ACADEMIC MOTIVATION AND ACHIEVEMENT EMOTIONS AS PREDICTORS OF SELF-REGULATED LEARNING AMONG FORM THREE STUDENTS IN NYERI COUNTY, KENYA

ROSALYNE KARUANA BUNDI

E55/CE/29016/2015

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE OF MASTERS OF EDUCATION (EDUCATIONAL PSYCHOLOGY) IN THE SCHOOL OF EDUCATION OF KENYATTA UNIVERSITY

APRIL, 2024

DECLARATION

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

Signature _____ Date _____

Rosalyne Karuana Bundi

E55/CE/29016/2015

Department of Educational Psychology

Supervisor

This proposal has been submitted for the appraisal with my approval as University Supervisor.

Signature _____ Date _____

Dr. Samuel Mutua Mutweleli

Lecturer

Educational Psychology Department

Kenyatta University

DEDICATION

This research project is dedicated to my mum Mary Nyawira for her selfless devotion in ensuring that I get education and to my daughter Precious Nyawira and son Mark Kabui for being my good friends.

ACKNOWLEDGEMENT

I utterly thank the Lord for making my studies a success. I also sincerely thank and appreciate my supervisor Dr. S. Mutweleli for his unfailing commitment, intellectual mentorship and moral support. I also thank the staff and support staff of Educational Psychology department.

I am thanking my family members for their continued encouragement and inspiration to complete this course. Lastly, I recognize my colleagues for their assistance and friends for their moral support. May the blessings of God be upon you!

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

AEQ	Academic Emotions Scale
AMS	Academic Motivation Scale
A-SRL-S	Academic Self- Regulated Learning Scale
GOAL-S	Goal Orientation and Learning Strategy Survey
K .C.S.E	Kenya Certificate of Secondary Education
LEM-B	Self-Regulated Learning Computerized Battery
MSLQ	Motivated Strategy for Learning Questionnaire
SDT	Self- Determination Theory
SRL	Self- Regulated Learning
UK	United Kingdom
USA	United States of America

ABSTRACT

Ineffective use of self-regulated learning strategies by learners in their studies may be a hindrance to the realization of successful learning outcomes. When students fail to utilize self-regulation strategies, the impact may be evident in massive failure in teacher made tests as well as national examinations. More specifically, the failure maybe attributed to limited use of planning, goal setting, rehearsal, seeking assistance and self-evaluation in academic activities. In order to help students utilize these strategies, there is need to investigate the psychological variables which promote or hinder their use in learning. Consequently, the purpose of this study was to determine if academic motivation and achievement emotions predicted self-regulated learning among form three students in Nyeri county. The study aimed at developing a model to predict students' self-regulated learning from academic motivation and achievement emotions. Further, the study established the relationships of academic motivation and that of achievement emotion and self-regulation as well as gender differences in both academic motivation and achievement emotions. The control value theory, self-determination and social cognitive theory informed the theoretical framework. The reseach design adopted was ex- post facto research design and the study was carried out in Nyeri Central Sub- County, Kenya. All the students in form three in Nyeri Central Sub- County public schools in the year 2022 were the study's targeted population. A pilot study that helped improve the research instruments was conducted in Kieni West Sub-County. The sampling procedures used to select a sample that comprised of 200 participants from four public secondary school were simple random, stratified and purposive sampling. A questionnaire was developed to collect information on participant's personal information. The scales used to measure academic motivation, achievement emotions and strategies of self-regulation were Academic Motivation Scale, Achievement Emotions Questionnaire and Motivated Strategies for Learning Questionnaire respectively. Data was analyzed using Pearson's Product Moment Correlation Coefficient, multiple regression and independent samples t-test. Findings of this study revealed that academic motivation correlated positively and significantly with self-regulation. ($r(196) = .77$, $\rho < .01$). The highest positive predictive weight on self-regulated learning from academic motivation was from intrinsic motivation towards accomplishment ($\beta = .56$, $\rho < .05$) followed by intrinsic motivation to know ($\beta = .09$, $\rho < .05$). Both amotivation and extrinsic motivation external regulation domains had significant negative predictive weight on self-regulation. However, a non-significant predictive weight was evident in self-regulated learning and intrinsic motivation to experience stimulation, extrinsic motivation identified and extrinsic motivation. Achievement emotions enjoyment had a strong positive correlation with self-regulated learning ($r(196) = .87$, $\rho < .01$). Emotions of anger, anxiety and boredom had a negative correlation with self-regulation. A significant gender difference in students' academic motivation was identified ($t(196) = 4.63$, $\rho < .05$). A non- significant gender difference was evident in emotions of enjoyment, anger and boredom. However, a significant gender difference was identified in emotion anxiety in favour of girls. The study's recommendations included the school administrators should coming up with intervention measures to help students develop emotion of joy as well as increase their intrinsic motivation level. Parents and teachers are also to come up with ways to inculcate and retain high level of intrinsic motivation as well as achievement emotion enjoyment and curb emotions of boredom, anxiety and anger from the experiences of the learner. Further research on predictor variables academic motivation and achievement emotions are also recommended.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

The study's background, problem statement, the study's purpose, objectives and hypotheses, limitations and delimitations constitute this chapter. The study's assumptions, significance, theoretical and conceptual framework and operational definition of terms are included too.

