ACHIEVEMENT GOAL ORIENTATION AND METACOGNITION AS CORRELATES OF ACADEMIC ACHIEVEMENT AMONG FORM TWO STUDENTS IN NAIROBI CITY COUNTY, KENYA

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DECLARATION

I declare that this thesis is my original work and has not been presented to any other university /institution for consideration of any certification. This research thesis has been completed by referenced sources duly acknowledged. Where text, data (including spoken words), graphics, pictures, or tables have been borrowed from other sources, including the internet, these are specifically credited, and references are cited in accordance with anti-plagiarism regulations.

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This thesis has been submitted for presentation with our approval as University Supervisors.

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DEDICATION

I dedicate this thesis to my dearest father, Mr. Clement Mwangi, and mother, Alice Wangui (posthumously), who have been my source of encouragement, moral and financial support, motivation, and my spark when my light almost blew out. To my siblings (Jane, Beneddette Mary, Ann, Paul and Stephen (R.I.P), this is also for you. May this work inspire my nieces and nephews to keep soaring high.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATION AND ACRONYMS

AA	Academic Achievement
AGO	Achievement Goal Orientation
ANOVA	Analysis of Variance
GPA	Grade Point Average
KCSE	Kenya Certificate of Secondary Education
MAI	Metacognitive Awareness Inventory
MANOVA	Multivariate Analysis of Variance
MT	Metacognition
NACOSTI	National Commission for Science, Technology and Innovation
NESP	National Education Sector Plan
PISA	Program for International Student Assessment
SDG	Sustainable Development Goals

ABSTRACT

Academic achievement is regarded as one of the important predictors of success worldwide. Nonetheless, poor academic achievement is rife in secondary schools in Nairobi City County. This has been attributed to many factors including academic stress, poor economic growth, and high crime rates. Studies worldwide have identified achievement goal orientation and metacognition as significant in predicting students' academic achievement. Noteworthy, there has been a relative dearth of studies on this area in Nairobi City County. Thus, the current study sought to determine the relationship between achievement goal orientation, metacognition, and the academic achievement of students in public secondary schools in Nairobi City County, Kenya. The study's main objectives were: to find out the relationship between achievement goal orientation and academic achievement, to determine the relationship between metacognition and academic achievement, to establish whether there were gender differences in students' achievement goal orientation and metacognition and finally to find out the relative predictive weight of achievement goal orientation and metacognition on academic achievement. The theoretical foundation of this study were achievement goal orientation theory (Nicholas,1984) and cognitive monitoring model (Flavell,1976). The study employed a correlational research design. A total of 363 form two students participated in the study. Nairobi City County was purposively selected as the area of the study due to its deteriorating poor academic achievement. Purposive sampling, stratified random sampling, simple random technique, and stratified proportionate sampling was used. Achievement Goal Questionnaire (R-AGQ) (Elliot et al.,2008) and Metacognitive Awareness Inventory (R-MAI) (Schraw et al., 1994) were used to collect data. Pro forma summary table was prepared to determine total scores in the seven subjects. Pilot study involved 60 form two pupils (30 boys and 30 girls) selected randomly from one of the secondary schools in Westland's Sub County and the school selected during pilot study was not considered in the main study. Pearson product moment correlation was used to determine relationship between predictors and the outcome variables. T-test for independent samples was used to examine gender differences in achievement goal orientation and metacognition, while Multiple regression was used to determine the variable that had higher prediction on academic achievement. Results of the study showed a significant relationship between achievement goal orientation and academic achievement r (363) =.03, p <.05. Approach and avoidance orientation subscales had a positive relationship with academic achievement. There was a significant relationship between metacognition and academic achievement r (363) =.13, p <.05. Metacognitive regulation had higher prediction with academic achievement. There were significant gender differences in achievement goal orientation and metacognition (t=3.28, df=2, p<.05). High levels of achievement goal orientation and metacognition were observed among boys than girls. The prediction equation of achievement goal orientation and metacognition was $\hat{y}$=6.35 + .06 AGO +.08 M. Metacognition had a prediction of (B= .08) and achievement goal orientation had a prediction of (B=.06). In conclusion, although achievement goal orientation and metacognition predicted academic achievement, metacognition predicted academic achievement more than achievement goal orientation. The results of this study are important and form a basis upon which curriculum developers can modify teacher training curriculum to help learners in thinking aloud and reflect on their learning as well as focusing more on content mastery for better academic achievement of students.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter presents the study's background, statement of the problem, purpose, objectives, hypotheses and significance of the study. Furthermore, the chapter outlines the study's limitations and delimitations, theoretical and conceptual framework as well as operational definition of terms.

1.2 Background to the Study

Globally, academic achievement is considered as one of the important determinants of future success (Olivier et al., 2019). Formal education systems revolve around academic achievement and reflect students' overall holistic development. Thus, student's academic achievement is a priority for educators, researchers, psychologists and policy makers. Previous research has revealed that secondary education, in the majority of the world's education systems, is the optimal higher learning that prepares one for vocational training or university education. It is believed that students who perform well in their secondary education have a better chance of adjusting to adulthood and are successful in their careers and in the workplace.

Program for International Student Assessment (PISA) 2018 survey results from Europe showed that different educational systems produced students with varying levels of academic achievement (Teltemann et al., 2019). Even though, the United State of America (USA) spends at least 3.6% of its Gross Domestic Product (GDP) on education, poor academic achievement has continued to be witnessed. Garcia et al. (2020) attributed low academic achievement to poor curriculum that deny equality education among black people, privatization of schools that lead to segregation, salary

differences among black and white teachers and insufficient funding for schools with high number of low-income students. Similarly, academic results in Indonesia are still far from excellence. The primary reasons behind Indonesia's low academic achievement are lack of teachers in rural areas, conventional teaching techniques, frequent textbook modifications, political conflict at subnational level, ineffective financing system and poor assessments (Shaturaev, 2021).

In Africa, although good academic achievement has a tremendous impact on continent's future, poor academic achievement is rife in schools. In South Africa for instance, out of 75.6% drop out cases, 21.2% of the cases were as a result of poor academic achievement (Francis et al., 2019). Francis et al. (2019) identified poor quality teacher training, inadequate physical and human resources, lack of discipline and commitment among students, ineffective and unclear education policies as the main causes of poor academic achievement. Following 25,000 high school students' failure to pass the University of Liberia's entrance exam, former Liberian President Madam Ellen Johnson Sirleaf dubbed the nation's educational system a disarray in an interview with Reuters in 2013 (Gbollie et., 2017). Macauley (2023) identified that, 94% of the students performed poorly in West African Senior Secondary Certificate Examination (WASSCE) due to poor study habits. Other causes of poor academic achievement in Liberia included, unqualified teachers, teacher absenteeism that led to neglection of obligations and classroom duties, lack of good facilities like laboratories and libraries, and parents' educational level. The Tanzanian government and foreign aid agencies have prioritized funding for primary education over secondary education. Causes of poor academic achievement in Tanzania include poor working environment for educators and students, lack of learning resources, unequal ratio of students, poor teaching methodology and lack of parental involvement (Ghambi, 2014).

In Kenya, high academic achievement is highly embraced because it allows students to enroll in universities and tertiary institutions where they pursue careers in preparation for future employment (Hamidu et al., 2014; Wara et al., 2018). Student assessments exercises that were conducted in the country, by both the government (Ministry of Education) and non-state actors, showed that, academic achievement remained low (Ahmed, 2020). The majority of secondary school candidates scored grades that prevented them from continuing their education or finding gainful employment. Outcomes in Kenya certificate of secondary education (KCSE) in year 2017, 2018 and 2019 showed learners who scored grade C and below were 545 700,455 651and 563,479, respectively (KNEC-KCSE statistics, 2019). The number of learners who scored grade C plus declined in 20220,2021 from 19.03% to 17.49%. Sub-group computation of secondary school candidates' performance by gender showed that more boys earned grade C plus, which is the minimum achievement required for admission in public universities in Kenya, compared to girls. Luketero et al. (2019) attributed teachers' poor attitude to their jobs, learning environment in terms of space and conduciveness, low parent income, lack of resources, poor infrastructure, insufficient government funding, lack of teachers' motivation, lack of enough trained teachers among many other factors as causes of poor academic achievement among students in Kenya.

Researchers and educators have continued to explore various predictors of academic achievement among secondary school students such as physical fitness Garcia et al. (2020), study habits Macauley (2023), student engagement Wong et al. (2024) and self-efficacy Ekatushabe et al. (2021). Reviewed literature showed that achievement goal orientation and metacognition significantly correlated with academic achievement (Guo et al., 2021; Bursali,2018; Moses,2019; Ata et al.,2019). However, very little

research in this area has been done in Nairobi City County to establish if these two cognitive factors predict academic achievement significantly hence the need for this study.

Achievement goal orientation (AGO) refers to motivations for students to engage in various academic tasks like to learn to do better than others or to avoid failure. The two common types of AGO are approach goals and avoidance goals (Elliot et al., 1988). Approach goals refer to goals that direct students' attention to learning and understanding content, and they have been linked to adaptive outcomes such as high self-efficacy, good metacognition, and high achievement. Students with approach goals seek out difficult tasks and strive under adverse conditions (Turner et al., 2021). As a result, learners who have higher levels of approach goals orientation perform better on academic tasks than those with lower levels of approach goals orientation. Avoidance goals orientation refers to goals that motivate learners to focus on outperforming their peers or avoiding the appearance of incompetence (Bergin et al., 2020). They avoid challenges and obstacles, preferring simple tasks with a high chance of success. Students with an approach goal orientation have more desirable outcomes, such as a high self-concept and intrinsic motivation, which lead to higher academic achievement (AA).

Reviewed literature showed that achievement goal orientation and metacognition significantly correlated with academic achievement (Guo et al., 2021; Bursali,2018; Moses,2019; Ata et al.,2019). The awareness and observation of one's thoughts and performance on tasks is referred to as metacognition (Shamir et al., 2009). Metacognition gives learners the ability to direct their learning, making it a strong predictor of academic achievement (Amzil, 2013). Learners with a high level of

metacognition have a high understanding of task demands and utilize effective strategies in monitoring their progress leading to high AA.

When learners have information about their thinking, they can use it to control their learning. Good students who achieve high scores are believed to employ metacognitive strategies in learning tasks. Additionally, they are conscious of their role as learners, understand the demands of the task, and utilize effective strategies to assess their progress and overcome any deficiencies (Perry et al., 2019). Metacognitive knowledge and metacognitive regulation are the two interrelated domains of metacognition. Metacognitive regulation refers to the capacity to control one's thought processes. Some of the terms used to describe metacognition include metacognitive awareness, metacognitive beliefs, metacognitive skills, metacognitive experiences and metacognitive knowledge. Metacognitive knowledge is the understanding of how certain factors influence the progress and outcome of cognitive endeavors.

There have been several empirical studies carried out regarding academic achievement and the related challenges among secondary schools in Kenya (Mwangi,2018; Chepkieng,2020; Wara et al., 2018). Nonetheless, these studies and other stakeholders' efforts have not offered optimal solution to the research question at hand. Most literature on achievement goal orientation and metacognition and how they relate to academic achievement is dominated by studies conducted in Western populations where there are a lot of diversifications of subject material due to racism. Such studies findings cannot be generalized to other populations such as Kenya due to cultural diversities. Furthermore, studies in Kenya on factors related to AGO and metacognition have not fully explored how these aspects correlate with academic achievement. Related studies on factors predicting academic achievement focused on learners'

factors, such as learning climate, academic mindsets, academic resilience, and academic expectations among others (Calderon et al., 2020; Mutua et al., 2018; Mwangi et al., 2018; Ngunu, 2019). The primary research goal was to determine the association between students' achievement goal orientation, metacognition and academic achievement in public secondary schools within Nairobi City County, Kenya. Additionally, researcher investigated whether learners' achievement goal orientation and metacognition differ depending on their gender.

1.3 Statement of the Problem

Although Nairobi County has extensive infrastructure, manpower resources, and technological advancement compared to Kiambu, Kajiado and Machakos Counties, declining academic achievement trends have been reported in Nairobi City County. For instance, in 2017, 2018, and 2019 learners who achieved C+ were 70 073, 68 755 and 65 125, respectively. In 2020 and 2021 candidates who attained C+ declined from 19.03% to 17.49% respectively (KNEC, 2020). Westland Sub County mean was declining compared to Kamukunji Sub County where the number of students who scored C- and below decreased from 37.19% to 34.23% in 2019 and 2020. Such low grades have far-reaching effects on the learners such as missing opportunity to pursue courses at the institutions of higher learning, providing the nation with insufficient manpower, and contributing to social-economic waste. Previous research has attributed this decline in academic achievement to poor student attitude, personality, and parental support (Njiru, 2022; Newton, 2022; Chepkieng, 2020) and has given recommendations. However, the problem persists, leading Mbaya (2023) to recommend incorporating additional psychological variables in future studies to address low academic achievement in Nairobi City County. Such psychological variables include but not limited to Achievement Goal Orientation and Metacognition

that are the focus of this study and which may provide a pathway to improving academic achievement among form two students by fostering motivation and self-regulation in learning.

Low academic achievement can lead pupils to drop out of school and make it more difficult for them to find well-paying jobs (Mutua et al.,2018). Failure to meet university grade forces parents to delve further into their pockets to pay for their children's education. People who leave school early often face stigma and have a difficult time integrating into society. In addition, they are unable to engage in variety social activities effectively. Furthermore, low academic achievement may lead to an increase in crime rates and make people feel uneasy. Low academic achievement can lead to a poor economy, unproductive labor, and a scarcity of scientists who may make new discoveries.

Based on the existing literature, most of the research aimed at unearthing causes of poor academic achievement have been conducted in western countries and have used different samples. Such studies tend to focus on university and college students, with only a few secondary school learners included who might be different in terms of their AGO and metacognition levels. In view of all these, there is a need to improve academic achievement among learners and close the knowledge gap. This study sought to fill this gap by determining how AGO and metacognition predict academic achievement among form two learners in Nairobi City County, Kenya.

1.4 Purpose of the Study

The primary goal of this research was to investigate how AGO and metacognition function as predictors for academic achievement among form two leaners in public secondary schools in Nairobi City County, Kenya. Furthermore, the research aimed at assessing whether there was gender-based variation in AGO and metacognition. The

study also established the relative importance of AGO and metacognition in predicting academic achievement. The research outcome could be employed as a foundation for the development of interventions aimed at addressing disparities in academic achievement of male and female students.

1.5 Research Objectives

The study sought to;

(i) Find out the relationship between achievement goal orientation and academic achievement among form two students in Westland's' Sub County, Nairobi City County.

