father's main fulltime occupation?……. (Write N/A if this question is irrelevant)

12. What is your mother's main fulltime occupation?.....…….
    (Write N/A if this question is irrelevant)
13. Do you live with guardian(s), what is the occupation of the main wage earner at home? ……. (Write N/A if this question is irrelevant)
14. Please indicate the category you consider your family falls under in the following three socioeconomic levels; i. Low class.....ii. Middle class.....iii. Upper class.....

PART II

LIFE ORIENTATION TEST SCALE- REVISED (LOT-R)

Using the scale below, indicate to what extent each of the following items presently corresponds to how you feel about yourself. . Tick only one (√)

1= I Disagree A Lot (DL) 2= I Disagree a Little (A) 3=Undecided (U)

4= I Agree a Bit (AB) 5= I Agree A Lot (AL)

1.	In uncertain times, I usually expect the best.	**1**	**2**	**3**	**4**	**5**
2.	It's easy for me to relax.]	**1**	**2**	**3**	**4**	**5**
3.	If something can go wrong for me, it will.	**1**	**2**	**3**	**4**	**5**
4.	I'm always optimistic about my future.	**1**	**2**	**3**	**4**	**5**
5.	I enjoy my friends a lot.	**1**	**2**	**3**	**4**	**5**
6.	It's important for me to keep busy.]	**1**	**2**	**3**	**4**	**5**
7.	I hardly ever expect things to go my way.	**1**	**2**	**3**	**4**	**5**
8.	I don't get upset too easily.	**1**	**2**	**3**	**4**	**5**
9.	I rarely count on good things happening to me.	**1**	**2**	**3**	**4**	**5**
10.	Overall, I expect more good things to happen to me than bad.	**1**	**2**	**3**	**4**	**5**

PART 111

THE REVISED TWO FACTOR STUDY PROCESS QUESTIONNAIRE (R-SPQ-2F)

Please choose by ticking (√) only **one** answer for each statement in the below questionnaire based on your attitudes towards your studies and your usual way of studying. Please answer each question as honestly as you can. If you think your answer to a question would depend on the subject being studied, give the answer that would apply to the subject(s) most important to you.

Your rating should be on a 5-point scale where:

1= This item is never or only rarely true of me

2 = This item is sometimes true of me

3 = This item is true of me about half the time

4 = This item is frequently true of me

5 = This item is always or almost always true of me

Your answers are CONFIDENTIAL.

1. I find that at times studying gives me a feeling of deep personal satisfaction.	1	2	3	4	5
2. I find that I have to do enough work on a topic so that I can form my own conclusions before I am satisfied.	1	2	3	4	5
3. My aim is to pass the course while doing as little work as possible.	1	2	3	4	5

4.	I only study seriously what's given out in class or in the course outlines.	1	2	3	4	5
5.	I feel that virtually any topic can be highly interesting once I get into it.	1	2	3	4	5
6.	I find most new topics interesting and often spend extra time trying to obtain more information about them.	1	2	3	4	5
7.	I do not find my course very interesting so I keep my work to the minimum.	1	2	3	4	5
8.	I learn some things by rote, going over and over them until I know them by heart even if I do not understand them.	1	2	3	4	5
9.	I find that studying academic topics can at times be as exciting as a good novel or movie.	1	2	3	4	5
10.	I test myself on important topics until I understand them completely.	1	2	3	4	5
11.	I find I can get by in most assessments by memorising key sections rather than trying to understand them.	1	2	3	4	5

12. I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra.	1	2	3	4	5
13. I work hard at my studies because I find the material interesting.	1	2	3	4	5
14. I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes.	1	2	3	4	5
15. I find it is not helpful to study topics in depth. It confuses and wastes time, when all you need is a passing acquaintance with topics.	1	2	3	4	5
16. I believe that teachers shouldn't expect students to spend significant amounts of time studying material everyone knows won't be examined.	1	2	3	4	5
17. I come to most classes with questions in mind that I want answering.	1	2	3	4	5
18. I make a point of looking at most of the suggested readings that go with the lessons.	1	2	3	4	5