1.2 Background to the Study

The construct self- regulated learning comprises of learning strategies, abilities and skills which help a learner in monitoring their cognitive and metacognitive processes so as to persist in a goal-directed behaviour (Schunk & Zimmerman, 2013). Self-regulated learning involves the control learners exercise in the learning process where they develop skills such as setting attainable targets, being learning-oriented as well as comprehending the strategies to adopt in different learning tasks. Such strategies include; cognitive and metacognitive regulation which encompasses elaboration, rehearsal, management of time and study environment, critical thinking, management of resources, planning, seeking assistance as well as effort regulation. The abilities and skills that student develop when they use self-regulated learning in their academics are important in developing the long-life learning skills (Zimmerman, 2008). According to Järvelä, Järvenoja, and Malmberg (2012) self-regulated strategies aid the learner to adjust their learning behaviour as per the demands of learning tasks, they achieve good academic results.

Globally, when students transit from primary school to high school, a need to advance their learning strategies arises for effective learning to be realized. Donker and

Kostons (2012), suggests that primary school students are not well equipped with learning skills of self- regulation. According to De Jong (1992), through self-reflection and practice, students can be taught how to self-regulate throughout their high school education. Cazan (2013) suggests that teachers have a role in cultivating self-regulated learning skills among the learners to help them meet the ultimate goal of education which is academic performance. Van (2015) conducted a study that explored teacher's role in inculcating self-regulated learning behaviour among high school students in Netherlands. He reported that teachers play a vital role in supporting learners to self-regulate in their studies. Lucieer, Jonker, visscher, Rikers and Themmen (2015) conducted a study with a sample drawn from medical students in Erasmus MC Medical school two cohorts; freshmen were the first cohort and the third-year students formed the second cohort to investigate whether students there is change in student self-regulated learning throughout their course of study as such skills are needed to assist them in learning. It was evident from this study's that there was not much change in advancement of self-regulated learning. Thus, it is imperative to develop these skills among high school students so as to provide them with the self-regulating strategies needed for their subsequent studies.

In the USA, studies have credited teachers and parents to contributing grately in facilitating learners to self-regulate in their studies (Perry, Fisher, Caemmerer, Keith & Poklar, 2018). Similarly, in the UK, research has shown the need to help prepare teachers to train learners to adopt these strategies so as to help them in their autonomous studies (Oates 2019). In South Africa, Bothma and Monteith (2004) investigated the role of self-regulated learning and academic performance of online

students. The findings of this study implied that it was imperative for students to self-regulate in order to realize academic performance.

In Kenya various studies have credited students' role in learning to positively impact academic performance. For instance, Mutua, (2018) suggests that in learning, the learner has to play the pivotal role, despite the influence of the teacher and the parent, to improve their performance. This study further shows that motivational beliefs and self-efficacy facilitate students self-regulating in their studies. Mutweleli (2014) conducted a correlational study on self-regulated learning and academic performance. This study credited all the learning strategies of rehearsal learning and organization learning strategy have a positive predictive weight. Studies by Mwathi (2018) show one performance in reading comprehension was influenced by cognitive strategy and metacognitive knowledge.

Self- regulated learning skills in learning plays a vital role in positively influencing academic achievement (Blair, Calkins & Kopp 2010). Thus, underachievement witnessed in the national examinations may be linked to learners' failure to utilize these skills. The impact is felt when students miss opportunities to join higher institutions of learning. For instance, in Kenya in the years 2017, 2018 and 2019 candidates in Kenya Certificate of Secondary Education (KCSE) examination recorded a drastic poor performance. For instance, in the year 2017, only 11.38 % of the students who sat for their KCSE managed grade C+ and above and the case worsened in the year 2018 where only 13.77% of the total candidates that year managed grade C+ and above also in the year 2018 the results were no better as only 21.37% of the total candidates managed grade C+ above yet C+ is the least entry qualification for joining any university. This means that the 88.62%, 86.23% and

78.13% candidates in years 2017, 2018 and 2019 respectively were shut out from joining the university and worse still in these years more than 50% of these students got grade D and E which disqualified them from most of the post-secondary certificate and diploma courses.