(ii) Determine the relationship between metacognition and academic achievement among form two students in Westland's' Sub County, Nairobi City County.

(iii) Establish whether there are gender differences in learners' achievement goal orientation and metacognition among form two students in Westland's' Sub County, Nairobi City County.

(iv) Find out the relative predictive weights of achievement goal orientation and metacognition on academic achievement among form two students in Westland's' Sub County, Nairobi City County.

1.6 Research Hypotheses

The research was guided by the following hypotheses;

Ha1 There is a relationship between achievement goal orientation and academic achievement among form two students in Westland's' Sub County, Nairobi City County.

Ha2 There is a relationship between metacognition and academic achievement among form two students in Westland's' Sub County, Nairobi City County.

Ha3 There are gender differences in learners' achievement goal orientation and metacognition among form two students in Westland's' Sub County, Nairobi City County.

Ha4 There is a relative predictive weight of achievement goal orientation and metacognition on academic achievement among form two students in Westland's' Sub County, Nairobi City County.

1.7 Significance of the Study

The research findings may add knowledge to available literature. Outcomes of the current research may provide important information on how achievement goal orientation and metacognition correlate with academic achievement. This information is significant to teachers, students, parents, and other stakeholders in the education sector as it may guide in planning and implementing academic programs aimed at attaining student's academic excellence. The findings may help increase learners' ability to understand and regulate their own thinking and become proficient in choosing appropriate metacognitive skills for different learning tasks.

Furthermore, this research may help learners develop effective learning tactics, such as learning from experience, modifying ineffective strategies, and requesting help when needed. The findings may increase understanding in teachers on how to assist leaners in adopting approach orientation, such as making decisions and exhibiting self-control. Through the study, parents may be able to recognize the effects of the parental environment and parenting practices on student academic achievement.

The findings on gender differences in learners' achievement goal orientation and metacognition are critical as they may guide teachers on areas to target when planning and implementing programs to enhance leaners' academic achievement. For other researchers, the study may shed light on important gaps in the literature addressing predictors of students' academic achievement. Policymakers may get useful information on the need to modify curriculum especially in teachers' colleges to help learners in using metacognition that is critical in academic achievement.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations of the Study

This study exclusively involved form two students from selected high schools within Nairobi City County. The sampling procedure decreased the generalizability of findings outside Nairobi City County. As a result, it became impossible to extrapolate research findings to other Counties. Research participants were required to share information regarding their achievement goal orientation and metacognition, which may affect the results through biased self-reports. However, this was minimized by the researcher by encouraging respondents to give honest and truthful information and assured them of confidentiality of the information they gave. Researcher employed a correlational research design and this made it impossible to manipulate the variables.

1.8.2 Delimitations of the Study

The scope of the study was Nairobi County. The study was restricted to form two students attending public secondary schools within Nairobi City County. There are many variables that correlate to academic achievements but this research concentrated on students' achievement goal orientation and metacognition.

1.9 Assumptions of the Study

The researcher assumed that students' achievement goal orientation and metacognition differed and could be measured and that accurate measurements of students' academic achievement were provided through teachers' academic records. It was also assumed that the assessments that were used were reliable indicators of students' achievement goal orientation and metacognition.

1.10 Theoretical and Conceptual Framework

1.10.1 Theoretical Framework

The current research was anchored on the Achievement Goal Orientation theory (AGO) by Nicholas (1984) and Model of Cognitive Monitoring by Flavell (1976)

Achievement Goal Orientation Theory by Nicholas (1984)

Nicholas (1984) developed the achievement goal orientation theory which proposes that, depending on how one assesses their competence and ability, people approach accomplishment tasks with various types of objectives. The theory of achievement goals centers on how learners define success and, consequently, what they set out to accomplish.

Elliot et al. (2008) developed a 2 by 2 achievement goal framework that included approach orientation, and avoidance orientation goals. The authors posit that, learners create goals primarily in response to instructional emphasis placed on the value of

learning and advancement or on exhibiting exceptional achievement. Thus, instructors need to educate learners on importance of learning from mistakes and they ought to understand how to deal with them in a way that makes them want to learn. For learners to be able to handle their own failures, they must observe successful coping mechanisms. Approach orientation characterizes people who feel competent when they make personal advancements, whereas avoidance orientation characterizes people who feel competent when they achieve more than others.

Indicators of approach orientation include long-term retention of information, intrinsic motivation, help-seeking, effort and persistence, adoption of deep learning strategies, and adaptive reading patterns. Indicators of avoidance orientation include disorganized studying, test anxiety, high expectations for academic achievement, low grades and fear of fear. Avoidance orientation climates are produced when there is a perceived focus on outcomes, such as outperforming others and receiving top grades in class, while approach orientation climates are developed when important social agents, such as teachers, parents, and peers, are seen to place an emphasis on cooperative learning and self-referenced improvement.

Ireri (2015) and Mwangi et al. (2018) used this theory to guide their studies. They individually submitted that, approach and avoidance achievement goals had a statistically significant, although relatively weak, association with academic achievement. The present study utilized this theory because it underscores how learners' academic achievement is impacted by both approach and avoidance orientation.

Applied to this study, this theory implied that, good students in terms of approach orientation are those who value learning for its own sake, embrace challenges, and persist through difficulties that lead to high academic achievement. On the other hand,

poor students with avoidance orientation may feel anxious or frustrated due to repeated comparisons with higher-performing peers. This leads to avoidance of challenging tasks, low persistence, and, sometimes, disengagement from academic activities that result in low academic achievement.

Flavell's Model of Cognitive Monitoring (1979)

John Flavell coined the cognitive monitoring model in the 1970s. It encompasses all of the procedures used to control our thought processes. Components of metacognition include meta-cognitive knowledge and metacognitive regulation. Metacognitive knowledge is the understanding of how certain factors influence the progress and outcome of cognitive endeavors. Flavel (1976) suggests that meta-cognitive regulation is the ability to control thought processes for instance remembering past experiences and using them as resources to address present-day cognitive challenges. Success or failure, frustration or satisfaction, all have influence on learner's willingness to pursue tasks in the future. Metacognition is a valuable tool in learners learning as it encourages reflection on one's knowledge, identity, aspirations, and strategies for reaching specific goals (Flavel, 1976).

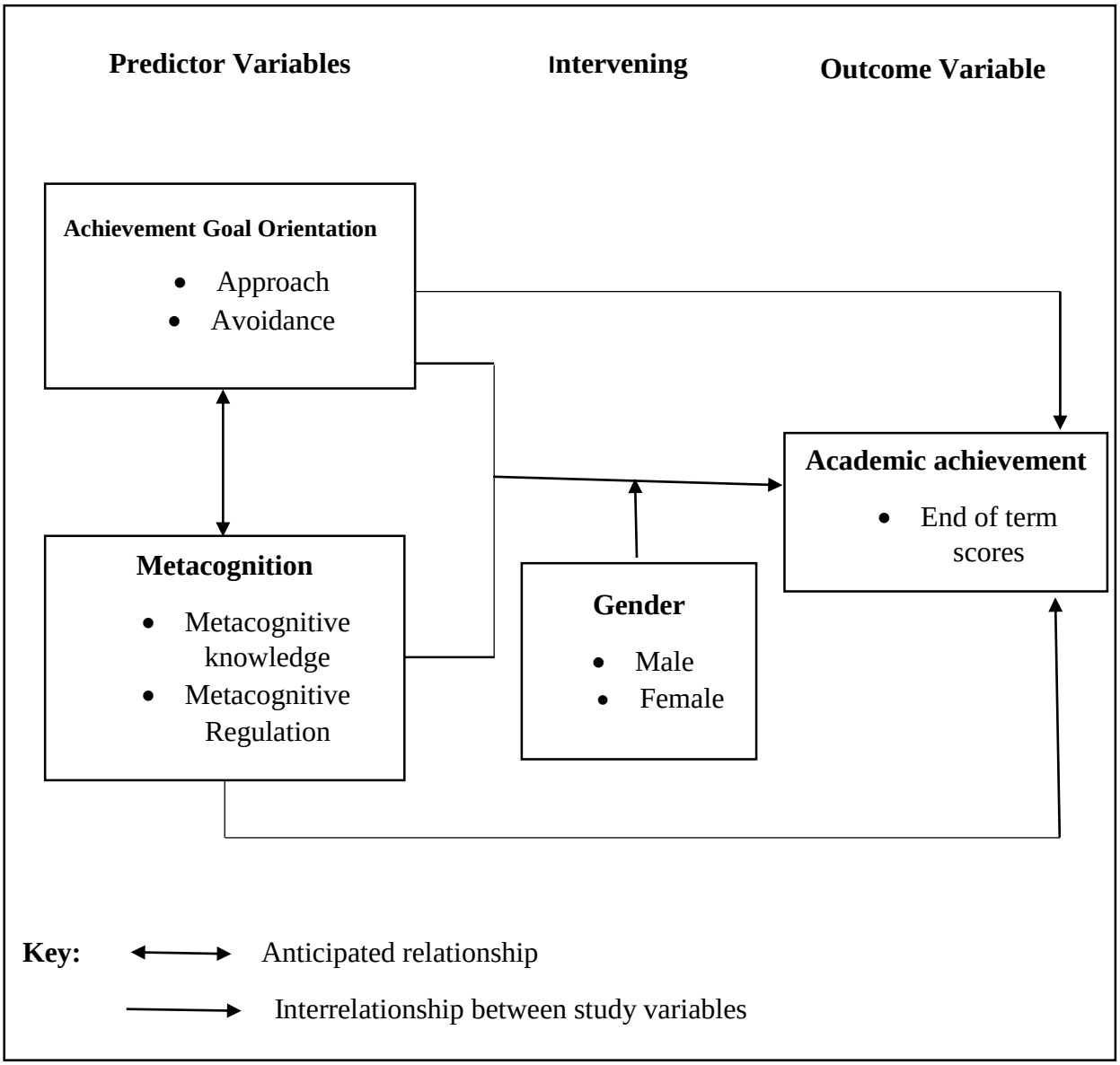
Mwaniki (2015) and Gul et al. (2012) independently employed the cognitive monitoring model in their studies. The researchers reported a positive correlation between metacognition and academic achievement. Applied to the current study, this model emphasizes how good students demonstrate a high level of metacognitive control, which enables them to monitor, evaluate, and adapt their learning strategies effectively. Poor students, on the other hand, often lack metacognitive awareness and self-regulation skills, leading to less effective learning practices and lower academic achievement. Flavell's model emphasizes that enhancing metacognitive skills can help poor students become more effective learners. The two models employed in current

research synergistically explain the importance of achievement goal achievement and metacognition in enhancing learners ‘academic achievement.

1.10.2 Conceptual Framework

Figure 1. 1

Conceptual Model of the Study



Source: Author (2024)

Figure 1.1 depicts the conceptualized connection between achievement goal orientation, metacognition, and academic achievement. It also illustrates a direct association between predictor variables and the outcome variable. Further, there is an

anticipation of a certain degree of association between achievement goal orientation and metacognition, which could potentially lead to variations in academic achievement. Gender is the intervening variable and it is postulated to impact on how predictor variables relate with the outcome variable.

1.11 Operational Definition of Terms

Academic Achievement: The students' standardized T-scores in end of term one 2023 examination

Achievement Goal Orientation: This refers to beliefs and motives on how and why students approach academic tasks as measured at the interval level from the achievement goal questionnaire

Mastery Goal Orientation: This refers to student interest in developing competence in their learning as measured at the interval level from achievement goal questionnaire

Mastery Avoidance: This refers to the way a learner engages in a task to avoid losing knowledge and skills acquired as measured at the interval level from achievement goal orientation questionnaire

Metacognition: This refers to learner understanding of thoughts and control of cognitive activities during the learning process as measured at interval level from metacognitive awareness inventory

Metacognitive knowledge: Refers to learners' strength and weaknesses in various task as measured at interval level from metacognitive awareness inventory

Metacognitive regulation: Refers to activities learners engage in classroom to facilitate learning as measured at interval level from metacognitive awareness inventory

Performance Avoidance: Refers to learner desire to avoid performing worse than others as measured at interval level from achievement goal orientation questionnaire

Performance Goal Orientation: Refers to learner desire to showcase abilities as measured at interval level from achievement goal orientation questionnaire

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed previous research carried out on the relationship between achievement goals orientation, metacognition, and academic achievement. Furthermore, gender differences in learners' achievement goal orientation and metacognition were reviewed. Literature on the relative predictive weight of achievement goal orientation and metacognition on academic achievement is well articulated and finally, the chapter presents a concise summary of the literature that was reviewed, along with the identified research gaps.

2.2 Relationship between Achievement Goal Orientation and Academic Achievement

Research on the association between achievement goal orientation and academic achievement has received little attention, particularly among educators. The limited available studies vary in terms of research methodology, study location, and the age of participants. These variations can yield conflicting results, potentially impacting the applicability of the findings. Some of the scholar whose work focused on Achievement Goal Orientation and Academic Achievement include but are not limited to Alhadabi et al. (2020) Neroni et al. (2018), Musa (2015), Ramnarain (2016), Mwangi (2018) and Nganga et al. (2018). In their study, Alhadabi et al. (2020) established association of achievement goal orientation and academic achievement among undergraduate learners in United States. The authors employed parallel and serial mediation models. Using electronic survey, data was collected from 258 undergraduate learners. The authors

documented a positive correlation between academic achievement and an approach goal orientation, and a negative correlation with avoidance goal orientation. Alhadabi research was well articulated; however, its conclusions were based on only one college in Midwestern United State. Therefore, the sample was biased and results were not generalizable to the whole population. The current research collected data from ten different secondary schools to increase the generalizability of results.

Neroni et al. (2018) investigated association between academic achievement and achievement goal orientation among 1,128 university students, aged between 18 and 75 years, in the Netherlands. The authors employed online questionnaires to collect data and subjected the data to a mixed model regression analysis. Neroni et al. documented that, academic achievement positively correlated with approach goals orientation. Additionally, research revealed learners who were highly approach-oriented focused more on learning than grades and prioritized knowledge acquisition. Research was well carried out and reported, however, it was likely that the studied university learners were above 18 years and might have already developed the necessary achievement goal orientation due to their long academic experience from primary school to university, as opposed to form two learner who may not have gained a lot of academic experience due to adjustment problems in high school.

To investigate implicit academic goals and the academic achievement of pupils in (English and mathematics) in Borno state, Nigeria, Musa (2015) randomly selected 827 boarding schools' learners from eighteen selected senior boarding high schools and given the avoidance achievement motivation scale. The outcomes of the hierarchical multiple regression analysis indicated both approach and avoidance goals orientation significantly correlated with academic achievement. Research findings were based on

Nigerian learners, who might have different cultural backgrounds and educational experiences than Kenyan learners. The current investigation looked into how academic achievement among Kenyan learners was related to achievement goal orientation. Unlike Musa's study that involved boarding schools only, current research involved both learners from boarding and day secondary schools.