19. I see no point in learning material which is not likely to be in the examination.	1	2	3	4	5
20. I find the best way to pass examinations is to try to remember answers to likely questions.	1	2	3	4	5

Scoring is in the following cyclical order:

1. Deep Motive, 2. Deep Strategy, 3. Surface Motive, 4. Surface Strategy 5. " etc.

Deep Approach Score: ∑All Deep Motive scores + all Deep Strategy scores

Surface Approach Score: ∑All Surface Motive scores + all Surface Strategy scores

Thank you for responding to all the items in the questionnaire

Appendix D: Pupil's Interview Schedule

Part 1: Interview Consent Form

I volunteer to participate in an interview conducted by Mr. Joel Kaburu for research work towards completion of his PhD in Education at Kenyatta University. I understand that the research is designed to gather information about the academic work of standard eight pupils. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. I have been informed that if I decline to participate or withdraw from the study, no one in my school will be told. The interview will last approximately 30-45 minutes. Notes will be written during the interview. I also understand that an audio tape record of the interview and subsequent dialogue will be made. I have been requested to use pseudonym in the interview and I understand that the researcher will not identify me by name in any reports using information obtained from this interview. I have been informed that the information in this interview will be kept secret and it will only be accessible to Mr. Kaburu.

Code……Signature…….. Date…….

PART II: Semi Structured Interview Schedule

General Questions

(i) In addition to the five subjects (Mathematics, English, Kiswahili, Science, Social Studies) examined in K.C.P.E, what other subjects are you taking in standard eight? ……..……

……

…….....…….…….

(ii) Please explain if those non-examinable subjects you have mentioned are important to you or not…….

……

……

(iii) Please explain, if given a choice, if you would you drop the non-examinable subjects .....

.....

.....

(iv) What career (s) would you wish to get into after completing your education?……

……..……

……..……

(v) What are your plans after primary school education?.....

……..

Dispositional Optimism

1. Suppose the government of Kenya makes all subjects studied in standard eight to be examinable.

a) Please explain how would you expect to perform in the added subjects.

.....

.....

b) Please explain how you would you expect the addition of examinable subjects to affect your overall performance. ……

……..

2. Which of the following descriptions best suits you in life?

   i. Whenever I face challenges in my life, I usually attempt to overcome them. Explain your answer

   ii. I usually prefer ignoring and forgetting some difficult situations rather putting effort. Explain

   iii. I always expect to overcome difficult situation in my life. Explain

   iv. Often when I face difficult situation, I give up. Explain

   v. I usually feel difficulty situation in life are beyond my control and hence gives up. Give an explanation

Learning Strategies

Which of the following describes how you view yourself while doing school work?

i. I get feeling of deep personal satisfaction when doing my studies. Please explain.

ii. I always focus on a topic so that i form my own conclusion before I am satisfied. Please explain.

iii. I am satisfied if i pass examination while having done little work as possible. Give your reason.

iv. I normally study seriously what teachers give out in class or in course outlines. Give your reason.

v. For me any topic can be highly interesting once I get into it. Explain why.

vi. I enjoy most new topics and often extra time trying to obtain more information on them. Give your explanation.

vii. For me I rely on memorizing key section rather than trying to understand them. Explain why.

viii. My studies are generally restricted to what is specifically set by the teacher as think it is unnecessary to do extra work. Give an explanation.

ix. For me passing examination is more important than studying in depth. Explain why.

x. Teachers should not expect learners to spend significant amount studying materials that won't be examined. Explain your reason.