The performance of candidates who sit for National examinations in Nyeri County has been worriedly poor. Specifically, in Nyeri Central Sub- County there has been numerous waste grades (ranging from D to E) attained in the K.C.S.E where a cumulative percentage of 53.67% of these grades has been recorded for the years 2017, 2018, and 2019 Nyeri Central Sub-County candidate class in the year 2018 recorded 54.39% of grades D and below yet only 14.75% scored grade C+ and above thus creating a very huge disparity among those candidates which may be attributed to the learner's failure to adequately utilize strategies of self- regulated learning in their studies. Researchers have conducted studies in Nyeri county to examine which variables may improve academic performance. For instance, Gitumu (2010) examined the relations between academic performance, orphanhood and self- esteem in Nyeri county. Njogu (2020), also investigated the how academic performance in KCSE if influenced by the school-based factors in Nyeri. These studies did not explore the relations between self-regulated learning, achievement emotions and academic motivation. Therefore, the need to carry out a study investigating the psychological variables academic motivation and achievement emotions on students' use of strategies of self-regulated learning.

The predictor variables in this study are academic motivation and achievement emotions. Academic motivation has been conceptualized as the desire and the interest that a learner shows in their studies (Nonyens et. Al., 2019). This desire may

stem from within the learner – intrinsic motivation where the student fully understands the value of the education so that the drive to learn stems from them voluntarily. There is also the desire that stems from without when pushing the learner to also learn as extrinsic motivation. Most studies have identified academic motivation as a significant predictor of self-regulated learning.

Research by Artino and Stephens (2009) has shown academic motivation as predictor of self-regulated of learning. There is variation in the kind and level of academic motivation varies from one learner to another and influences one's adoption of learning strategies. Self- regulated learning is hypothesized as a characteristic of students who depict intrinsic motivation while learners depicting extrinsic motivation and amotivation are less likely to be self- determined and this hinders them from self-regulating in their studies. (Ryan& Deci 2000).

Achievement emotions was the next predictor variable in this study. Achievement emotions are the affective states that the student will exhibits when learning. Four emotions were included in this study; emotion joy, anger and boredom. Studies by Felicidad & Allan (2012) shows that positive achievement emotions positively influence self- regulating behaviour among learners and consequently promote academic motivation. Higher levels of achievement emotions of pride and enjoyment among learners facilitate adoption of metacognitive strategies of self- regulation. However, students who depicted lower levels of academic emotions pride and enjoyment shy away from deep learning strategies of self- regulation. Therefore, a need to examine prediction of achievement emotions and academic motivation on self-regulated learning in order to guide the learners in Nyeri Central on how to control

their affects and motivation so as to facilitate self-regulating learning behaviour in studies.

1.3 Statement of the Problem

Failure of candidates to perform well in the national examinations may be blamed on students failure to use self-regulated learning strategies. Consequently, these learners miss out opportunity to join higher institutions of learning to further their studies and this may have far reaching consequences such as depriving the society of manpower with skills necessary to steer its economic growth. Thus, there is need to study the factors that may facilitate self-regulated learning behavior in attempt to improve academic performance.

Based on the foregoing background to the study, the predictor variables of self-regulated learning are academic motivation and achievement emotions. While some studies have reported relationship of these variables in developed countries, there is hardly any study that has investigated either of these relationships nor come up with a predictive model of self- regulated learning from academic motivation and achievement emotions in Kenya. Most studies in Kenya, have studied academic motivation, achievement emotions, and learning self- regulation as predictors of academic achievement leaving out the determinants of each variable more specifically learning self-regulation. The central problem of this study therefore was to identify the degree with which students self-regulated learning strategy use is predicted by academic motivation and achievement emotions.

1.4 Research Purpose

The intention of this research was to come up with a predictive model of self-regulation from achievement emotions and academic motivation. The study also

intended to explore the relationships of academic motivation and achievement emotions on self-regulation. The study also explored the gender differences in achievement emotions and academic motivation.

1.5 Objectives of the Study

The objectives that directed this study included;

i. To identify the relationship between academic motivation and self- regulated learning.
ii. To identify the relationship between achievement emotions and self-regulation.
iii. To establish the predictive value of achievement emotions and academic motivation in determining student's self- regulated learning.
iv. To test for gender differences in student's academic motivation and achievement emotion.

1.6 Research Hypotheses

The hypotheses that directed this research include;

H_{a1}: Academic motivation and self-regulation are related.

H_{a2}: There is a relationship between achievement emotions and self -regulation.

H_{a3}: Achievement emotions and academic motivation have a predictive value in determining self- regulated learning of students.

H_{a4}: Students' achievement emotions and academic motivation have gender differences that are significant.

1.7 Significance of the Study

The learners may profit from these research findings to understand the essence of productive use of self- regulation in their studies. Both teachers and parents may take advantage of this study's findings to offer conducive home and school environment so as to help the learners to develop the appropriate levels of academic motivation and the desired academic emotions that are paramount feature of self-regulation. The results of this study may enlighten policy makers in giving in-service training to teachers to help facilitate the acquisition and utilization of these learning strategies of self- regulation among learners in their studies. The study may also extend the studies on the prediction of self-regulation from achievement emotions and academic motivation.