In another study, Ramnarain (2016) explored the relationship between academic achievement and achievement goals orientation of 291 South African university first year physics learners. Using a mixed method study design, the author employed questionnaires and interviews. Research data was analyzed using a multiple regression and outcome revealed a significant relationship between academic achievement and approach goals orientation. Conversely, there was no significant relationship with avoidance orientation. According to the author, there was a high attrition rate in the university and only few students were included in the study. Research outcome were anchored on mixed methods and may not be used inform groups from different culture as those utilized in the current research. Thus, the current research utilized correlational research design in answering research hypotheses.

A study conducted by Mwangi (2018) investigated the impact of skills, attitudes, learning goals, on the academic achievement of form three learners in Mombasa County, Kenya. The authors adapted ex-post facto study design. A total of 480 participants were chosen. The findings from both descriptive and inferential statistics indicated a noteworthy association between approach orientation and academic achievement. Mwangi research was anchored on ex-post facto design, whereas the current research adapted correlation study design. Unlike ex-post facto design,

correlation study design gives the researcher the basis to define a clear relationship between the predictor and outcome variables being studied (Creswell, 2009).

Using mixed methods sequential explanatory design, Nganga et al. (2018) aimed to investigate the association between achievement goal orientation and academic achievement among form three learners in Kiambu County, Kenya. Authors used a questionnaire to collect data from 665 learners chosen using a stratified sampling technique. Results of the descriptive and inferential statistics showed that academic achievement was notably correlated with all of the achievement goal orientation domains. Nganga et al.'s research results diverged from those of Ramnarain (2016), who observed a positive association between approach orientation and academic achievement, along with a negative correlation between avoidance goal orientation and academic achievement. The current research contributed to the existing literature on the link between achievement goal orientation and academic achievement. Additionally, the research was conducted in Nairobi City County to enhance the applicability of the findings. It's worth noting that potential age differences may exist between the form three and the form two learners.

2.3 Relationship between Metacognition and Academic Achievement

Lately, there have been noticeable significant growth of interest in studies on the association between metacognition and academic achievement as mediated by other psychological traits. It is hypothesized that the link between metacognition and academic achievement may be determined by locale and academic field of study (Nongtodu et al., 2017). Different scholars have proposed and tested hypothesis relating to Metacognition and academic achievement and their mediating variables among leaners. For instance, Chai et al. (2019) carried out research in Hong Kong to explore

the connections between future goals, metacognitive strategies, and academic achievement. Researcher used a research survey that included 6,290 respondents. The analysis outcome revealed a link between metacognition and academic achievement. Noteworthy, this research investigation was conducted in the west, where cultural and demographic variables may differ with those of the Kenyan context. Therefore, there was a need for a study that examined the correlation between metacognition and academic achievement in Kenyan high schools.

Jalelel (2016) explored metacognition of learners attending high school in India. The author surveyed 180 participants and used descriptive and inferential statistics for data analysis. Research outcome revealed non-significant association between metacognition and academic achievement. Importantly, the author's research had a smaller sample size in contrast to the 365 learners involved in the present research. Larger sample sizes assist researchers to reduce the possibility of reporting false-negative or false-positive results. The bigger the number of samples, the greater the precision of the results (Cresswell, 2009).

Osuafor et al. (2021) investigated how the metacognitive learning cycle impacted learners' mathematics achievement in high schools within Anambra State, Nigeria. Research employed a quasi-experimental design and selected 150 participants using simple and purposive sampling techniques. Analysis demonstrated a notable disparity in the average achievement scores of students who were taught mathematics using the metacognitive learning cycle. Authors result were derived from a study that utilized a quasi-experimental design. This design was suitable for the study population and may not be generalized to other populations with different culture and demographics like Kenya. Current research employed correlational research design that aided in

establishing relationship among variable and results can be generalized unlike a quasi-experimental designs that has a comparison group (Fraenkel, 2012).

Ekatushabe et al. (2021) explored link between cognitive activation and cognitive learning strategies among 587 Ugandan biology learners. The research used a cross-sectional survey approach and employed simple random sampling to choose the participants. Data were collected through the use of questionnaires. Analysis results revealed a noteworthy association between metacognition and the academic achievement. Research investigation was done among learners in Uganda who may have different cultural diversities and learning experiences compared to learners in Kenya. Therefore, there was a need for research on the connection between metacognition and academic achievement within Kenyan high schools, which is precisely the gap addressed by the present research.

Elsewhere, Onguti et al. (2019) investigated the role of metacognitive monitoring as a predictor of mathematics achievement among learners in Kenyan public high schools, employing the Social Development Theory by Lev Vygotsky (1978). Their research utilized the Solomon four pretest-posttest design and involved the selection of 360 form three learners through a combination of purposive and simple random sampling techniques. Their findings revealed a noteworthy and positive association between metacognitive monitoring and mathematics achievement. In contrast, the current research utilized the cognitive monitoring model by Flavell (1976) to elucidate the impact of metacognition on students' achievement.

In 2015, Mwaniki conducted research to assess association of metacognition and reading comprehension academic achievement of primary school pupils in Kenya. Researcher adapted correlational design. The results of the inferential and descriptive

statistics showed a strong correlation between metacognition and academic achievement. Nevertheless, Mwaniki research focused on elementary school pupils, who may not have learned the necessary metacognitive strategies to aid them in having higher academic excellence. This is in contrast to high school learners, who may have, as a result of their prolonged time in school, acquired the necessary metacognitive skills. An important aim in current research was to draw comparison with high school learners.

2.4 Gender Differences in Achievement Goal Orientation and Metacognition

The gender gap especially in academic achievement over time has attracted researchers' interest. Despite multitude quantitative research on gender disparities in AGO and metacognition, various research investigations have yielded conflicting or inconsistent findings.

2.4.1 Gender Differences in Achievement Goal Orientation

Learners adopt different goal orientation depending on context and situation. This may be the reason why there have been mixed results on gender differences in achievement goal orientation.

Boyd (2017) conducted a study on examination of goals orientation between gender in United Kingdom among 872 male and 852 female college learners using a quasi-experimental design. Analysis pointed that female had higher goal orientation than males and were more likely to adopt a goal-oriented work approach than boys. It was necessary to undertake a research investigation on gender disparities in achievement goal orientation in high schools in Kenya, since Boyd research was among college learners in the western world, who would have different societal expectations than learners in Kenya. For instance, males are the breadwinners in most Kenyan homes,

thus they are expected to work hard in school so that they can get good employment in the future to support the family. This may not be a societal expectation for men in Western countries, which may cause them to adopt avoidance goals.

Sahin et al. (2016) sought to investigate gender differences in achievement goal orientation among Turkish adolescents. The authors selected 386 females and 250 male high school learners using convenience sampling. The authors noted that there was no substantial disparity in the achievement goal orientation between boys and girls. Sahin et al.'s research was carried out among Pakistanis, who may have exhibited a wide range of cultural expressions of achievement goal orientation. The present research aimed to address this issue within the Kenyan context.

On the other hand, Musa et al. (2016) investigated gender inequalities in learners' (English and mathematics) achievement goals and academic achievement in Borno State, Nigeria. Using stratified random sampling, research sample of 414 boys and 413 girls was chosen for the correlational research design. Research output unearthed males were more goal-oriented than females. While Musa et al.'s research investigation focused on entire high school population and isolated subjects (English and mathematics), present research focused solely on form two learners only and overall performance. This approach gives precise feedback on unmet gender needs for academic achievement among form two learners in Kenya. Gender needs may differ according to level of study, environment of study and even subject of study. Thus, there was need to conduct a study on gender differences in achievement goal orientation in high schools in Kenya.

Ahesibwe (2018) researched on demographic variation in achievement goal orientation on formal education in Uganda. A cross-sectional survey design was adapted.

Participants were 800 learners aged (18-55 years). Research outcome uncovered non-significant difference across gender on achievement goal orientation. Present research aimed to investigate gender disparities in achievement goal orientation among form two learners aged 14-22 years. Learners aged 18 to 55 years may have developed necessary goal orientation due to social roles they have and major life decision they make related to higher education or occupations unlike form two learners aged 14-22 years who may not have made stable decision in future occupations.

In 2015, Ireri explored the role of academic identity status and achievement goal orientation on academic achievement among third-year high school learners in Kenya. The author adapted explanatory sequential mixed methods design. Research outcome showed girls had a higher approach achievement goal orientation compared to boys. Learners in Form three may have gained stable goal orientation as a result of academic resilience they have gained for three years in school, unlike form two learners who may be struggling to adapt in secondary school environment. Additionally, form three learners may be concentrating on mastering subject in preparation for national examination that may determine their careers in higher education unlike form two learners who may be focusing on outperforming others.

In 2018, Mwangi carried out research in Kenya, focusing on achievement goal orientation and apprehension of negative evaluations among third-year high school learners in Mombasa County. Researcher selected 480 respondents using a simple and purposive sampling techniques. Researcher adapted ex-post facto design. The investigation pointed out non-substantial disparity among male and female learners in achievement goal orientation. A study by Mwangi (2018) differed with the current

research in the aspect of study design used. While the author used an ex-post facto design, current researcher employed correlational research design.

2.4.2 Gender Difference in Metacognition

Gender difference in academic have widened in recent decades around the world. Researchers have considered gender differences in metacognition as option to close the gap. Jenkins (2018) researched on how metacognition and motivation vary by gender and subject in Dublin, Ireland. The sample comprised of 146 primary pupils. An electronic survey was conducted. Research unearthed a significant difference between metacognitive awareness of males and females. Primary pupils may not have acquired metacognitive skills required to improve their academic achievement due to their age unlike high school learners who may have acquired metacognitive skills due to academic resilience they have acquired in primary and secondary education. Hence, interest in present investigation was to make comparisons among high school learners.

Eriyani (2020) conducted research on metacognition awareness and its correlation with academic achievement of educational learners in Indonesia. Sample size comprised of 80 participants chosen using the purposive sampling technique. Data was gathered using questionnaires and archival records. Data output revealed a notable disparity in metacognitive awareness in male and female. Research sample size was small compared to 365 learners who were involved in the current research. Larger sample sizes assist researchers to reduce the possibility of reporting false-negative or false-positive results. The bigger the number of samples, the greater the precision of the results (Cresswell,2009).

In 2015, Achufus conducted research investigation that focused on the metacognitive learning cycle and its impact on the academic achievement of high school learners

in(mathematics) in Anambra state, Nigeria. Using a quasi-experimental design, causes and effect of metacognition and academic achievement was determined. There were 12,760 male and 16,660 female learners in the population. Metacognitive learning cycle leaflet specifying the phases with evaluation at each phase was used to measure metacognition. Research data revealed no gender differences in metacognition. Further, research findings showed modern socialization patterns for boys and girls at early stages of life helped close the achievement gap due to increased access to education for boys and girls and increased support from educational policy makers on girl child education. While Achufu's research investigation focused on form one learners and isolated subjects (Mathematics), present research centered on second year high school learners' overall performance. Focusing on learners' holistic performance, gives precise feedback on unmet gender needs. Gender needs may differ according to level of study, environment of study and even subject of study. Thus, there was need to conduct a study on gender differences in metacognition in secondary schools in Kenya.

Abusnoubar (2017) examined gender differences in metacognitive reading strategies in Ghana. The sample comprised of 86 form three learners. Research data findings revealed no significant gender differences in metacognition. Form three learners may be concentrating on mastering subject in preparation for national examination that may determine their careers in higher education unlike form two learners who may be focusing on outperforming others.

In 2015, Mwaniki conducted research to assess association of metacognition and reading comprehension academic achievement of primary school pupils in Kenya. A correlational research design was used to determine association between metacognition and reading comprehension achievement. A total of 360 participants and public schools

were chosen using stratified sampling techniques. Analysis showed girls had higher metacognition than boys. Nevertheless, there were no statistically noteworthy differences in the mean scores for metacognition. Researcher focused on elementary school pupils, who may not have learned the necessary metacognitive strategies to aid them in having higher academic excellence. This contrasts with high school learners, who may have, because of their prolonged time in school, acquired the necessary metacognitive skills.

In 2020, Chepkieng explored the association between metacognitive awareness and academic achievement in learners from Nairobi City County, Kenya. The research used descriptive study design and involved the distribution of questionnaires to 300 Form Three student. Research resulted demonstrated non substantial differences in metacognition based on gender. Research investigation was done among form three learners who may be concentrating on learning the subject that they chose as they transitioned to form three in preparation for national examinations that would define their careers in tertially education unlike form two learners, who may be focused on outperforming others.

2.5 The Predictive Weight of Achievement Goal Orientation and Metacognition on Academic Achievement

While there is an increasing focus on factors contributing to subpar academic achievement on a global scale, limited studies have utilized quantitative methods in exploring predictive significance of achievement goal orientation and metacognition in relation to academic achievement. Zafarmand et al. (2014) explored learners' goal orientation, and metacognitive awareness on academic achievement. A total of 115 Iranian university learners were involved. Predictive weight of the achievement goal

orientation and metacognition, was assessed using regression equation. Data findings revealed strong significance influence of metacognitive awareness on academic achievement. Nevertheless, research did not reveal significant relationship of achievement goal orientation on academic achievement. It is likely that the university learners who comprised the research sample had acquired the necessary metacognitive skills as a result of their prolonged schooling. As a result, a similar investigation was required to increase the generalizability of the results, which was a concern current research addressed.

In Turkey, Bursali (2018) investigated the role of goal setting in metacognitive awareness in student academic achievement. Research included learners who were learning English as a second language. Respondents were 118 Turkish university learners. A convenient sampling technique was used. Research findings established achievement goal orientation was a stronger predictor of academic achievement. Due to language barriers, learners taught English as a foreign language do not have the ability to fully interact with the community at large. As a result, education systems in such contexts tend to be very competitive, as learners are solely concerned with outperforming their peers. It was therefore important to undertake research in an education system such as Kenya, where English is used medium of instruction in schools.

In 2019, Moses examined impact of goal orientation and metacognitive learning strategies on the academic performance of Nigerian students. A sample of 317 Senior high School learners was used. Results revealed achievement goal orientation accounted for 97.1% variance in academic achievement. Research findings contradicted Ireri, (2015) research conclusions. Ireri research outcome revealed

achievement goal orientation did not predict students' academic achievement. The current research added empirical data on the relative predictive weight of achievement goal orientation and metacognition on academic achievement.

Ata et al. (2019) conducted research in Egypt on metacognitive thinking and goal orientation as factors that could predict academic success among a sample of 1,743 university learners.