Thank you for your cooperation

Appendix E: Guide to teachers and Respondents on Determination of Socioeconomic Status (SES) for the Participants

Operational definition of socioeconomic status

- Is the participants relative position in the society based on participants family income and wealth, educational background, occupation (work/ employment) and place of residence – see summary table of key factors for each of three (3) levels;

Factor	Socioeconomic status		
	LOW	MIDDLE	UPPER
1.INCOME	Low monthly household income (Ksh 23670 and below)	Modest household income (Above 23670 upto 119999)	High household income (Above 119999)
	Struggles to provide basic needs (food, clothing, shelter, school fees, lunch programme etc and cannot afford any luxuries.	Provides all basic needs and can afford some luxuries from household income	Provide all basic needs and can afford all luxuries with ease including going for holidays.
	House hold income is from casual or temporary jobs, mama mboga jobs, kiosk business, hawking etc		
		House hold income is from Permanent jobs in government, companies or modest business.	Household income is from highly paying jobs in government, big business or companies.

2.WEALTH	Spends all money earned for daily living. Can not afford to save money for investment	Lives modestly from government employment, business or companies.	Wealthiest and lives a high luxurious life from high positions in government, business or companies
	May possess a bicycle or motor cycle for transport May not posses a new family car for travelling. May have a few livestock for the family, if living in the rural areas Holds low social status in the area	Household income is enough for daily living and saving for investment in family property. May posses cars for family travelling, land/plots, own house and few property.	Lives in abundance and have many investments and family property. Posses high end and luxurious vehicles for their use and prime property Hold the highest social status and wields a lot of power and influence through the wealth
	No or minimal wealth and property may be inherited or passed from one generation to another or parent(s) to children	Hold some recognizable social status i.e teacher, doctor, nurse, lecturer. May have fair wealth and propert that may be inherited of passed from one generation to the other or	Immense wealth that may be inherited or passed from generation to the other or from parents to children.

		from parents to children.	
3.EDUCATION	Low level of education i.e parent(s) have no formal, education, have primary or secondary school level and did not secure permanent well paying jobs with these qualifications.	Parents have post-secondary school education (Diploma, Degree, Masters, PhD e.t.c) and have secured permanent or well paying jobs in government, companies or business.	Parent(s) have post-secondary education (Diploma, Degree, Masters, PhD e.t.c_ and secured permanent and highly paying jobs in government, companies or business.
4.OCCUPATION	• Casual workers/ labourers • Kiosks or small and medium shops operators • No permeant jobs • Temporary jobs • Not employed • Boda boda operators • Peasant farmers • Employed in farms • Have no social or political influence and power in the society	• Government employees with permanent jobs and moderate pay, civil servants, teachers etc • Business or company employees with well-paying jobs/good pay • Farmers with good farm returns and farm produce • May have mechanized farming in their farms	• High income jobs in government and international bodies, business and company Chief Executive Officers and Managing Directors. • Occupies highest positions in the company, government/business which have immense power and influence in the society. • Expatriates • Business executives • Has immense political, economic and social power and influence in the society

			• Those in rural areas may have large tracts of land, mechanized farms e.t.c
5.PLACE OF RESIDENCE	Lives in low cost small house, congested areas, slum with poor social amenities, semi-permanent houses. Those in rural areas may have small houses, semi pemanent built of mud, timber, glass thatched or even small houses of stone.	Lives in own house in modest estates in towns The estates have good social amenities, houses are permanent spacious well built and furnished for the family Those who live and work in towns may have well built homes/houses in their rural areas. Those who live in rural areas have well built houses on large parcels of land	Lives in high end estates, big mansions in their homes that are highly secured. Luxurious homes Those in rural areas have large farms and luxurious homes that are supplied with social amenities. The urban homes are highly secured mostly gated or restricted areas.

Source: KNBS (2020)

Appendix F: Academic Achievement Proforma and Socioeconomic Status Tables

1. **School Name:…….**
2. **Sex: Boy ( ) Girl ( )**
3. **Code No.....**
4. **Academic Achievement Proforma:**

EXAMINABLE SUBJECTS						Total Score	Mean Mark
SUBJECT	**MATH**	**EN**	**KIS**	**SCI**	**S/STUDIES**		
SCORE							

5. **Socioeconomic Status**

Tables 4. Pupil's Socioeconomic Status:

Researcher's and class teacher's assessment of pupil's family socioeconomic status relative to the position in the school community- based on Economic Survey 2020 by Kenya National Bureau of Statistics.