1.8 Limitations and Delimitations of the Study

1.8.1 Limitations of the Study

This research was restricted to a few public high schools chosen from Nyeri Central, Nyeri County hence the findings were not generalized beyond Nyeri County where it drew its sample. The items in the instruments required respondents to make self-reports which brought about subjectivity effect in the measurement. This limitation was remedied by having some items in the questionnaire negatively phrased to counter random responding. Manipulation of predictor variables was not done therefore the causal relations of the study variables were not established.

1.8.2 Delimitations of the Study

This research majored on students in potential candidate class only in Nyeri Central Sub-County in public schools. Among other predictors of self- regulation, the study only investigated achievement emotions and academic motivation. The determinants

of learner's achievement emotions and academic motivation such as social economic status of the family, availability of enough trained teachers and learning resources in the institution and personal attributes like student's self- esteem level, health state and even their intelligence quotient level were not investigated. This study was majorly informed by studies on prediction of self- regulated learning from achievement motivation and achievement emotions.

1.9 Assumptions of the Study

It was anticipated that individual learner depicted varied kinds of achievement emotions and varied types of academic motivation at different levels which lead them to use different strategies of self-regulated learning. It was also supposed that participant in this study gave honest responses for each item of the questionnaire.

1.10 Theoretical and Conceptual Framework

1.10.1 Theoretical Framework

Self-determination Theory (Ryan and Deci 1985), Control Value Theory by Pekrun (2006) and Bandura's Social Cognitive Theory are the theories that informed this study.

a. Self Determination Theory (SDT) by Deci and Ryan (1985)

The theorists offer a substantive model of the construct motivation by probing the type of motivation that is being depicted at a particular moment through considering the drives and the motives that cause an individual to act. Three major types of motivation are identified by this model. Intrinsic motivation which makes an individual to engage in a task since involvement in the task makes one feels satisfied inherently (Deci & Ryan, 1985) was the first type. Intrinsic motivation comprises of three domains; intrinsic motivation to know which involves one having curiosity to explore facts and

obtain knowledge in given areas. The second domain is intrinsic motivation to experience stimulation that involves the sheer excitement of taking part in a learning task and lastly there is intrinsic motivation to accomplish which is motivation that drives an individual towards achieving the set goals.

Secondly, there is extrinsic motivation which is a psychological feature that instigates one to act towards an outcome that is separable such as a reward or status accordance. There are three domains of extrinsic motivation which occur in a continuum. The first is external regulation which involves the learner working to attain rewards. Next in the continuum is the introjected motivation where one realizes the cause of their own behaviour from past external contingencies. Lastly there is extrinsic motivation identified where a student engages in an activity since he can perceive the necessity of his conduct for instance opening up opportunities in the future. The last kind of motivation is amotivation. This is shown when individuals fail to perceive necessity of their behaviour nor the rewards of the others towards their efforts. Thus, such an individual may feel out of control of their behaviour and this will inhibit any engagement in learning tasks.

Deci and Ryan (1985) theory of self-determination formed the theoretical framework for studies by Mutweleli (2014) and Gachigi (2018). According to Gachigi (2018), the motivation orientation of the learner determines the student's interest and engagement in learning which influences their performance in mathematics. Mutweleli (2014) suggests that intrinsically motivated learners engage in learning tasks and show persistence because they are interested in academic tasks. Based on Deci and Ryan (1985), a learner who is highly academically motivated may engage in self- regulation strategies better compared to their counterpart with low level of

academic motivation. In this study, the self-determination theory aided the researcher in explaining students' academic motivation orientation and their preference in adoption of the varied learning styles of self- regulation.

b. Control Value Theory (Pekrun, 2006)

According to Pekrun (2006) individuals exhibit a given achievement emotion depending on how one perceives their ability to control their learning activities and its results which are of subjective significance. Such emotions are distinguished by their valence as either positive or negative and the extent to which they arouse one to act where some activate while others deactivate one's action. Pekrun (2006) supposes that enjoyment, an activating positive emotion, is induced when one feels in control of achievement and values the achievement in a positive way and thus will increase the likelihood to adopt strategies of self-regulation since one feels they have what it takes to master the task and regard it as important. When the individual fails to value an academic task in either positive or negative way, they experience boredom which inhibits use of self- regulation strategies.

Achievement emotion anger can be experienced in two different ways. The first way is when one values the academic task in a negative way and wants to engage in other non-related tasks yet one feels they have control over the academic task. Secondly, anger is experienced as a retrospective emotion where one values academic tasks in a positive way due to the negative consequences that followed one's failure to adopt the learning strategies in their academic tasks in the past and thus will facilitate use deep strategies of self-regulation to avoid similar consequences in the present. Lastly, anxiety, a negative activating emotion, is induced when one values the learning task yet feels out of control but fears to fail (Pekrun, 2006).