The participants were selected using stratified sampling method. Data findings demonstrated that metacognition was stronger predictor of academic achievement. Present research was conducted among form two learners who would have different ages with university students.

In 2015, Mwaniki conducted research to assess the comparative significance of metacognition in predicting the academic achievement of primary school pupils. Based on researcher findings, learners who had metacognitive knowledge had higher academic achievement because they constantly monitored, evaluated, strategized, and regulated their learning. On the contrary, in 2015, Ireri explored significance of achievement goal orientation in predicting academic achievement among high school learners in Kenya. It was uncovered that achievement goal orientation did not predict academic achievement. There were few studies related to this area, therefore, it was necessary to conduct current research to add more literature. Furthermore, the researchers in these studies recommended further investigations in various counties to facilitate comparisons and extend the applicability of results. Consequently, the present research was conducted in Nairobi City County.

In 2018, Mwangi explored role of achievement goal orientation on the academic achievement of third-year high school learners in Mombasa. Simple regression

determined variable that strongly predicted academic achievement of learners. Research findings established that achievement goal orientation had a moderate predictive effect on academic achievement. However, it was observed that achievement goal orientation explained only 6% of the variance in academic achievement. Chepkieng (2020) on the other hand, investigated the association between metacognition and academic achievement of third-year high school learners in Nairobi City County. Results findings showed metacognition predicted academic achievement. Form three learners may be concentrating on learning the subject that they chose as they transitioned to form three in preparation for national examinations that would define their careers in further education unlike form two learners who may not bother adapting achievement goal orientation and metacognitive skills to improve their academic achievement due to many subjects 'overload.

2.6 Summary of Reviewed Literature and Gap Identification

The literature reviewed on the relationship between achievement goal orientation and academic achievement indicated that approach goal orientation was positively associated with student academic achievement, while avoidance goal orientation had a negative impact on student academic achievement. Nevertheless, a significant portion of the literature in this field has concentrated on the Western world such as Europe, where learners may have diverse learning experiences and cultural backgrounds. Consequently, there was a necessity to conduct a similar study in the context of Kenya.

The reviewed studies indicated that metacognition had positive relationship with academic achievement. Students with high levels of metacognition excelled in various subjects than students with low levels of metacognition. However, many of these studies were done in the West, where education system, student ages were different

from those in Kenyan context. Research directly linking metacognition and academic achievement was relatively scarce locally. Hence, it was imperative to undertake the current study to fill the void in the existing body of research.

Gender differences in achievement goal orientation and metacognition research yielded contradictory results. Certain studies identified no disparities in achievement goal orientation based on gender, while others revealed variations in metacognition between male and female students. The current study added empirical data on gender differences in goal orientation and metacognition.

Finally, research on comparative significance of achievement goal orientation and metacognition in predicting academic achievement was also examined. Various studies showed mixed results on the variable that had positive relationship with academic achievement. These studies, however, were scarce locally. No prior research had explored the predictive significance of achievement goal orientation and metacognition on academic achievement in Kenyan context. Therefore, current study has contributed to the field of study.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter provides overview of study design, variables, methodology, location of the study, target population, sampling techniques, sample size and research instruments. It also delves into pilot study, data collection and analyses techniques. Additionally, the chapter elaborates the logistical and ethical considerations of the study.

3.2 Research Design

In current research, a correlational research design was utilized. As per Fraenkel (2012), a correlational research design is used to assess strength of association between multiple variables without altering them, making it a suitable choice for this research. The choice of this design allowed the researcher to examine the connection between achievement goal orientation, and academic achievement without manipulating the variables.

3.2.1 Research Variables

Predictor variables were the students' achievement goal orientation and metacognition, while the outcome variable was academic achievement. These predictor and outcome variables were assessed at the interval level of measurement. Learner's academic achievement was determined by averaging students' exams which were conducted in mid-term and end of the first term in the year 2023. To obtain the T-score value, raw scores were initially transformed into Z-scores and then further converted into T-scores utilizing the formula: $T = Z (10) + 50$. The gender variable, which was the hypothesized intervening variable was measured at the nominal level of measurement.

3.2.2 Location of the Study

The research was carried out within boundaries of Nairobi City County Westland's' Sub County. Due to its poor academic achievement over the previous four years in the Kenya Certificate of Secondary Education (KCSE), this location was chosen. Statistics obtained from the City Council of Nairobi Education Department (2020) showed that, most students in Westland's Sub County scored D+ in 2017, 2018, 2019 and 2020. A total of 47 government funded high schools were selected for data collection. The majority of schools in the informal settlement, including those in Kangemi, Kawangware, and Uthiru, were marked by inadequate teaching and learning materials, poor school structures, cramped classrooms with poor ventilation and lighting among other things (Muasya et al.,2016).

Related studies on factors predicting academic achievement in Nairobi City County had investigated factors such as social economic status, involvement in learning activities and school-based factors (Muasya et al., 2016; Nadenge, 2015; Ngesu et al., 2019), respectively. These scholars suggested that, more studies need to be conducted to improve academic achievement of students in Westland's' and increase enrollment of students in higher education institutions. All these informed the current study.

3.3 Target Population

Research population encompassed 6,539 students (3,943 boys and 2,596 girls) in form two from 47 public secondary schools in Westland's' Sub County. Students in Form two are aware of their academic progress since their first year of school (Mutweleli, 2014). At this level, important actions like teaching students how to apply metacognitive skills and assisting them in mastering knowledge, rather than concentrating on how to outperform others, may help them achieve better academic

results. Additionally, form two students typically select their subjects as they transit to form three, which is important for their future professions.

3.4 Sampling Techniques and Sample Size Determination

3.4.1 Sampling Techniques

Purposive, stratified and simple random sampling techniques were used. The selection of Westland's Sub County was done through purposive sampling because of its continued low academic achievement in Kenya Certificate of Secondary Education (KCSE) for the period 2017, 2018, 2019 and 2020. Purposive sampling allows the researcher to arrive at the case that has the knowledge necessary to understand the study's goals (Mugenda, 2012). Therefore, this technique was appropriate for form two students who were more likely to provide more accurate information on their immediate career-related decisions.

In addition, public secondary schools were divided into strata: boarding boys, boarding girls, and co-educational schools. To make sure that each stratum had the same sampling fraction and was proportionate to the size of the population, proportionate stratified sampling was used. There were 10 secondary schools involved in the study, with 2 boarding girls', 2 girls' day, 2 boarding boys', 2 boys' day and 2 mixed schools. This approach was preferred because it makes sure that no group of research participants was ignored and each school had an equal probability of being chosen (Frankel, 2012).

Form two students were picked using a simple random technique. Papers equal to the required number of participants were classified as "one" while the remaining folds were classified as "zero". Students who picked paper fold with ‘one’ remained in the room where the questionnaires were given while the rest were required to leave the room.

3.4.2 Sample Size Determination

The desired number of participants was determined using Yamane (1967) formula:

$n= N/(1+N(e)^{2)})$

Where n was the sample size

N was the target population

E was the level of precision (0.05)

With a target population of 6539 Form two students the sample size was

$6539/1+6539(0.05)^2 =376$

Fraenkel (2012) recommended minimum sample size of 50 is necessary in establishing the presence of a relationship among variables.

Table 3. 1

Target Population and Sample Size

School Type	Target Population		Sample Size		
		Students		Students	
	Schools	Boys	Girls	Schools	Boys	Girls
Boys only boarding	15	1,324	_	2	63	_
Girls only boarding	13	_	1,080	2	_	62
Boys' day	5	1,219		2	65	_
Girls' day	4	_	400	2	_	65
Mixed day	10	1400	1,116	2	60	61
Sub total	_	3,943	2,596	_	188	188
Total	47	6,539		10	376	

Source: Sub-County Director of Education Westland's (2016)

3.5 Research Instruments

The researcher adapted self-report questionnaires to collect data. Section I of the questionnaire incorporated demographic details of the respondents, encompassing gender, school type, identification codes and age. Section II of the questionnaire contained the achievement goal orientation scale while Section III consisted of metacognitive inventory scale and a pro forma summary table to collect data on student's academic results.

3.5.1 Achievement Goal Questionnaire

Research utilized a 2 x 2 achievement goal questionnaire originally developed by Elliot et al. (2008) to assess approach and avoidance achievement goal orientation in students. Permission to use the tool was granted (See Appendix G). Participants were asked to respond to questions on a scale ranging from 1 (indicating strong disagreement) to 5 (indicating strong agreement). The scoring key for goal orientation scale was given scores as 5,4,3,2 and 1 respectively for strongly agree, agree, not sure, disagree and strongly disagree. Each item was scored on a scale with a maximum value of 5 and a minimum of 1. The thresholds for categorising scores as low, moderate, and high were 12 to 28, 29 to 44, and 45 to 60, respectively as given in Elliot et al., (2008).

3.5.2 Metacognition Awareness Inventory

Metacognitive Awareness Inventory (MAI) by Schraw et al. (1994) was adapted, with permission from the authors (See Appendix F). The instrument consisted of 52 items with true or false statements. Every "true" answer was scored as 1 (one) point while every "false" answer was scored as 0 (zero) point. A high score demonstrated a high level of metacognition awareness, whereas a low score demonstrated a low level of metacognitive awareness. This tool had a total score range of 52 to 260. According to Schraw et al. (1994), the thresholds for categorising scores as low, moderate and high are 52 to 121, 122 to 191, and 192 to 260, respectively and this was followed.

3.5.3 Pro Forma Summary of Students' Examination Results

The researcher reviewed the achievement records for midterm and end of term one for the year 2023 to gauge the academic achievement of the students in form two (See Appendix C). The average score for the two tests, done in term one, for each student was computed. In general, a total of seven subjects, which encompassed (English and

Kiswahili), two to three sciences (Chemistry, Physics, or Biology), and one to two humanities (Geography, History, and Religious Education), were taken into account. To facilitate comparisons among students from different schools, the mean scores were transformed into T-scores. Use of examination marks provided by teachers to conceptualize academic achievement of leaners in secondary school in Kenya has been proposed and tested in previous studies (Ireri, 2015; Mutweleli, 2014).

3.6 Pilot Study

A sample of 60 form two students (30 boys and 30 girls) from one of the high schools in Westland's Sub County was used in the testing of research instruments. The school used for the pilot study was omitted in actual research. Prior study was conducted to assess the practicality of the research. The average amount of time it took for students to respond to questions was 33 minutes. Students indicated questions they did not understand. In the metacognition scale, item 2 that read ’I understand my intellectual strengths and weaknesses was modified to read ‘I understand my strengths and weaknesses in various subjects taught in my class’. In the achievement goal orientation scale item 9 in the approach sub-scale that read ‘I try to avoid partially understanding of the subject’ was changed to read ‘I try to fully understand various subjects taught in class’.

3.6.1 Validity of Research Instruments

Face, logical, and content validity were ensured. The researcher regularly checked the research instruments' content validity in consultation with colleagues and lecturers in the department of Educational Psychology, Kenyatta University. The feedback they provided was used in refining the final questionnaire.

3.6.2 Reliability of Research Instruments

By calculating the inter-item correlation of items and administering the tool only once, the reliability of the instrument was assessed using the internal consistency method, as recommended by Fraenkel (2015). Cronbach's alpha was employed to determine internal consistency. The researcher determined Cronbach alpha of achievement goal orientation and its sub-scale as well as metacognition and its sub-scale as shown in tables 3.1 and 3.2, respectively. Achievement goal orientation had Cronbach alpha of .85, therefore the instrument was considered to be reliable. Similarly, metacognition scale had a Cronbach alpha of .90 and it was considered to be a reliable instrument.

Table 3. 2

Reliability Coefficient for Achievement Goal Orientation

AGO subscale	Alpa coefficient (Elliot et al.,2008)	Alpha coefficient (Pilot study)
Approach subscale	0.94	0.85
Avoidance subscale	0.92	0.83
Overall scale (12)	_	0.85

Note. AGO-Achievement Goal Orientation

Table 3. 3

Reliability Coefficient of Metacognition

MT Subscales	Alpha coefficient (Schraw et al., 1994	Alpha coefficient (Pilot study)
MT. knowledge	0.95	0.80
MT. regulation	0.95	0.94
Overall scale (52)	_	0.90

Note. MT- Metacognition

In determining whether multiple items that aimed to measure the same general construct resulted in similar scores, the internal consistency method was crucial. Instruments that had a Cronbach alpha of .8 or higher, were reliable to be used in studies (Cresswell, 2009).

3.7 Data Collection Techniques

Information was gathered through the administration of questionnaires. Researcher visited various schools to formalize plans for data collection with principals. After being led to class rooms, the sampled students received questionnaires. The respondents heard the instructions from the researcher before being given the go-ahead to fill out the questionnaires. Respondents completed the questionnaire during break time. Once the students verified that all the questions had been addressed, the questionnaires were collected after 33 minutes. The researcher asked the class teachers to provide the academic results for all participants at both the mid-term and end of term one.

3.8 Data Analysis

The data collected was encoded and analyzed using the Statistical Program for Social Science (SPSS) version 25.0. Both descriptive and inferential statistical methods were

employed. Inferential statistics were applied to test the null hypotheses, while descriptive statistics: the mean and standard deviation, were utilized to describe the characteristics of the participants.

The following null hypotheses were tested;

H_{01} There is no significant relationship between achievement goal orientation and academic achievement. Statistical test**:** Pearson product moment correlation coefficient. This was the best test to use when assessing correlation between two variables that were assumed to follow a normal distribution.

H_{02} There is no significant relationship between metacognition and academic achievement. Statistical test: Pearson product correlation. This was the best test to use when assessing correlation between two variables that were assumed to have a linear relationship.

H_{03} There are no significant gender differences in learners' achievement goal orientation on metacognition. Statistical test: t-test for independent samples. The t-test for independent samples is utilized to evaluate the difference between the means of two samples that are not related or independent.

H_{04} There is no significant relative predictive weight of achievement goal orientation and metacognition on academic achievement**.** Statistical test: multiple regression. This test is employed in examining the correlation between a sole dependent variable and multiple independent variables when data is at interval level of measurement.

3.9 Logistical and Ethical Considerations

3.9.1 Logistical Considerations

The researcher secured research clearance from Kenyatta University Graduate School (See Appendix H). Additionally, research permits were obtained from the National Commission for Science, Technology, and Innovation (NACOSTI) (See Appendix I) and the Ministry of Education (See Appendix II). To facilitate data collection, the researcher scheduled appointments with the school principals and form two class teachers in each of the selected schools. During these meetings, the researcher discussed the study's purpose and benefits and agreed upon the most convenient day, time, and venue for data collection.