Tick only one (√)

Low Socioeconomic Status	**Middle Socioeconomic Status**	**Upper Socioeconomic Status**

Appendix G: Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **872242**

Date of Issue: **20/September/2021**

RESEARCH LICENSE

This is to Certify that Mr.. Joel Bundi Kaburu of Kenyatta University, has been licensed to conduct research in Nakuru on the topic: DISPOSITIONAL OPTIMISM AND LEARNING STRATEGIES AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG PUPILS IN PUBLIC PRIMARY SCHOOLS IN NAKURU COUNTY, KENYA for the period ending : 20/September/2022.

License No: **NACOSTI/P/21/12861**

872242

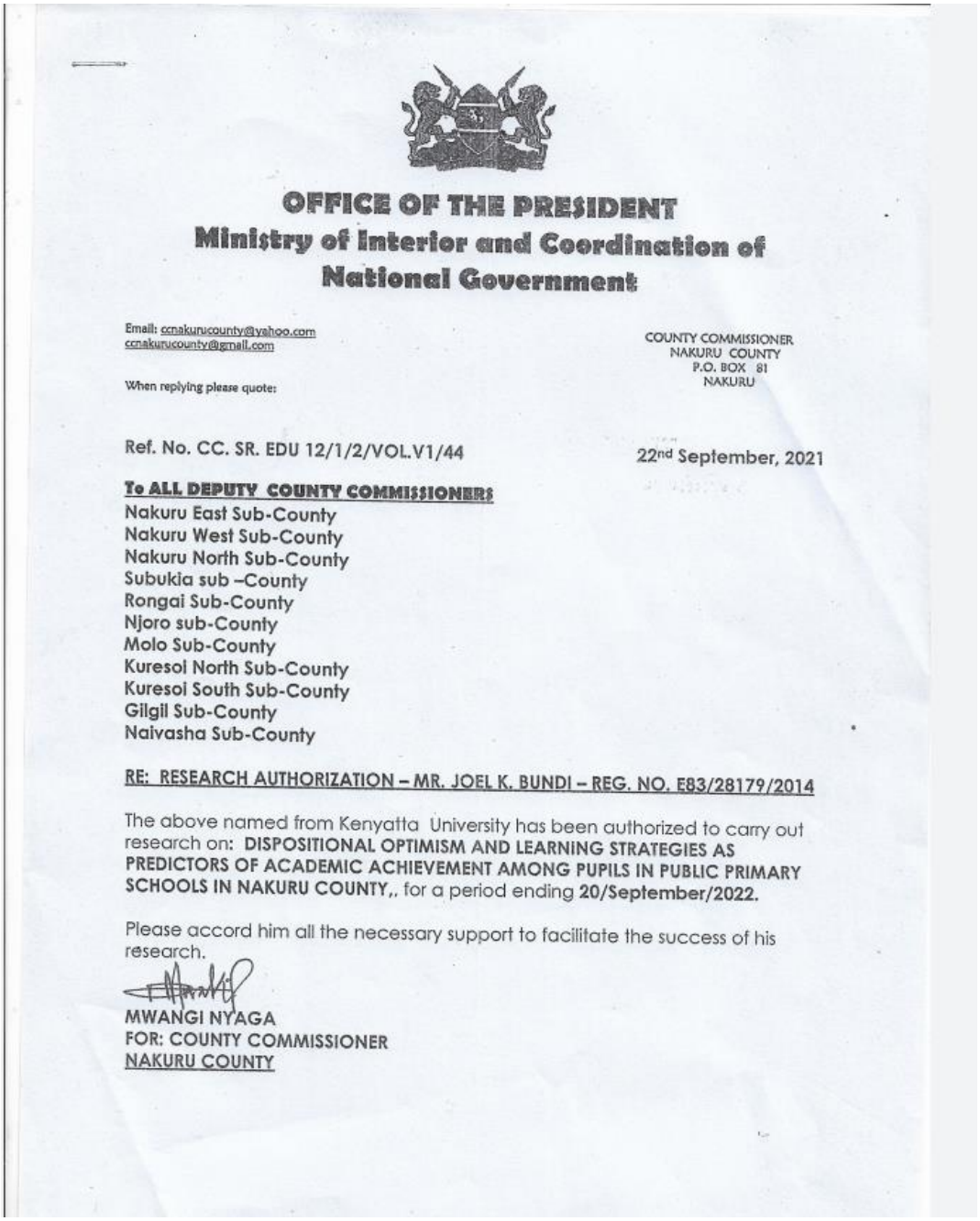
Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix H: Research Authorization Letters