Pekrun and Stephens (2010) suggested that retrospective emotions enjoyment and anger that precede a student's success or failure respectively influences their use of cognitive strategy of learning. Further when learners experience emotions which make them feel in control of their studies, they may tend to have a higher likelihood to persist in the cognitive strategies and monitor their learning through metacognitive learning strategies. In line with this theory, a student who experiences positive emotions is expected to be in control of their academic activities hence making use of deep and meaningful self- regulation styles.

c. Social Cognitive Theory of Self – Regulation (Bandura, 1989)

The theory proposes that an individual's processes, conduct and environmental factors interact in a reciprocal way to influence learners' behaviour and to identify if any change is needed for the modification of students' cognitive processes. Zimmerman (1989) suggests that a student will use a given strategy of self- regulation to the extent that it matches one's personal processes to self- regulate and one's behaviour and surrounding.

Alotaibi, Tohmaz and Jabak (2017) used the social cognitive theory in their study. They credited personal factors such as internal motivation to influence self-regulated learning. For instance, they suggest that internal motivation in an encouraging environment will increase the likelihood of the learner to persist in their cognitive tasks and engage in metacognitive strategies of self- regulation to monitor their progress in their studies. Bandura (1977) posits out that anxiety makes one reluctant to carry on tasks and consequently will impede the self- regulating behaviour in their studies. In this study, the theory suggests that a learner's adoption of self-regulation

strategies is determined by the level of motivation and type of achievement emotions that one depicts regarding academic tasks demands which are personal factors.

1.10.2 Conceptual Framework

In Figure 1.1 academic motivation and achievement emotions were the predictor variables and self- regulated learning was the outcome variable. A student' level and type of emotion and motivation exhibited influenced their use of the strategies of self-regulation. Students' academic motivation and achievement emotions was anticipated to interact in determining self- regulated learning strategy. Gender differences in academic motivation and achievement emotions were hypothesized to exist.

Predictor variables (PV) Intervening variable Outcome Variable (OV)