3.9.2 Ethical Considerations

The researcher obtained participants' consent and provided a detailed explanation of the study's objectives (See Appendix A). Respondents were assured of the confidentiality of their data and the anonymity of their identities. Researcher also took measures to ensure research did not subject participants to any risks. It was made clear to participants that they had the freedom to cease filling questionnaires when they felt uncomfortable.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This section presents the results, interpretations and discussions in alignment with the study's objectives and the stated hypotheses. It includes essential descriptive statistics and the application of inferential statistics to test each null hypothesis. The chapter is structured into distinct parts, including an introduction, a section for general and demographic information, the presentation of findings, interpretations, and finally, the discussion.

4.2 General and Demographic Information

This section covers the return rate of questionnaires and provides demographic details, including the age and participants' gender.

4.2.1 Return Rate

The research included 188 male students and 188 female learners from ten public secondary schools in Westland's Sub-County. Although 376 questionnaires were collected, 13 were not considered in data analysis. Questionnaires that were not fully answered were excluded as well as those that students who did not do midterm and end of term examination. Therefore, 363 questionnaires were analyzed. The study's return rate is presented in Table 4.1.

Table 4. 1

Return Rate

School Type	Schools	Target Sample Size		Return Rate	
		Students		Students	
		Boys	Girls	Boys	Girls
Boys boarding	2	63(16.7)	-	55(14.6)	-
Girls boarding	2		62(16.4)		62(16.4)
Boys' day	2	65(17.3)	-	58(15.4)	-
Girls' day	2	-	65(17.3)	-	65(17.3)
Mixed day	2	60(16)	61(16.2)	55(15.1)	68(18.7)
Sub total		188(50)	188(49.9)	168(45.1)	195(52.3)
Total	10	376(100)		363(97)	

Note. *N*= 363, (%) = respondents' percentage

As indicated in Table 4.1, the response rate for the questionnaires was 97% (168 girls and 195 boys).

4.2.2 Demographic Data of the Participants

Demographic aspects of the participants included: age, gender and school category. Participants' ages were cross tabulated and the outcomes are displayed in Table 4.2.

Table 4. 2

Description of the Participants Age in Years

Age	Frequency	Percent
14	12	3.3
15	78	21.5
16	157	43.3
17	88	24.2
18	21	5.8
19	6	1.7
22	1	.3
Total	363	100.

Note. N= 363

As shown in Table 4.2, the respondents were spread age wise. However, notable proportion of the participants were 16 years represented by 43.3% of the total participants. The participants fell within the average age, with the average age of form two students being 16, while keeping all factors constant (Marumo et al.,2019). This was followed by respondents aged 17 and 15 years who represented 24.2% and 21.5% of the participants, respectively. The least number of the participants were aged 22, 19 and 14 years representing .3%, 1.7% and 3.3% of the total participants, respectively.

Participants aged above 16 years may due to repeating classes, delayed school enrolment or other factors (Marumo et al., 2019). To further elucidate on demographics, researcher sought to evaluate age patterns of the participants in relation to gender (Table 4.3).

Table 4. 3

Descriptions of Participants Age and Gender

		Gender		Total (%)
		boys	girls	
Age	14	6	6	12(3.3)
	15	28	50	78(21.5)
	16	66	91	157(43.3)
	17	47	41	88(24.2)
	18	15	6	21(5.6)
	19	5	1	6(1.7)
	22	1	0	1(.3)
Total		168(46.3)	195(53.7)	363(100)

Note. *N*=363, (%) = participants percentage

As revealed in Table 4.3, a considerable portion of the participants in current research fell within the age group of 16 (43.3%) where boys were 66 and girls were 91. Out of the 88 (24.2%) participants aged 17 years, boys were 47 while girls were 41. For the 78 (21.5%) participants aged 15 years, boys were 28 while girls were 50. One participant was aged 22 (.3%) while those who were 19 years of age (1.7%) were 5 boys and 1 girl.

Participants who were aged 18 were 21(5.6%), that is 15 boys and 6 girls while those who were aged 14 were 12 (3.3%) with 6 boys and 6 girls. From the above findings, it was clear that we had more girls in the age bracket of 14-17 years than boys. Mumiukha et al. (2015) study findings showed Nairobi City County was among top list Counties with female school enrolment of 52.4% surpassing male enrolment rate of 47.5%. Similarly, Muyaka et al. (2023) showed consistent pattern for high girls' enrolment with percentages of 51.7%, 51.1%, 50.9% and 50.6% for 2014, 2015, 2016 and 2017, respectively than boys. Delayed school enrolment may be one of the reasons out of many factors why more boys were aged 18 years old compared to girls.

Table 4.4 sought to profile participants based on age and the school category.

Table 4. 4

Descriptions of the Participants Age and School Category

		School type					Total
		BB	GB	BD	GD	MS	
Age	14	0	2	5	3	2	12
	15	8	18	6	16	30	78
	16	25	32	23	22	55	157
	17	17	8	15	22	26	88
	18	4	2	5	2	8	21
	19	1	0	3	0	2	6
	22	0	0	1	0	0	1
Total		55	62	58	65	123	363

Note. N= 363, BB=boys boarding, GB=girls boarding, BD=boys' day, GD= girls' day, MS=mixed schools.

According to Table 4.4, majority of the participants (344) in all the school categories belonged to the age bracket of 15-18 years. The least number of participants (7) were from the age bracket of 19-22 years followed by those aged 14 years (12) in all the school categories. Table 4.5 showed the description of participant gender and school category.

Table 4. 5

Descriptions of Participant Gender and School Category

Gender	School type					Total (%)
	BB	GB	BD	GD	MS	
Boy	54(15.1)	0	58(16.3)	0	56(15.4)	168(46.8)
Girl	0	62(17.1)	0	65(17.6)	68(18.5)	195(53.2)
Total (%)	54(15.1)	62(17.4)	58(16.3)	65(17.6)	124(33.9)	363(100)

Note. N=363, (%) = percentage, BB=boys boarding, GB=girls boarding, BD=boys' day, GD=girls' day, MS=mixed secondary

As shown in Table 4.5, girls were the majority in this study represented by 195 (53.2%) of the study participants while the rest were boys. Most of the male participants (16.3%) belonged in the boys' day category, followed by mixed school category (15.4%) while the least of the boys' participants were found in boys boarding category (15.1%). On the other hand, majority of the girls' participants were found in mixed school category (18.5%) followed by those who were in girls' day category (17.6%) while the least girls' participants were found in girls boarding category (17.1%).

4.3 Results of the Study

This section provides the research results based on the responses obtained from the participants for each research hypothesis. The necessary descriptive for each of the stated objective is given followed by the inferential statistics used to test the hypothesis. The discussions of the findings are presented at the end.

4.3.1 Relationship between Achievement Goal Orientation and Academic Achievement

(a) Descriptive Statistics for Achievement Goal Orientation and Academic Achievement

The Achievement goal questionnaire comprised of 12 items divided into approach and avoidance orientation. Scores for each item spanned from 1, indicating "strongly disagree," to 5, representing "strongly agree.". Scores were summed from sub-scales and a total score ranged from 6-30 in each sub scale. Academic achievement scores were obtained by adding mid of term score together with end of term one scores in 2023, divided by two to get the average score. The mean, range, standard deviation, skewness and kurtosis of the total achievement goal orientation scores for the participants was determined. Results are depicted in Table 4.6.

Table 4. 6

Description of Achievement Goal Orientation Scores

N	Range	Min	Max	Mean	SD	SK	Kur
363	48.00	12.00	60.00	33.28	9.62	0.73	0.15

Note. *N*=363, MIN= Minimum, MAX= Maximum, SD=Standard deviation, SK=Skewness

As indicated in Table 4.6, the lowest and highest scores were 12 and 60, respectively, with a range of .48. Distribution mean was 33.28 (*SD*=9.62), giving implication that

most of the participants had moderate levels of achievement goal orientation. As observed, the scores were positively skewed giving a coefficient of skewness as .73. These results implied that, most of the respondents rated themselves lowly on the achievement goal orientation scale. The distribution of the scores was leptokurtic with more scores concentrating around the mean as revealed by kurtosis value of .15. The researcher examined descriptive statistics of achievement goal orientation by gender so as to compare the means of boys' girls' means (Table 4.7).

Table 4. 7

Descriptive Statistics of Achievement Goal Orientation by Gender

Gender	*N*	*Min*	*Max*	*Range*	*Mean*	*SD*	*Kur*	*Sk*
Boys	168	12.00	60.00	48.00	34.12	10.18	.15	.69
Girls	195	12.00	60.00	48.00	32.28	9.42	.11	.61
Total	363	12.00	60.00	48.00	33.70	9.31	.13	.71

Note. N= 363, Min=Minimum, Max=Maximum, SD=Standard Deviation, Kur=Kurtosis, SK=Skewness.

As delineated in Table 4.7, the minimum and maximum scores for both boys and girls were 12 and 60, respectively producing a range of 48. The boy's mean was 34.12 (*SD*=10.18) which was higher than the girls mean 32.28(*SD*=9.42). This finding indicated that, boys recorded a better performance than girls in Nairobi City County. Further analysis was carried out to categorize the participants into having low, moderate and high levels of achievement goal orientation. The results of the analysis were highlighted in the table labeled as Table 4.8.

Table 4. 8

Levels of Achievement Goal Orientation

Level	Frequency	Percent
Low	50	13.8
Moderate	301	82.9
High	12	3.3
Total	363	100

Note. N= 363

Table 4.8 above showed predominance of the participants with a moderate level of achievement goal orientation (82.9%) followed by those with low level of the same variable (13.8). The least of the participants were found to have high level of achievement goal orientation. Therefore, most learners did not have high levels of approach and avoidance goal orientation which have been associated with academic achievement. This may be the reason why Nairobi City County was performing poorly. The cut-off scores for achievement goal orientation scale for low, moderate and high were 12-28, 29-44 and 45-60, respectively.

The researcher did the descriptive analysis for academic achievement and results were depicted in Table 4.9.

Table 4. 9

Description of Academic Achievement

	N	*Range*	*Min*	*Max*	*Mean*	*SD*	*Sk*	*Kur*
	363	65	6	71	35.24	10.32	.72	.34

Note. *N*= 363, MIN=Minimum, MAX=maximum, SD=Standard deviation, SK=Skewness

Table 4.9 shows that the minimum and maximum scores were 6 and 71 giving a range of 65. It was observed that the T-scores were 71 and 6 while the mean score was 35.24 (*SD*= 10.32). The kurtosis was .34 meaning that the distribution was leptokurtic implying concentration of scores around the mean. The researcher went further and analyzed the levels of achievement goal orientation across academic achievement scores. The results are illustrated in Table 4.10.

Table 4. 10

Levels of Achievement Goal Orientation across Academic Achievement

LAGO	N	Min	Max	Mean	SD
Low	50	6.9	39.61	37.34	6.16
Moderate	301	24.57	58.33	47.24	8.95
High	12	36.48	68.52	58.30	9.19

Note.*N*=363, MIN=minimum, MAX=maximum, SD=standard deviation, LAGO= level of achievement goal orientation

As shown in Table 4.10, the participants with high level of achievement goal orientation recorded the highest mean 58.30 (*SD*= 9.19). On the other hand, participants with

moderate and low levels of achievement goal orientation revealed a mean of 47.24 (*SD*= 8.95) and 37.34 *(SD*= 6.16), in that order. Therefore, most learners did not have high levels of approach and avoidance goal orientation which have been associated with high academic achievement. This may be the reason why Nairobi County was performing poorly.

The researcher sought to establish the relationship between achievement goal orientation and academic achievement. As a result, the following null hypothesis was tested:

$H_{01:}$ There is no significant relationship between achievement goal orientation and academic achievement.

To examine this hypothesis, the data underwent bivariate correlation analysis, and the outcomes are displayed in Table 4.11.

Table 4.11

Correlation between Achievement Goal Orientation and Academic Achievement

		Academic Achievement	Goal Achievement Orientation
Academic Achievement	Pearson Correlation	1	0.59**
	Sig. (2-tailed)		0.03
Goal Orientation	Pearson Correlation	0.59 **	1
	Sig. (2-tailed)	0.03	

Note. N=363

** Correlation is significant at the .01 level.

As shown in Table 4.11, the participant's AGO and AA had a positive and significant relationship. The calculated r value was r (363) = .03, p <.01, therefore, participants with high level of AGO also scored highly in academic achievement, as a result the null hypothesis was rejected and alternative hypothesis retained. The researcher did further analysis to establish how the sub-scales of achievement goal orientation were associated with academic achievement and the outcome are presented in the Table 4.12.

Table 4. 12

Correlation between Sub-scales of Achievement Goal Orientation and Academic Achievement

		Academic Achievement
Approach Orientation	Pearson Correlation	0.488**
Avoidance Orientation		0 .000

** Correlation is significant at the 0.01 level (2-tailed).

The outcome in Table 4.12 showed correlation for both approach orientation and avoidance orientation were positive and significant (r = .488, .01). These results implied that; both the sub-scales of achievement goal orientation played a very important role in improving the learners' academic achievement. It was then important to establish the coefficient of determination of achievement goal orientation that explained the total variation in students' academic achievement. As a result, data was subjected to a multiple regression and the outcome are highlighted in Table 4.13.

Table 4. 13

Adjusted R^2 of Achievement Goal Orientation on Academic Achievement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.079a	0.46	0.51	10.314

a Predictors, (*Constant*), Score for Avoidance Orientation, Score for Approach Orientation

As revealed in above Table 4.13, the R square value was (R= .46). This implied, 46% variation that occurred on the students' academic achievement was as a result of students' achievement goal orientation while 54% were accounted by other factors.

Researcher did further analysis based on the multiple regression analysis and determined the significance of the prediction equation as shown in Table 4.14.

Table 4. 14

Differences in Achievement Goal Sub-scales

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	238.22	2	119.11	1.120	0.000b
Residual	38297.93	360	106.383		
Total	38536.15	362			

Findings presented in Table 4.14 revealed statistically significant mean differences in sub-scales of achievement goal orientation as determined by the one-way *ANOVA* (*F* (2,360) = (119.11). This meant substantial mean difference between those students who had avoidance goal orientation and those that had approach goal orientation.

(b) Discussion of the Findings

The first objective investigated if there existed a notable correlation between AGO and academic achievement. The findings indicated that, there was a positive and significant relationship between achievement goal orientation and academic achievement. Current research findings were in tandem with Alhadibi et al. (2020) study. In their study, the authors evaluated role of achievement goal orientation on academic achievement among undergraduate learners in United States. Interesting to note is that, Alhadibi et al.'s study employed electrical survey research design whereas the current research utilized correlation research design and secondary school learners. The two findings therefore provided empirical evidence that, irrespective of the sample of the study used or research design, achievement goal orientation exhibits a strong and positive correlation with academic achievement.