OFFICE OF THE PRESIDENT
Ministry of Interior and Coordination of National Government

Email: ccnakurucounty@yahoo.com
ccnakurucounty@gmail.com

When replying please quote:

COUNTY COMMISSIONER
NAKURU COUNTY
P.O. BOX 81
NAKURU

Ref. No. CC. SR. EDU 12/1/2/VOL.V1/44

22nd September, 2021

To ALL DEPUTY COUNTY COMMISSIONERS
Nakuru East Sub-County
Nakuru West Sub-County
Nakuru North Sub-County
Subukia sub –County
Rongai Sub-County
Njoro sub-County
Molo Sub-County
Kuresoi North Sub-County
Kuresoi South Sub-County
Gilgil Sub-County
Naivasha Sub-County

RE: RESEARCH AUTHORIZATION – MR. JOEL K. BUNDI – REG. NO. E83/28179/2014

The above named from Kenyatta University has been authorized to carry out research on: **DISPOSITIONAL OPTIMISM AND LEARNING STRATEGIES AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG PUPILS IN PUBLIC PRIMARY SCHOOLS IN NAKURU COUNTY,**, for a period ending **20/September/2022.**

Please accord him all the necessary support to facilitate the success of his research.

MWANGI NYAGA
FOR: COUNTY COMMISSIONER
NAKURU COUNTY

MINISTRY OF EDUCATION

State Department of Basic Education

Telegrams: "EDUCATION",
Telephone: 051-2216917
Fax: 051-2217308
Email: cdenakurucounty@gmail.com
When replying please quote

COUNTY DIRECTOR OF EDUCATION
NAKURU COUNTY
P. O. BOX 259,
NAKURU.

Ref. NO. CDE/NKU/GEN/4/1/21/VOL.III

22nd September, 2021

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION – JOEL K. BUNDI NACOSTI/P/21/12861

Reference is made to the above-mentioned permit dated 20th September, 2021

Authority is hereby granted to the above-named individual to carry out research on ***"Dispositional Optimism and Learning Strategies as Predictors of Academic Achievement Among Pupils in Public Primary Schools in Nakuru County, Kenya"*** for the period ending 20th September, 2022.

Kindly accord her necessary assistance.

COUNTY DIRECTOR OF EDUCATION NAKURU COUNTY P.O. Box 259 NAKURU

LILIAN ANODE
FOR: COUNTY DIRECTOR OF EDUCATION
NAKURU

Copy to:

- Kenyatta University

Appendix J: Permission to Use Life Orientation Test

From: Michael Scheier <scheier@andrew.cmu.edu>
To: Joel Kaburu <jbkaburu@yahoo.com>
Sent: Sunday, May 8, 2022, 07:28:58 PM GMT+3
Subject: Re: Permission to use Life Orientation Test- Revised (LOT-R)

I apologize for this automated reply. Thank you for your interest in our work. You have my permission to use any of the scales that I have helped to develop for your research and/or teaching purposes. I do not charge for the use of these scales. I only ask that you reference the scales you use appropriately in all publications. Note that I only send permission approval electronically, so I will not be sending a follow-up letter authorizing the use of a scale through regular mail.

If you wish to use a measure for a purpose other than teaching or research (in the traditional sense in which these terms are used), you need to contact the copyright holder (the publisher of the journal in which the measure was published) and obtain that entity's permission. There might be fees associated with use of the scale or selected items.