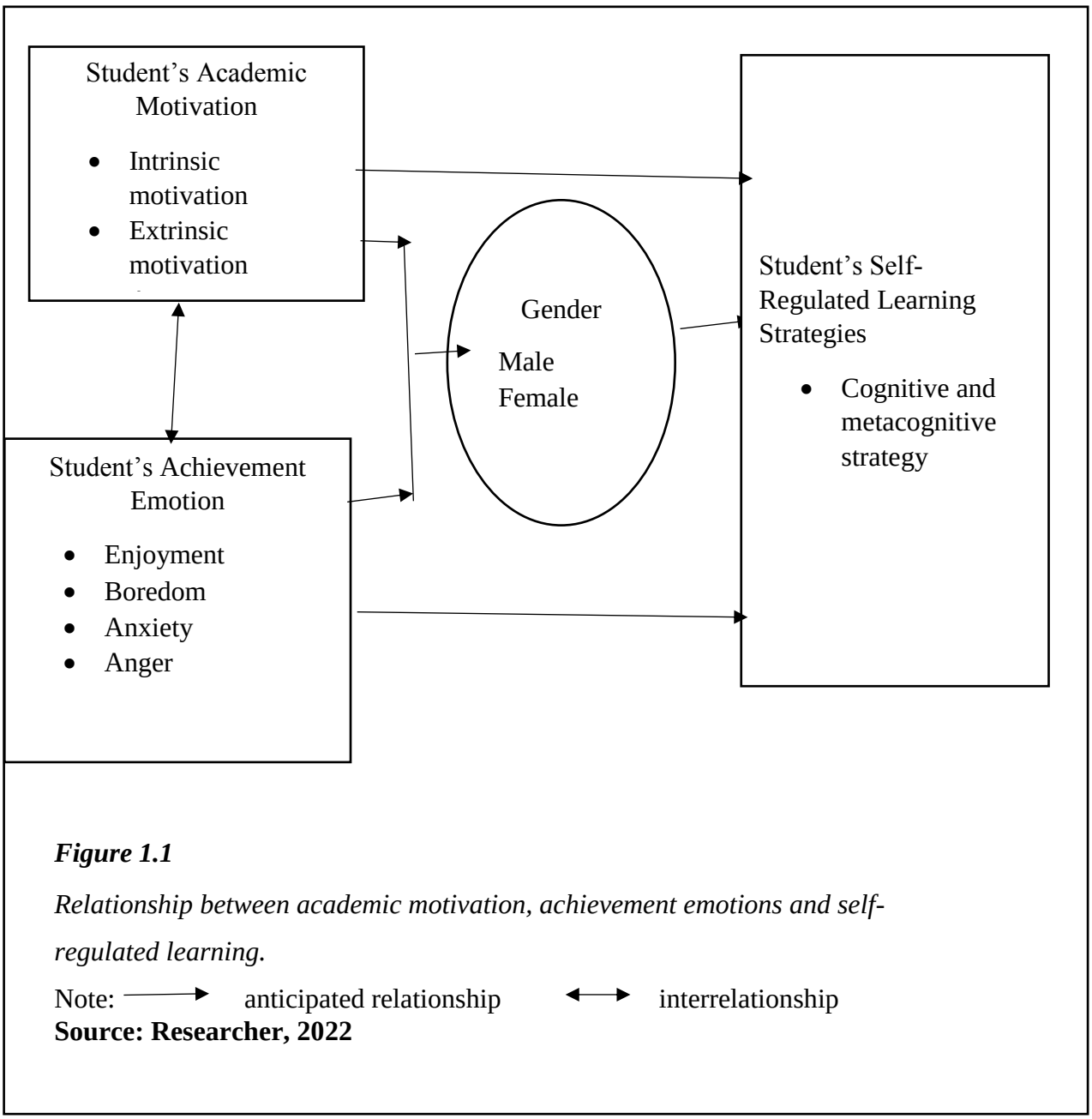

Figure 1.1

Relationship between academic motivation, achievement emotions and self-regulated learning.

Note: ⟶ anticipated relationship ⟷ interrelationship

Source: Researcher, 2022

1.11 **Operational Definition of Terms**

Academic Motivation	Students self- determination level given by score in Academic Motivation Scale.
Achievement Emotions	Students' affective states that are reflected by their score in Achievement Emotions Questionnaire (AEQ) rated at interval level of measurement.
Achievement Emotion Anger	Students' score in AEQ items measuring negative activating affect where one feels in control of their action. The level of measurement used was interval.
Achievement Emotion Anxiety	Students' score in AEQ items measuring negative deactivating affect that makes one avoid academic tasks. The level of measurement used was interval.
Achievement Emotion Boredom	Students' score in AEQ items measuring negative deactivating affect that makes one feel out of control academic tasks. The level of measurement used was interval.
Achievement Emotion Enjoyment	Students' score in AEQ items measuring positive activating affect where one feels in control their own academic tasks. The level of measurement used was interval.

Amotivation	An aggregate score in AMS items reflecting level learners feeling of out of control of academic activities. The level of measurement used was interval.
Cognitive Leaning Strategy	An aggregate score in MSLQ items measuring cognitive skills use in academic tasks. The level of measurement used was interval.
Extrinsic Motivation	An aggregate score in AMS items reflecting students' levels of motivation that is externally determined. The level of measurement used was interval.
Intrinsic Motivation	An aggregate score in AMS items reflecting students' level of motivation that gives one inherent satisfaction. The level of measurement used was interval.
Metacognitive Learning Strategy	An aggregate score in MSLQ items measuring metacognitive skills use in academic tasks. The level of measurement used was interval.
Self –Regulated Learning Strategies	An aggregate score in students cognitive and metacognitive strategies use as measured by MSLQ. The level of measurement used was interval.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter entails review of studies on associations of achievement emotion, academic motivation and self-regulation. Also, review of research on prediction of self-regulation from academic motivation and achievement emotions is done. Studies on gender differences in achievement emotions and academic motivation are reviewed. Finally, a summary of literature review and gap identification is also presented.

2.2 Relationship between Learning Motivation and Self -Regulated Learning

Aydin (2015) studied the relationship of student's use of metacognitive strategy and academic motivation for learning Biology among students in Kars, Turkey. The sample involved 286 students from three high schools in Anatolia. Data on metacognitive self- regulation was collected using Motivated Strategy for Learning Questionnaire (MSLQ) Turkish version and the Academic Motivation for Learning Biology Scale was used to measure academic motivation. Findings from this study showed that metacognitive self- regulation strategy correlated positively with both extrinsic motivation and intrinsic motivation and negatively with amotivation. However, relationships between the specific subscales of academic motivation and metacognitive strategy use were not identified in this study which left a gap that laid basis for the present study.

Cetin (2015) studied the relationship between learner's self- regulation and academic motivation and their prediction to academic performance in the USA. The sample comprised of 166 undergraduates drawn from Georgia Southern University.

Academic motivation was measured using AMS and Academic Self-Regulated Learning Scale (A-SRL-S) was used to collect data on academic self- regulation. The findings of this study revealed that the two study variables correlated positively. However, correlation between academic motivation domains and self- regulation using a sample comprising university students in the west hence it was interesting to identify if similar relationships were identified among high school students in a different geographical setting.