Present research outcome was also in line with a study carried out among students from a senior boarding school in Nigeria by Musa (2015). The author reported that the sub-scales of achievement goal orientation were significantly correlated to academic achievement. The similarity in the two study findings show that regardless of cultural differences between Nigeria and Kenya, different population and sample size, achievement goal orientation and academic achievement are significantly related. These findings are in tandem with Ramnarain's (2016) research which investigated the association between academic achievement and achievement goals orientation of 291 South African first year university physics students. Using a mixed method study design, the author employed questionnaires and interviews to collect data and the research outcome showed a significant relationship between achievement goal orientation and academic achievement. Therefore, despites the use of different sample size and different design, achievement goal orientation predicted academic

achievement. Elsewhere, a study conducted by Mwangi (2018) on link between achievement goal orientation and academic achievement unearthed that, the two variables were positive and significantly correlated. Although the author adapted an ex-post-facto research design, data outcome corroborated with the current study where Correlational research design was employed. This points to a strong link between achievement goal orientation and academic achievement irrespective of study design, population or location.

Current research findings also support the achievement goal orientation theory (Nicholas, 1984), specifically on the importance of achievement goal orientation in students' academic achievement. Approach orientation sub scale had a positive predictive index on academic achievement while avoidance had negative predictive index on academic achievement. Achievement goal orientation theory has associated Approach goal with more desirable outcomes such as high self-concept, long-term retention of information, intrinsic motivation, help-seeking, effort and persistence, adoption of deep learning strategies, and adaptive reading patterns that lead to high academic achievement. Avoidance orientation has been associated with disorganized studying, test anxiety and fear of failure that are associated with poor learners' grades.

4.3.2 Relationship between Metacognition and Academic Achievement

The second objective was to establish the relationship between metacognition and academic achievement. Metacognition scale comprised 52 items divided into metacognitive knowledge and metacognitive regulation. Item score ranged from 1 for false and 5 for true response. Average academic achievement scores were obtained by adding midterm scores and end of term one, 2023 scores divided by two.

(a)Descriptive Statistics for Metacognition and Academic Achievement

Metacognition scores ranged from 52-260. The thresholds for low, moderate, and high were set at 52 to 121, 122 to 191, and 192 to 260, respectively. The metacognition scores of the participants were subjected to analysis to determine the range, mean, standard deviation, skewness, and kurtosis. The results are displayed in Table 4.16.

Table 4.15

Descriptive Statistics for Metacognition

N	Range	Min	Max	Mean	SD	Sk	Kur
363	176	82	258	185.32	32.70	- 0.56	0.32

Note. N=363, MIN=Minimum, MAX=maximum, SD=Standard deviation, SK=Skewness

Findings as shown in Table 4.15 indicated minimum and maximum scores for the scale was 82 and 258, respectively with a range of 176. The mean score was 185.32 (*SD*= 32.70), while the coefficient of skewness was -0.56. This implies that students rated themselves high on this scale. This meant that many students had high self-awareness on their learning and demands in various learning tasks. The kurtosis score was .36 which reflected leptokurtic distribution of the scores indicating that the scores concentrated around the mean. The researcher went further and analyzed the scores for metacognition to group the participants into low, moderate and high levels. Results for this grouping are illustrated in the Table 4.16.

Table 4.16

Levels of Metacognition

Level	Frequency	Percent
Low	80	22
Moderate	275	75.8
High	8	2.2
Total	363	100

Note. N= 363

As shown in Table 4.16, most of the participants were categorized as having low (22%) and moderate (75.8%) levels of metacognition. The least number of the participants had high (2.2%) levels of metacognition. The results could be used to explain why majority of the students in Nairobi County registered low academic achievement.

The second null hypothesis was stated as follows:

H_{02}: There is no significant relationship between the students' metacognition and academic Achievement.

To test this hypothesis, the data was subjected to a bivariate correlation analysis and the resultant data was presented in Table 4.17.

Table 4.17

Correlation between Metacognition and Academic Achievement

		Metacognition	
Academic Achievement	Pearson Correlation	1	0.013*
			0.00

* Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 4.17, there was a significant relationship between metacognition and academic achievement r (363) =.013, p <.05. According to the finding, the null hypothesis was rejected while alternative hypothesis was retained implying existence of relationship between the students' metacognition and academic achievement. The researcher went further to perform a correlation analysis to determine whether the sub-scales of metacognition were significantly correlated to academic achievement. Analysis outcomes were presented in Table 4.18.

Table 4.18

Correlations between the Sub-scales of Metacognition

	Academic Achievement	Metacognitive Knowledge	Metacognitive Regulation
Pearson Correlation	1	0.01	0.02
	0.00	0.00	0.00

* Correlation is significant at the 0.05 level (2-tailed).

Data in Table 4.18 showed the two sub-scales of metacognition were positively and significantly correlated with academic achievement. The sub-scale of metacognitive regulation had the highest correlation of (r (363) =.02, p <.05 while metacognitive knowledge had the least correlation of (r (363) = .01, p <.05. This meant that most students applied various learning strategies in their learning. Additional analysis was conducted to ascertain the size of variation in the students' academic achievement that was determined by the students' metacognition. The data was subjected into a multiple regression analysis and the findings are presented in the Table 4.19.

Table 4.19

Model Summary for Metacognition

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.68a	0.56	0.54	10.249

a Predictors (Constant), Scores for Metacognitive Regulation, Score for Metacognitive Knowledge

Research outcome as shown in Table 4.19, revealed R value from the above data was .68, which indicated that the correlation between metacognition and the academic achievement was very strong. The R square value is R^2=.56, which was considered moderate and it meant that, 56% of the variation that occurred on the students' academic achievement was due to metacognition. The researcher did further analysis based on the multiple regression analysis and determined the significance of the prediction equation. The research outcomes were presented in Table 4.20.

Table 4.20

ANOVA Summary Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	724.03	2	362.01	3.45	.000b
	Residual	37812.12	360	105.03		
	Total	38536.15	362			

a Dependent Variable, Academic Achievement

b Predictors (*Constant*), Scores for Metacognitive Regulation, Score for Metacognitive Knowledge

As uncovered in Table 4.20 above, there was a statistically significant mean differences between the sub-scales of metacognition as determined by the one-way *ANOVA* (*F* (2,360) = (362.01). This meant a significant mean difference between those students who had metacognitive regulation and those that had metacognitive knowledge. Additional analysis was conducted to identify which of the two sub-scales predicted of academic achievement better. Research findings are presented in Table 4.21.

Table 4. 21

Beta coefficients for the Prediction of Academic Achievement from Sub-scales of Metacognition

	Unstandardized Coefficients		Standardized Coefficients		
1	B	Std. Error	Beta	t	sig
(Constant)	27.04	3.181	-	8.499	0.00
Metacognitive K	0.06	0.05	0.07	1.12	0.27
Metacognitive R	0.04	0.03	0.09	1.51	0.13

a Dependent Variable, Academic Achievement

The prediction equation was developed as follows:

$\hat{y}$ =27.04+0.07 MK +0.9 MR

The sub-scale of metacognitive knowledge had a positive predictive index of ($\beta = 0.07$) on academic achievement meaning that an increase in the metacognition knowledge score resulted in an increase in the academic achievement score. On the other hand, metacognitive regulation had a positive predictive index of ($\beta = 0.09$) on academic achievement meaning that, an increase in this sub-scale score resulted in an increase in the academic achievement score.

(b) Discussion of the Findings

The second aim was to investigate the association between metacognition and academic achievement. Research findings showed there was a significant relationship between

metacognition and academic achievement. The study supported Flavell's 1976 model, on emphasizing role of metacognition in enhancing academic achievement. The model suggests that self-awareness of one's thoughts lead to more profound learning and performance.

The observed relationship between metacognition and academic achievement aligned with the findings of a prior study carried out by Chai et al. (2019) in Hong Kong. The study investigated how metacognitive strategies and academic achievement are related. These studies have revealed similar findings with current study regardless of the difference in the study designs and study population. While the Chai et al.'s research utilized survey method to sample and collect data among university students, current research used correlational research design and respondents were high school learners. The implications of these outcome are that, despite different schooling level, metacognition was significantly related to academic achievement.

Current research outcomes also agreed with Osuafor et al. (2021) research that looked at the effects of metacognition learning cycle on learners' achievement in Mathematics in Nigeria. The study used quasi-experimental design and research respondents was drawn from Nigeria. Research implication was that, despite the cultural differences among the students, metacognition was significantly related to the students' academic achievement.

In addition, outcome of the current study concurred with the findings of a previous research done by Onguti et al. (2019) in Kenya. The study examined metacognitive monitoring as a predictor of Mathematics achievement. Social Development Theory (Lev Vygotsky, 1978) was used while the current study used cognitive monitoring model (Flavell, 1976) to explain role of metacognition in students' academic

achievement. The implication of the outcomes was, irrespective of different metacognition theories, metacognition was significantly related to academic achievement.

Worth to note was that finding of the current research contradicted Jalelel (2016) study on metacognition of students attending secondary school in India. The author surveyed 180 participants. Jaleel's study findings showed non-significant relationship between metacognition and academic achievement. Different outcomes findings between the current research and Jalelel (2016) research could be due to methodological flaws or other unmeasured confounding factors. The sample size was also less compared to 365 students involved in the current study. Larger sample sizes assist researchers to reduce the possibility of reporting false-negative or false-positive results. Therefore, there is need for cautiousness in interpreting some of the reported study findings on the subject matter.

4.3.3 Gender Differences in Achievement Goal Orientation and Metacognition.

(a)Gender Differences in Achievement Goal Orientation

The researchers examined the scores related to the students' achievement goal orientation and metacognition to calculate the average and standard deviation, and these results were subsequently displayed in Table 4.22.

Table 4. 22

Gender differences in Achievement Goal Orientation and Metacognition

	Gender	N	Mean	Std Deviation
AGO	Boys	168	34.12	10.18
	Girls	195	32.28	9.42
Metacognition	Boys	168	179.81	34.83
	Girls	195	164.29	30.12

Note. *N* =363, AGO=Achievement Goal Orientation

Research outcome in Table 4.22 indicated mean score for achievement goal orientation was 34.12 and 32.28 for both boys and girls respectively. This gave the empirical evidence that, boys had a higher mean than the girls in achievement goal orientation. Boys had greater mean 179.81 (*SD* = 34.83) than the girls 164.29 (*SD*= 30.12) in metacognition. As a result, the findings could be used to explain why boys were performing better than the girls. The researcher did further analysis in the levels of achievement goal orientation across the gender of the participants. The information obtained is presented in Table 4.23.

Table 4. 23

Levels of Achievement Goal Orientation and Gender of the Participants

	Gender of the Participants		Total
	Boys (%)	Girls (%)	
Level of Achievement			
Low	19 (5.2)	60(16.5)	79(21.7)
Goal Orientation			
Moderate	140(38.6)	130 (35.8)	270(74.4)
High	9(2.5)	5(1.4)	14(3.9)
Total	168 (46.3)	195 (53.7)	363(100)

Note. *N*= 363, (%) = percentage

As seen in Table 4.23, more boys (38.6%) were found to have moderate and high levels of achievement goal orientation than girls (35.8%). On the other hand, more girls (16.5%) had low achievement goal orientation levels in comparison to boys (5.2%). The results gave an indication as to why boys were having a higher academic achievement mean than the girls. The moderate and high levels of AGO among boys may be due to societal expectations. Boys are the breadwinners in most Kenyan homes; thus, they are expected to work hard in school so that they can get good employment in the future to support the family. The researcher went further to find the mean difference among achievement goal orientation sub scales and the findings are highlighted in the Table 4.24.

Table 4. 24

Gender Differences in Means of the Sub-scales of Achievement Goal Orientation

Sub-scale of Achievement Goal Orientation	Gender	N	Mean	Std Deviation
Approach AGO	Boys	168	31.22	7.98
	Girls	195	29.78	5.85
Avoidance AGO	Boys	168	24.96	6.81
	Girls	195	31.04	5.99

Note. N=363

Table 4.24 above showed that, boys had higher mean 31.22 (*SD*= 7.98) than girls mean 29.78 *(SD*= 5.85) in the sub-scale of approach achievement goal orientation. On the other hand, girls were found to have a higher mean 31.04 (*SD*= 5.99) than boys mean 24.96 (*SD*= 6.81) on the avoidance achievement goal orientation. This finding therefore can be used to explain why boys were performing better than girls. Boys may have developed the approach goal orientation because they are expected to work hard in school so that they can get good employment in the future to support the family. The researcher utilised metacognition scores to create cross tabulation of metacognition levels and gender, and the outcomes were displayed in Table 4.25.

Table 4. 25

Level of Metacognition across Gender of the Participants

	Gender of the Participants		Total
	Boys (%)	Girls (%)	
Level of Metacognition			
Low	35 (9.6)	45 (12.4)	80(22)
Moderate	151(41.2)	124 (34.2)	275(75.4)
High	5(1.4)	3(.8)	8(2.2)
Total	168 (52.2)	195 (47.4)	363(100)

Note. (%) = Participants percentage

Research outcome in Table 4.25 showed that, most respondents were classified as having moderate levels of metacognition. Specifically, more boys (41.2%) were found to have moderate levels of metacognition than girls (34.2%) while more girls (12.4%) were found to have low levels of metacognition than boys (9.6%). On the other hand, more boys (1.4%) were found to have high levels of metacognition than the girls (0.8%). Majority of boys in the current study were above 16 years, and they may have had high metacognition. When confronted with an abundance of information, elderly individuals can effectively evaluate their memory capacity and adapt their strategies appropriately to optimize this capacity (Siegel et al.,2019). The researcher went further and analyzed the gender difference means of the sub-scales of metacognition. The resultant data are presented in Table 4.26.

Table 4. 26

Gender Differences in Means of the Sub-scales of Metacognition

Sub-scale of Metacognition	Gender	N	Mean	Std Deviation
Metacognitive K	Boys	168	154.01	32.98
	Girls	195	129.89	31.09
Metacognitive R	Boys	168	149.96	33.81
	Girls	195	136.04	30.99

Note. *N*=363, Metacognitive K=Metacognitive Knowledge, Metacognitive R=Metacognitive Regulation

It was be observed from Table 4.26 that, boys had greater mean in both metacognition sub scales than the girls. In metacognitive knowledge, boys had a mean of 154.01 (*SD*= 32.98) while the girls had a mean of 129.89 (*SD*= 31.09). On the sub-scale of metacognitive regulation boys had a mean of 149.96 (*SD*= 33.81) while the girls had mean of 136.04 (*SD*= 30.99). When confronted with an abundance of information, elderly individuals can effectively evaluate their memory capacity and adapt their strategies appropriately to optimize this capacity (Siegel et al.,2019)). Most boys were older than girls, and age may have contributed to high metacognition among boys.