Information concerning the measure you are asking about can be found at the website below. Questions about reliability, validity, norms, and other aspects of psychometric properties can be answered there. The website also contains information about administration and scoring procedures for the scales.

I do not track attempts to translate the scales into different languages, so I have no information to offer about that. You are free to develop your own translation if you would like to do that. Again, just be sure to cite the original scale appropriately in publications.

Please do not ask for a manual. There is no manual. Read the articles on the website for the information that you need.

If questions remain, do not hesitate to contact me. Good luck in your work.

https://www.cmu.edu/dietrich/psychology/people/emeritus/scheier-michael.html

--
Michael F. Scheier, Ph.D.
Professor Emeritus of Psychology
Walter van Dyke Bingham Professor Emeritus
of Personality and Health Psychology

Department of Psychology
Baker Hall 340-D
Carnegie Mellon University
Pittsburgh, PA 15213

Phone: 412-268-2781
Email: scheier@cmu.edu

Appendix K: Permission to Use Study Process Questionnaire

From: "jbiggs@bigpond.com" <jbiggs@bigpond.com>
To: 'Joel Kaburu' <jbkaburu@yahoo.com>
Sent: Sunday, May 8, 2022, 04:21:35 AM GMT+3
Subject: RE: Permission to use The Revised Two Factor Study Process Questionnaire (R-SPQ-2F)

Yes Joel, please use of the SPQ if you find it useful. It's public domain so permission not necessary, just acknowledge in the usual way
John Biggs

From: Joel Kaburu <jbkaburu@yahoo.com>
Sent: Saturday, 7 May 2022 11:39 PM
To: jbiggs@bigpond.com
Subject: Permission to use The Revised Two Factor Study Process Questionnaire (R-SPQ-2F)

Afternoon Prof. Biggs

My name is Joel Kaburu, a PhD student in Kenyatta University, Kenya in Africa. I am conducting a research on Learning strategies (surface, deep) as predictors of academic achievement among primary school pupils in Nakuru County County, Kenya- Africa.

I seek your permission to use The Revised Two Factor Study Process Questionnaire (R-SPQ-2F) for the research.

Looks forward to your positive consideration which will enable me proceed with the research.

Regards,

Joel Kaburu- Kenya

Appendix L: K.C.P.E Examination Overall Public Primary Schools Candidates

National Performance Range of Marks for the year 2013-2022

Year	Above 400	350-399	300-349	250-299	200-249	150-199	100-149	0-99	Total	Failure Rate (%)
2022	2783	52072	145898	252215	306562	218208	65769	8790	1052297	56.9
2021	3532	60234	150049	242643	273776	209801	80820	9940	1030795	55.7
2020	3460	50669	132479	231851	288516	221049	58860	8270	995154	58.0
2019	2920	39809	119147	223954	274427	179129	56085	5713	901184	57.2
2018	3871	34454	113373	233764	271510	159444	57570	8005	881991	56.3
2017	3128	34163	112648	217984	249734	158881	50825	8933	836296	56.0
2016	1713	33143	114718	217426	233779	139478	50843	9784	800844	54.1
2015	2432	35274	113612	278342	239082	119542	61212	9824	778370	55.2
2014	2225	34339	101429	200091	216246	141862	54614	8754	758783	55.2
2013	1948	33562	95238	179741	238640	119321	64827	9519	742796	58.2
Average										56.3

Appendix M: Nakuru County Public Primary Schools Range of KCPE Marks 2013-2022-

YEAR	400 & above	399-350	349-300	299-250	249-200	199-150	149-100	99-0	TOTAL	Failure Rate (%)
2022	134	2206	5774	10471	13784	11699	4013	326	48407	61.6
2021	186	2877	6089	10305	12587	11235	4685	489	48453	59.8
2020	199	2420	5419	9252	13044	11966	3387	418	46105	62.5
2019	219	1988	5033	9381	13137	9867	3513	325	43463	61.8
2018	288	1785	4953	10059	13031	9069	3542	491	43218	60.5
2017	154	1544	4611	8813	12079	9627	3803	591	41222	63.3
2016	113	1631	4722	9019	11652	8889	3826	703	40555	62.1
2015	119	1426	4649	9205	12123	8924	3796	605	40847	62.3
2014	124	1592	4722	8573	12316	8713	3784	638	40462	62.9
2013	118	1472	4319	8637	12113	9162	3629	512	39962	63.6
Average										62.0