Sean (2015) conducted research to examine patterns of relations between academic motivation and the level of self-regulation among 372 undergraduates in Midwest, USA taking online courses. Data on use of self- regulation was collected using MSLQ while that of motivation was collected using a self- made questionnaire. Findings from this study indicated existence of a positive correlation in both intrinsic and extrinsic motivation with the individual's level of self-regulation. However, relations of amotivation and self- regulation were not studied thus the need for the present study. Additionally, the study only reported relationships between intrinsic motivation and extrinsic motivation and self-regulation without detailing the relationship of the various domains that constitute with self-regulation which was an important component in the current research. Also, the study was conducted among undergraduates hence left a gap for a similar study among high school students.

Another related research by Walker, Greene, and Mansell (2006) examined predictive value of intrinsic motivation on cognitive engagement (shallow processing and meaningful cognitive engagement). The sample was drawn from 191 volunteers from a large Southwestern university in the USA aged between 18 to 22 years. Data on intrinsic motivation was collected using AMS scale and on cognitive engagement was

measured using Cognitive Engagement Scale. The findings indicated a positive relationship intrinsic motivation and meaningful styles of cognitive engagement while amotivation related negatively with these deep strategies cognitive engagement. Extrinsic motivation was reported to be positively correlated with the cognitive tasks which are less demanding. However, this study, focused only on the cognitive engagement leaving out the relations of metacognitive self- regulation and amotivation which is an integral part of the current study. This study was carried out among undergraduates to evaluate self-regulation of learning, the current study sought to establish the trends of relationships present among high school students.

Zusho and Pintrinch (2003) conducted a study among 485 undergraduates in the University of Michigan, USA. The study investigated the correlation of motivational component and self-regulated learning and the use of cognitive learning strategy use. Data on cognitive strategy use was collected using MSLQ. This study's findings indicated existence of a positive relationship among self-regulated learning and motivational beliefs. This study involved university students from a developed country hence need for similar study among high school students from a different continent and country to report any cross-cultural differences if they exist.

2.3 Relationship between Achievement Emotions and Learning Self-Regulation

A study by Obergiesser and Stoeger (2016) investigated relationship between adoption of various strategies of self- regulation and emotions enjoyment, anger, boredom and anxiety among 200 secondary school students in Germany. The findings of one-way ANOVA revealed that learners experiencing joy and anxiety adopted external regulation style while those who experienced boredom and anger adopted

impulsive self-regulation strategies. These findings reveal that achievement emotions predicts one's choice of style of self-regulation thus the current study sought to investigate if this would be true for findings hold a true for students in a developing country.

King and Areepattarnani (2014) studied the effect of achievement emotions on strategies learning self-regulation in Metro Manila Philippines. The sample comprised of 1147 high school students. The Filipinos version of AEQ rated the students' achievement emotions and GOAL-S scale measured metacognition and cognitive strategies of learning. Positive academic emotions were reported to have a positive correlation with self- regulation strategies while anger and boredom showed a negative relation with the same. Anxiety showed ambiguous effects with rehearsal and monitoring. While this study centered generally on positive emotions, the present study narrowed down to the relationship of emotion of joy and self-regulation.

In a related study among university students, Artino & Jones (2012) examined how student's academic emotions are related to their adoption of self-regulation of leaning style. The sample comprised of 302 students from the USA service navy academy. Data on achievement emotions was collected using AEQ and self- regulation was measured using MSLQ. Boredom and frustration were reported to have a negative correlation with strategy elaboration and metacognition self- regulation strategy while joy experienced by learners correlated positively with the two strategies. While this study involved a sample drawn from service navy students in the western countries, the present study investigated if the findings from this study would be the same given a sample drawn from high school students as well as report any cross-cultural differences since the two samples were drawn from different locations.

In a related study Pekrun, Goetz, Frenze, Barchfeld & Perry (2011) examined the relations of achievement emotions with the presumed outcomes of self-regulation among others. The sample consisted of 389 undergraduates in Midwestern Canadian University taking psychology course at large. Data on self- regulated learning was collected using Perceived Self-Regulated Learning Scale. Findings from correlational study indicated a positive relation between positive emotions and learning self-regulation. While negative emotions, regardless of their nature of activation correlated negatively to self-regulation of learning. However, this research was undertaken among undergraduate students using a different scale other than MSLQ to measure self- regulation unlike in the current research which was carried out among students from high school.

2.4 Prediction of Learning Self-Regulation from Academic Motivation and Achievement Emotions

Few studies have investigated the prediction of self-regulation of learning from academic motivation and achievement emotions. In a related study Artino (2009) examined the role of motivation and academic emotions on self- regulation of learning among 398 undergraduates from the USA service navy academy on how motivational beliefs and negative emotions are related to self-regulation. The learning strategy use and motivational beliefs were measured using MSLQ, and AEQ was used to measure achievement emotions. Task value reported the greatest positive beta weight $\beta=.57$ $\rho<.001$ thus was the strongest contributor explaining SRL. Self- efficacy was second in contributing to SRL with a beta weight of $\beta=.19$ $\rho<.001$followed by continuing motivation which had a beta weight of $\beta=.17$ $\rho<.001$ and finally boredom was reported the least predictor of SRL where $\beta= -.18$ was the beta weight $\rho<.001$. The study

concluded that motivational beliefs were a better predictor than negative achievement emotions in predicting self-regulated learning. However, these findings are based on service navy undergraduates thus the need to carry a similar study. Also, this study reported only prediction of negative emotions on self-regulation without specifying the individual emotion such as is the case with present study where emotions of anger, frustration and anxiety. Also, achievement emotion of joy which was not studied in the prior study was studied in the current study.