(b)Testing Gender Differences in Achievement Goal Orientation and Metacognition

Regarding the third objective of this study, which aimed to examine potential gender differences in students' achievement goal orientation and metacognition, null hypotheses was advanced.

H_{03}: There are no significant gender differences in students' achievement goal orientation and metacognition.

To examine this null hypothesis, the researcher subjected data to an independent t-test t, and the findings are displayed in Table 4.27.

Table 4. 27

Independent Samples t-test

		t-test for equality of means		
		t	*df*	*Sig. (2 tailed)*
AGO	Equal variances assumed	3.28	361	.00
	Equal variances not assumed	3.316	360.82	.00
Metacognition	Equal variances assumed	1.52	361	.01
	Equal variances not assumed	1.28	352.19	.01

df=degree of freedom

As research outcome showed in Table 4.27, the mean difference was found to be significant based on the participants' gender. The calculated t-value for achievement goal orientation was (t=3.28, df=361, p<.05), and for metacognition was (*t*=1.52, *df*=361, *p*<.05) the mean differences favored boys. Therefore, boys were performing better because they had higher achievement goal orientation and metacognition than girls. The researcher went further and investigated the gender differences in the specific sub-scales of achievement goal orientation and metacognition and the analysis outcome were depicted in Table 4.28.

Table 4. 28

Independent t-test for Gender Differences in the Sub-scales of Achievement Goal Orientation and Metacognition

		t	*df*	*sig*
Approach Orientation	Equal variances assumed	3.91	361	.00
Avoidance Orientation	Equal variances assumed	1.53		.00
Metacognitive K	Equal variances assumed	3.41	361	.00
Metacognitive R	Equal variances assumed	2.11		.00

df=degree of freedom, *sig*=significance

As evident from Table 4.28, a significant mean difference between the means of the boys and girls was observed in approach goal orientation sub scale. Calculated t value in approach orientation was (t= 3.91, df= 361, p<0.05), the mean difference favored boys. On the other hand, significant mean difference between the means of the boys and girls in avoidance achievement goal orientation was observed. Calculated t value was (t= 1.53, df= 361, p<0.05), but on the contrary, the mean difference favored girls.

Calculated t value in metacognitive knowledge was (t= 3.41, df= 361, p<0.05), the mean difference favored boys. On the other hand, there was also a significant mean difference between the means of the boys and girls in the sub-scale of metacognitive regulation. Calculated t value was (t= 2.11, df= 361, $p<0$.05), which was also in favor of boys. Boys may have developed the approach goal orientation because they are expected to work hard in school so that they can get good employment in the future to support the family. When confronted with an abundance of information, elderly individuals can effectively evaluate their memory capacity and adapt their strategies appropriately to optimize this capacity (Siegel et al.,2019)). Most boys were older than girls, and age may have contributed to high metacognition among boys. Further analysis was done in order to investigate possibility of gender differences in the students' academic achievement. The results are presented in Table 4.29.

Table 4.29

Gender Differences in Academic Achievement

	Gender	N	Mean	Std Deviation
Academic Achievement	Boys	168	31.12	11.19
	Girls	195	29.98	8.09

Note. *N*=363

As shown in Table 4.29, mean for the academic achievement t-score for boys and girls was 31.12 (*SD*=11.19) and 29.98 (*SD*=8.09), respectively. The results further revealed that a higher academic achievement t-score was recorded in boys compared to the girls. Further analysis was done with an aim of investigating whether there were significant mean differences in the students' academic achievement in regard to their gender. Research findings were presented in the table 4.30.

Table 4.30

Independent Samples t-test for Mean Differences in Academic Achievement

		t-test for equality of means		
		T	*df*	*Sig.* (2 tailed)
Academic Achievement total score	Equal variances assumed	1.19	361	0.00

As evident in Table 4.30, significant mean difference in academic achievement between boys and girls was observed. Calculated t value was (t= 1.19, df= 361, p<.05) and the mean difference favored boys.

(c)Discussion of the Result

(c) i.Gender Differences in Achievement Goal Orientation

Research outcome showed a statistically significant gender difference in achievement goal orientation. Research outcome revealed achievement goal orientation level was higher in boys than girls. An interesting trend was observed where boys revealed a higher mean for the approach sub scale orientation whereas girls showed higher mean for avoidance sub scale orientation. This may be the reason why boys performed better than girls.

Research outcome corroborated the conclusions drawn by Musa et al. (2016) on examination of gender inequalities in students' English language and mathematics achievement goals and academic achievement in Borno State, Nigeria. The authors reported that boys had high levels of achievement goal orientation than girls. On the other hand, current research outcome contradicted Boyd, 2017 and Ireri, 2015 studies. The former evaluated gender differences in goals orientation in United Kingdom while the later focused on academic identity status and achievement goal orientation as factors predicting academic achievement among third year high school learners in Embu County. These authors independently submitted that there were higher levels of achievement goal orientation in females than males. Furthermore, research analysis outcome further contradicted Sahin et al. (2016) research on gender and age differences in achievement goal orientation among Turkish adolescents and Ahesibwe (2018) study on demographic variation in achievement goal orientation on formal education in

Uganda. Both studies findings revealed there was no gender difference in achievement goal orientation. The differing findings between the current study and studies by Boyd, (2017), Ireri, (2015), Sahin et al. (2016) and Ahesibwe, (2018) could be due to methodological flaws and research location.

In light of research outcome that boys recorded higher levels of achievement goal orientation than girls, the current study alluded that, in real life situation, boys in Nairobi City County have long-term retention of information, intrinsic motivation, help-seeking, effort and persistence, adoption of deep learning strategies, and adaptive reading patterns that is associated with high academic achievement. Achievement goal orientation theory Nicholas, (1984) posits that, learners who score high grades are help-seeking, show high level of persistence, adopt deep learning strategies and have adaptive reading patterns.

(c)ii. Gender Differences in Metacognition

Current research outcome unearthed statistically significant gender disparities in metacognition. Interestingly, boys had higher metacognition levels than girls, hence high achievement scores than girls. Research outcome aligned with prior studies carried out by Jenkins (2018), Eriyani (2020) and Achufu (2015). A study by Jenkins (2018) focused on how academic metacognition and motivation varied based on gender. Research was done among elementary school students in Dublin, Ireland and a survey research method was used to analyze the data. Eriyani (2020) assessed the awareness of metacognition and its connection to learners' academic achievement in Indonesia. Achufu's (2015) study sought to analyze the metacognitive learning cycle on Nigerian high school learners. Research used quasi-experimental study design and the research outcome revealed gender differences in metacognition. Similar to current findings, all

these studies independently revealed higher levels of metacognition in male than female learners, a reflection that males performed better than females.

Noteworthy, the current findings contradicted those of Mwaniki (2015) on metacognition and reading comprehension performance among primary school pupils in Nairobi City County. Although research identified there were gender differences in the metacognition mean scores and the findings were in favor of girls, the findings of the current study showed gender difference in the metacognition mean scores were significant and in favor of boys. The differing findings between the current study and Mwaniki study could be due to the age differences of studies participants.

A further contradiction was in Chepkieng (2020) investigation on the association between metacognitive awareness and academic achievement among learners in Nairobi City County, Kenya. Chepkieng's study outcome showed no gender differences in metacognition. The variations in research outcome, may be attributed to study population. The author focused on form three students who may have been concentrating on learning the subject that they chose as they transitioned to form three in preparation for national examinations that would define their careers in tertiary education unlike form two students, who may be focused on outperforming others.

The higher metacognition reported in boys compared to girls can be attributed to aspects related to real life situation where boys have high thought control like remembering past experiences and using them as resources to address present-day challenge. Flavel (1976) suggested that, metacognition helps learners to control thought processes for instance remembering past experiences and using them as resources to address present-day cognitive challenges. Additionally, form two boys in Nairobi City reflect on their knowledge, identity, aspirations, and strategies to achieve a certain goal. Flavell's

Model of Cognitive Monitoring (1979) emphasizes on importance of learners reflecting on what they have learnt as well as identifying their strengths and weaknesses to improve their academic achievement.

4.3.4 Prediction of Academic Achievement from Achievement Goal Orientation and Metacognition.

The fourth aim of this research aimed to create a predictive model for academic achievement using achievement goal orientation and metacognition. To accomplish this goal, the researchers conducted a multiple regression analysis on the data, resulting in three tables: a model summary, ANOVA table, and regression coefficients. The model summary table provided the multiple correlation coefficient and the R-squared value, the ANOVA table gave the significance of the prediction equation while the regression coefficient gave the predictive indexes of the predictor variables. The summary model is illustrated in Table 4.31.

Table 4. 31

Model Summary for Regression Equation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.60[a]	0.48	0.53	3.11

a. Predictors (Constant), Achievement Goal Orientation Score, Metacognition score,

As evident in Table 4.31, the R square value was R^2=.48, which represents a moderate score. Statistically this value meant 48% change in the students' academic achievement was caused by the students' achievement goal orientation and metacognition. These

results implied that, to some extent, academic achievement among high school learners in Nairobi City County was predicted by achievement goal orientation and metacognition. Having found out that the students' academic achievement was predictable, it was necessary to test the significance of the prediction equation.

$H_{04:}$ There was no significant prediction equation for academic achievement from achievement goal orientation and metacognition

Multiple regression analysis in Table 4.32 showed the ANOVA summary table which was used to determine the significance of the prediction equation.

Table 4. 32

ANOVA Summary Table for the Regression Model

Model	Sum of Squares	*Df*	Mean square	*F*	Sig.
1	Regression	2	345	3.33	0.00[b]
	Residual	360	105.10	10.71	
	Total	362			

Note. $N = 363$

The data in Table 4.32 showed prediction model for academic achievement from achievement goal orientation and metacognition was significant (F (2, 360) = 3.33, P <.005). This meant both AGO and metacognition predicted academic achievement. Hence, the null hypothesis was rejected meaning that, the two predictor variables significantly predicted the criterion variable.

Subsequent to this discovery, the multiple regression equation's regression coefficients were computed, and the outcomes are highlighted in Table 4.33.

Table 4.33

Beta Coefficients for the Sub-scales of Achievement Goal Orientation

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	sig
(Constant)	33.20	1.95	-	17.007	0.000
Approach Orientation	0.15	0.10	0.09	1.430	0.154
Avoidance Orientation	-0.04	0.12	-0.02	-0.313	0.754

a Dependent Variable, Standardized scores of Academic Achievement

The following prediction equation was developed from Table 4.33 as follows:

$\hat{y}$ =33.20+.09AO-0.02AO

Approach orientation sub-scale had a positive predictive index of ($\beta = 0.09$), which implied that, an increase in the approach achievement goal orientation score resulted in increase in the academic achievement score. In contrast, avoidance achievement goal orientation exhibited a negative predictive index of ($\beta = -0.02$). This indicated that, an increase in the avoidance achievement goal orientation score led to a decrease in the academic achievement score and vice versa.

Table 4. 34

Regression Coefficients for the Prediction of Academic Achievement

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	6.35	3.29		3.48	0.00
	Achievement Goal Orientation	0.03	0.06	0.06	1.99	0.04
	Metacognition	-0.04	0.04	0.08	0.67	0.02

a. Dependent Variable, Academic Achievement

Note.*N*=363, AGO=achievement goal orientation, M=metacognition

Evident in Table 4.34, the prediction equation developed using the coefficients was as follows;

$\hat{y}$=6.35 + .06 AGO +.08 M

As shown in Table 4.34, both achievement goal orientation and metacognition had a positive predictive index of (*B*= .06) and (*B*=.08) respectively. Research outcome implications might have meant that, increase in the score of both academic achievement goal orientation and metacognition was linked with an increase in the academic achievement score. However, predictive index was higher for metacognition (*B*=.08) than achievement goal orientation (*B*= .06).

(d) Discussions of the Findings

Analysis outcome showed that between achievement goal orientation and metacognition, the latter predicted academic achievement in great extent than the former. Interesting findings was observed after further analysis when avoidance orientation negatively predicted academic achievement. Research findings concurred with Bursali (2018) conclusions on the role of goal setting in metacognitive awareness. Analysis output showed metacognition was a stronger predictor of academic achievement. Similarly, Ata et al. (2019) research on the metacognitive thinking and goal orientation as antecedents of academic achievement among selected 1743 university learners, showed metacognition predicted academic achievement to greater extent than achievement goal orientation. Mwaniki (2015) conducted a study on predictive weight of metacognition on academic achievement among primary school pupils and findings corroborated current research results. Analysis output found those participants with metacognitive knowledge had higher academic achievement because they constantly monitored, evaluated, strategized, and regulated their learning.

On the contrary, Ireri (2015) looked at the relative predictive weight of achievement goal orientation on academic achievement among Kenyan high school learners. The findings of this study revealed that achievement goal orientation did not predict academic achievement which was contrary to the findings of the current study. Moreover, Moses (2019) conducted research on the influence of goal orientation and metacognitive learning strategies on academic achievement among Nigerian students. Respondents were 317 high school learners. Results revealed achievement goal orientation accounted for 97.1% variance in academic achievement.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides an overview of the study, including a summary of the key findings. It also draws conclusions based on the objectives and presents recommendations concerning policy implications and areas for future research.

5.2 Summary

The main goal of the current research was to investigate how AGO and metacognition are related to AA. The first objective determined relationship between achievement goal orientation and academic achievement. The study findings showed a positive and significant relationship with academic achievement. Approach orientation scale had a positive predictive index meaning, an increase in the approach achievement goal orientation led to an increase in academic achievement scores. After further analysis, avoidance achievement goal orientation sub scale had negative predictive index implying that an increase in the avoidance achievement goal orientation score led to decrease in academic achievement score.

The second objective investigated the relationship between metacognition and academic achievement. Current research results revealed a significant relationship between metacognition and academic achievement. The subscale of metacognition regulation had highest correlation with academic achievement while metacognition knowledge had least correlation with academic achievement. The third objective established gender disparities in achievement goal orientation and metacognition. Boys had high level of achievement goal orientation and this could be the reason why boys performed better than girls. Boys had highest mean in approach orientation scale while

girls had highest mean in avoidance orientation scale. On the metacognition scale, boys had a high metacognition level than girls. In addition, boys had high level of metacognitive knowledge and metacognitive regulation.

The fourth objective established the relative predictive value of achievement goal orientation and metacognition on academic achievement. Result outcome unearthed that, although achievement goal orientation and metacognition predicted academic achievement, metacognition predicted academic achievement positively.