Appendix N: KCPE Mean Score for Neighbouring Counties (2013-2022)

Year	Nyandarua	Kiambu	Kericho	Laikipia	Narok	Baringo	Nakuru
2022	250	270	238	247	235	245	232
2021	251	273	241	247	237	249	233
2020	246	268	237	244	237	247	232
2019	246	264	246	244	245	253	233
2018	243	258	248	242	248	251	230
2017	243	256	245	241	248	261	226
2016	241	252	247	241	249	262	229
2015	243	253	246	246	242	248	226
2014	243	257	240	244	239	250	227
2013	244	254	242	243	240	254	225
Average Mean Score	245	261	243	244	242	252	229

Appendix O: K.C.P.E National and Nakuru County Mean Marks for the year 2013-2022

Year	National Mean Score			Nakuru County Mean Score		
	Combined	**Public**	**Private**	**Combined**	**Public**	**Private**
2022	251	241	306	245	232	309
2021	252	242	306	247	233	314
2020	250	240	298	246	232	306
2019	250	241	296	248	233	311
2018	250	241	294	247	230	309
2017	250	242	294	243	226	303
2016	251	243	290	241	229	301
2015	252	239	291	241	226	312
2014	250	240	293	243	227	302
2013	251	239	295	241	225	304
Average	250.7	240.8	296.3	244.2	229.3	307.1

Appendix P: Sample Formula for Determination of Sample Size of Schools (Nassiuma, 2000)

Formula recommended by (Nassiuma, 2000) to calculate sample size of the will be adopted, as follows: -

$$n=\frac{NC^2}{C^2+(N-1)e^2}=\frac{767\times(0.2)^2}{(0.2)^2+(767-1)(0.05)^2}=16$$

Where 'n' is the required sample size of the schools

'N' is the total number of public primary schools in the Nakuru County

'C' is the coefficient of variation

'e' is the margin error

For this study, N = 767 schools, C = 20% and e = 0.05.

Appendix Q: Table for Sample Size Determination of Respondents (Israel, 1992)

Part 1: **Sample Size for ±3%, ±5%, ±7% and ±10% Precision Levels where Confidence Level is 95% and *p*=0.05.**

Size of Population	Sample Size (n) for Precision (e) of:			
	±3%	±5%	±7%	±10%
500	A	222	145	83
600	A	240	152	86
700	A	255	158	88
800	A	267	163	89
900	A	277	166	90
1,000	A	286	169	91
2,000	714	333	185	95
3,000	811	353	191	97
4,000	870	364	194	98
5,000	909	370	196	98
6,000	938	375	197	98
7,000	959	378	198	99
8,000	976	381	199	99
9,000	989	383	200	99
10,000	1,000	385	200	99
15,000	1,034	390	201	99
20,000	1,053	392	204	100
25,000	1,064	394	204	100
50,000	1,087	397	204	100
100,000	1,099	398	204	100
>100,000	1,111	400	204	100
a = Assumption of normal population is poor (Israel, 1992). The entire population should be sampled.				

Part 2: Sample Size for ±5%, ±7% and ±10% Precision Levels where Confidence Level is 95% and *p*=.5.

Size of Population	Sample Size (n) for Precision (e) of:		
	±5%	±7%	±10%
100	81	67	51
125	96	78	56
150	110	86	61
175	122	94	64
200	134	101	67
225	144	107	70
250	154	112	72
275	163	117	74
300	172	121	76
325	180	125	77
350	187	129	78
375	194	132	80
400	201	135	81
425	207	138	82
450	212	140	82

(Israel, 1992)

Appendix R: Map of Nakuru County

Figure K Map of Nakuru County