5.3 Conclusions

The first objective of the research was to find out the relationship between achievement goal orientation and academic achievement. Research findings showed positive and significant relationship between achievement goal orientation and academic achievement. Approach orientation scale showed a positive significant relationship with academic achievement implying an increase in approach orientation led to increase in academic achievement. After further analysis, Avoidance orientation sub scale showed a negative relationship with academic achievement.

Achievement goal theory suggests that approach-oriented students employ effective learning strategies, learn from mistakes, and seeking help when needed. This implied that, instructors should encourage collaboration through group works and, they should avoid ranking students and instead they should nurture individual ability rather than competitive environments that encourage adoption of avoidance orientation goals. Approach goals are more effective in guiding students to maintain motivation and effort, even if they are not at the top of the class. When important social agents such as teachers, parents, and peers prioritize cooperative learning and self-referenced improvement, an approach orientation climate is established. When there is a perceived

focus on results, such as outperforming others and receiving top grades in class, an avoidance orientation climate is created. Instructors and parents should always motivate students whenever they make self-improvement in each task they undertake. According to proponents of achievement goal theory, students set goals largely in response to teaching that emphasizes the value of learning and progress.

The second objective investigated the relationship between metacognition and academic achievement. Research analysis output indicated a significant relationship between metacognition and academic achievement. Metacognition regulation sub scale had highest correlation with academic achievement while metacognitive knowledge had least correlation. This implied that, students who had metacognitive regulation had ability to control their learning and this led to attainment of better grades. Consequently, past experiences are used as resources to address present-day cognitive challenges. This implied that, instructors should use learner knowledge of their experiences in past to lay foundation of new knowledge. Knowledge should be taught from general to specific. Teachers should only guide learning to increase content retention among students. The cognitive monitoring model places a strong emphasis on the need for educators to strive to create flexible, creative classroom environments that prioritize strategic learning. This method helps learners to verify, clarify and expand the knowledge they have.

The third objective was to find out gender differences in achievement goal orientation and metacognition. In achievement goal orientation scale, boys had high level of achievement goal orientation. Similarly, in approach subscale, boys had highest mean while girls had highest mean in avoidance orientation subscale. In metacognition scale, boys had a high metacognition than girls. Interestingly, boys had high level of

metacognitive knowledge and regulation. Analysis result pointed out that boys were performing better than girls. Analysis therefore found out that, boys were performing better because they had higher levels achievement goal orientation as well as metacognition which have a positive relationship with academic achievement. Achievement goal orientation framework has associated approach orientation goal with embracing mistakes and setbacks as opportunity to learn. Therefore, teachers should help girls to learn from their mistakes and see them as an opportunity to improve their academic achievement.

The last objective established a relative predictive weight of achievement goal orientation and metacognition on academic achievement. It was clear that although achievement goal orientation and metacognition had a significant relationship with academic achievement, metacognition positively predicted academic achievement better than achievement goal orientation. Since metacognitive knowledge and regulation help learners to think, understand, and manage their learning, metacognition may predict academic achievement better. Achievement goal orientation and metacognition necessitates planning, and learners cannot plan or establish objectives unless they understand their learning, such as their intellectual strengths and shortcomings. Therefore, teachers should ensure teaching instructions used encourage learners to evaluate their intellectual strength and weaknesses to enable successful planning in every task they undertake.

5.4 Recommendations

In the light of the study's results, the following suggestions are put forth for teachers, policymakers, parents, and future research.

5.4.1 Policy Recommendations

i) The first objective found positive relationship between achievement goal orientation and academic achievement. Approach orientation subscale had significant relationship with academic achievement than avoidance orientation scale. Therefore, teachers should emphasize and encourage individual improvement rather than competition to achieve better grades. Through these, students will not be intimidated and they will not concentrate to just passing examination but rather master content that will help in job markets. Although the government have shown great effort in the implementation of curriculum-based curriculum that emphasize on nurturing learners' ability, to ensure that the ratio of teachers to students is equal, more teachers should be hired. When more teachers are employed, this will reduce the current burden in schools where teachers are not able to fully understand all learners' ability due to high numbers of students in schools. Approach goal orientation may be enhanced when learners are graded according to their abilities and are taught to learn from mistakes. Parents should help children to view mistakes they make as opportunity to improve and learn. This will help teachers have easier work in educating learners on the importance of learning from mistakes.

ii) The second objective found out the relationship between metacognition and academic achievement. Teachers can assist learners in thinking aloud, allowing them to express their thoughts and reflect on their learning, while also encouraging them to write reflections on their understanding of a topic.

iii) The third objective found out gender disparities in achievement goal orientation and metacognition. In both predictor variables boys had high levels of achievement

goal orientation and metacognition. To increase achievement goal orientation in learners', teachers should help learners to embrace mistakes and to focus on content mastery rather memorization of the content to pass examination. Teachers can model or dramatize before the learners.

iv) The fourth objective determined relative predictive weight of achievement goal orientation and metacognition on academic achievement. Although achievement goal orientation and metacognition had a positive relationship with academic achievement, metacognition had a higher predictive weight than achievement goal orientation. In order to continue to develop, fulfill the needs of their students, assess their own development, teachers must be reflective in their practice. It's crucial to encourage pupils to reflect so they can establish their own reflecting practices and acquire metacognitive skills in order to improve their learning and get ready for their future. Policy makers should design a curriculum in which subjects that involve creativity can be introduced in school especially in early classes. Additionally, more materials for training should be given so that teachers get easier time in training learners. The government should come up with a program where creativity is rewarded in schools.

5.4.2 Recommendation for Further Research

The following suggestions were proposed for future research;

i) The current research used a correlational research design, therefore there was no manipulation of variables, and the cause-effect was not established. It is therefore necessarily to conduct similar research using different designs like experimental design to compare results. The current study used quantitative method only. Therefore, explanatory sequential methods design

can also be used to conduct similar study since it combines both quantitative and qualitative method.

ii) The study findings showed avoidance goal orientation predicted academic achievement negatively, therefore the study recommends similar study be carried out to compare results.

iii) The current research was conducted among form two learner in public high schools. Future studies are encouraged to undertake a comparable investigation both in public and private schools.

iv) The current research used sample of 376 students. There is a need for other studies to focus on a large sample size to compare the results. Larger sample sizes are better representative of the population and may provide more accurate results due to less error margins.

v) The current investigation was carried out in Nairobi City County. Therefore, it is not possible to generalize results to other counties. Similar research needs to be done in other counties for generalization.

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APPENDICES

APPENDIX A: INFORMED CONSENT LETTER

Elizabeth Wanja Mwangi

Department of Educational Psychology

Kenyatta University

P.O Box, 43844, Nairobi.

Dear students,

I am a student at Kenyatta University taking a Master Degree in School of Education in educational psychology. I am undertaking research on learners' reasons about why and how they set to accomplish their learning as well as some of the strategies they use in learning. The findings of the research may help increase learners' ability to understand and regulate their own thinking and become proficient in choosing appropriate learning goals and metacognitive skills for different learning tasks. Your participation in this study is very crucial to complete this noble task. Therefore, I kindly request you to help by providing information through filing the questionnaires and your responses will be used only for the purpose of this study. You have been identified to participate in this study if you agree to participate, please sign in space provided below.

_____ _____

Students' signature Date

_____ Date

_____

Elizabeth Wanja Mwangi

Researcher

APPENDIX B Data Collection Instruments

Section One: Demographic Data

Please respond to the given questions regarding yourself by putting a tick and filling the gap where applicable

1. Code ----------

2. Gender: Boy [ ] Girl [ ]

3. Age: _____

School type: Boys boarding [ ] Boys day [ ] Girls boarding [ ] Girls day ( )

Mixed school ( )

Section Two: Achievement Goal Questionnaire

The following 12 items describe the extent to which learners set their academic goals. For each statement, give your extent of agreement using the scale given. Using the scale below, kindly indicate the extent to which you agree or disagree with the given statements. Mark "√" against the statement that corresponds to your opinion in the space next to each statement. The responses range from, 1 = Strongly Agree, 2 = Disagree, 3 = Not Sure, 4 = Agree, and 5 = Strongly Agree

Item	Statement	Strongly Agree	Disagree	Not Sure	Agree	Strongly Agree
1	My aim is to completely master the material presented in this class.					

2	I am striving to do well compared to other students.					
3	My goal is to learn as much as possible.					
4	My aim is to perform well relative to other students.					
5	My aim is to avoid learning less than I possibly could.					
6	My goal is to avoid performing poorly compared to others.					
7	I am striving to understand the content as thoroughly as possible.					
8	My goal is to perform better than the other students					
9	My goal is to avoid learning less than it is possible to learn.					

10	I am striving to avoid performing worse than others.					
11	I understand content taught in class					
12	My aim is to avoid doing worse than other students					

Section Three: Metacognition Questionnaire

Think of yourself as a learner. Read each statement carefully. Consider if the statement is true or false as it generally applies to you when you. Tick (√) either True or False where appropriate.

	TRUE	FALSE
1. I ask myself periodically if I am meeting my goals.		
2. I consider several alternatives to a problem before I answer.		
3. I try to use strategies that have worked in the past		
4. I pace myself while learning in order to have enough time		
5. I understand my intellectual strengths and weaknesses.		
6. I think about what I really need to learn before I begin a task		
7. I know how well I did once I finish a test.		
8. I set specific goals before I begin a task.		

9. I slow down when I encounter important information		
10. I know what kind of information is most important to learn.		
11. I ask myself if I have considered all options when solving a problem.		
12. I am good at organizing information.		
13. I consciously focus my attention on important information.		
14. I have a specific purpose for each strategy I use.		
15. I learn best when I know something about the topic		
16. I know what the teacher expects me to learn.		
17. I am good at remembering information		
18. I use different learning strategies depending on the situation		
19. I ask myself if there was an easier way to do things after I finish a task		
20. I have control over how well I learn		
21. I periodically review content learnt to help me understand important relationships.		
22. I ask myself questions about the material before I begin.		
23. I think of several ways to solve a problem and choose the best one.		

24. I summarize what I've learned after I finish.		
25. I ask others for help when I don't understand something.		
26. I can motivate myself to learn when I need to		
27. I am aware of what strategies I use when I study.		
28. I find myself analyzing the usefulness of strategies while I study.		
29. I use my intellectual strengths to compensate for my weaknesses.		
30. I focus on the meaning and significance of new information.		
31. I create my own examples to make information more meaningful		
32. I am a good judge of how well I understand something		
33. I find myself using helpful learning strategies automatically.		
34. I find myself pausing regularly to check my comprehension.		
35. I know when each strategy I use will be most effective.		
36. I ask myself how well I accomplish my goals once I'm finished.		
37. I draw pictures or diagrams to help me understand while learning.		

38. I ask myself if I have considered all options after I solve a problem.		
39. I try to translate new information into my own words.		
40. I change strategies when I fail to understand.		
41. I use the organizational structure of the text to help me learn.		
42. I read instructions carefully before I begin a task		
43. I ask myself if what I'm reading is related to what I already know		
44. I reevaluate my assumptions when I get confused.		
45. I organize my time to best accomplish my goals.		
46. I learn more when I am interested in the topic.		
47. I try to break studying down into smaller steps		
48. I focus on overall meaning rather than specifics		
49. I ask myself questions about how well I am doing while I am learning something new.		
50. I ask myself if I learned as much as I could have once, I finish a task.		
51. I stop and go back over new information that is not clear.		
52. I stop and reread when I get confused.		

.

THANK YOU FOR PARTICIPATING IN THIS STUDY

APPENDIX C Pro Forma Summary of Student's Examination Results

Participant's Registration Number…….

Student's Academic Achievement Form 2 Examinations

Examination	Subjects	Mean score
Mid-term II 2023		
End of term 11 2023		

APPENDIX D Achievement Goal Orientation Questionnaire Research Authorization

Thank you for your order!

Dear Elizabeth wanja,

Thank you for placing your order through Copyright Clearance Center's RightsLink® service.

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APPENDIX E Metacognition Inventory Research Authorization

Dear Elizabeth wanja,

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APPENDIX F Graduate School Research Authorization Letter

KENYATTA UNIVERSITY
OFFICE OF THE EXECUTIVE DEAN GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Our Ref: E55/20642/2021

DATE: 13th April 2023

Director General,
National Commission for Science, Technology and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS. ELIZABETH WANJA MWANGI – REG. NO. E55/20642/2021

I write to introduce Ms. Elizabeth Wanja Mwangi who is a Postgraduate Student of this University. She is registered for M.Ed degree programme in the **Department of Educational Psychology.**

Ms.Elizabeth Wanja Mwangi intends to conduct research for a M.Ed. Thesis Proposal entitled, ***"Achievement Goal Orientation and Metacognition as Correlates of Academic Achievement Among Form Two Students in Nairobi City County, Kenya'.***

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
EXECUTIVE DEAN, GRADUATE SCHOOL

APPENDIX G National Commission of Science and Technology Research Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **431935**

Date of Issue: **26/April/2023**

RESEARCH LICENSE

This is to Certify that Ms.. Elizabeth Wanja Mwangi of Kenyatta University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Embu on the topic: Achievement Goal Orientation and Metacognition as Correlates of Academic Achievement Among Form Two Students in Nairobi City County, Kenya for the period ending : 26/April/2024.

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APPENDIX H Ministry of Education Research Authorization

Republic of Kenya

MINISTRY OF EDUCATION

STATE DEPARTMENT OF EARLY LEARNING AND BASIC EDUCATION

Telegrams: "SCHOOLING", Nairobi
Telephone; Nairobi 020 2453699
Email: rcenairobi@gmail.com
cdenairobi@gmail.com

REGIONAL DIRECTOR OF EDUCATION
NAIROBI REGION
NYAYO HOUSE
P.O. Box 74629 – 00200
NAIROBI

When replying please quote

Ref: RDE/NRB/RESEARCH/1/65 Vol.1

Date: 17th May, 2023

Elizabeth Wanja Mwangi

RE: RESEARCH AUTHORIZATION

We are in receipt of a letter from the National Commission for Science, Technology and Innovation regarding research authorization in Nairobi County on the topic: *"Achievement Goal Orientation and Metacognition as Correlates of Academic Achievement Among Form Two Students in Nairobi City County, Kenya."*

This office has no objection and authority is hereby granted for a period, ending **27th April, 2024** as indicated in the request letter.

REGIONAL DIRECTOR OF EDUCATION
NAIROBI
17 MAY 2023
MINISTRY OF EDUCATION
P. O. Box 74629, NAIROBI

DR. PETER KIRIKA
FOR: REGIONAL DIRECTOR OF EDUCATION
NAIROBI.

Copy to: Director General/CEO
National Commission for Science, Technology and Innovation
NAIROBI.

APPENDIX I Map of the Study Locale