Mega, Roncoi &De Beni (2014) carried out a related study among 5805 undergraduate students from university of Pauda. Among the objectives was to test the impact of achievement emotions on SRL and motivation. Data on the three variables was collected using LEM-B. The findings reported positive emotions to have the largest beta weight of β=.53 thus a strong contributor of SRL while negative emotions were reported to be a weak contributor of self- regulated learning with a beta weight of β= -. 25. However, this did not show the prediction of motivation on self- regulation hence leaving a breach that the current study seeks to find given different scales and a sample drawn from high school students.

2. 5 Gender Differences in Academic Motivation and Achievement Emotions

2.5.1 Gender Differences in Academic Motivation

Koseoghu (2013) investigated gender difference among 729 male and 721 female undergradutes from a university in Istanbul, Turkey. Data was collected using a researcher's self- made questionnaire to measure academic motivation. Findings of Independent T- test analysis showed that there were no significant gender differences between the two genders. The present study sought to identify if analogous

relationships would be identified given a sample drawn from high school student since the other study's involved undergraduates.

Barkoukisa, Tsobatzzoudis, Grouisa and Sideridisb (2008) investigated differences in male and female students' academic motivation among students in Greece. The sample comprised 911 secondary school students. The results of this study indicated existence of gender difference in academic motivation where girls had higher mean in intrinsic motivation than their male counterparts and low scores on amotivation than the male students. However, this study left a gap in sex differences in extrinsic motivation which was an integral area in the present study thus this study aimed at filling this gap.

Mutweleli (2014) investigated sex differences in academic motivation in Nairobi, Kenya. The Sample comprised of 938 (394 females, 544 males) was drawn among form three students. The results of this study indicated a higher score in male students than females in the three intrinsic motivation domains and in extrinsic motivation domain identification but male students had lower scores than female ones in the domains of external regulation and introjection and in amotivation. The current study sought to examine whether similar findings were established given a sample drawn from a different location in Kenya.

2.5.2 Gender Differences in Achievement Emotions

Sex differences in students' achievement emotions has interested various researchers. Among them are Pekrun et. al. (2011) who investigated existence of sex differences in students' achievement emotions. A sample of 389 (234 females, 155 males) undergraduates from Midwestern Canadian University taking Psychology courses at large. Among this study's findings was existence of differences in sex in the

achievement emotions they experienced where females scored a higher mean in positive emotions than males while males registered a higher mean in anger than girls and there were no significant gender differences in other emotions such as boredom. However, findings of this study involved a sample constituting undergraduates unlike the current study where participants are secondary school students.

Chraif and Anitei (2013) conducted a study to investigate sex differences in self-perception of achievement emotions in Bucharest, Romania. The sample comprised of 152 (72 boys, 80 girls) from secondary school students aged from 16 to 18 years. Data on achievement emotions was collected using Behaviorally Anchored Ratings Scales. The results showed existence of gender difference in achievement emotions where female students' levels of enjoyment and anxiety exceeded the levels of their male counterparts while the levels of anger were higher in males than in females. However, this study did not consider the emotion boredom which was an important aspect of the present study and also was interesting to use a different scale for measuring the achievement emotions.

Cocorada (2016) examined the differences in gender in males and female achievement emotions in Transylvania. The sample comprised of 213 undergraduates from Transylvania University. Findings from this study indicated existence of gender differences where higher mean in enjoyment was in the female students than their male counterparts. Male students were reported to have recorded high mean than female ones in emotions boredom, anxiety and anger. However, this study was based among undergraduates thus the need to investigate if the findings from a sample drawn among learners from high school were similar to those of sample constituting undergrates.

2.6 Summary of Reviewed Literature and Gap Identification

Most studies gone through in the foregoing literature review on academic motivation, achievement emotions and self-regulated learning were conducted in the Western countries and mostly among college and university students taking online courses, thus creating a gap of similar studies in a developing country among learners in normal classroom set up in high schools. Hence, there is need to conduct this study in secondary schools in Kenya so as to facilitate awareness of the importance of achievement emotions and achievement motivation on self-regulated learning.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The chapter entails the research design, techniques, locale, variables, population of the study, sampling techniques, sample size, research instruments, validity, reliability, logistical and ethical considerations.

3.2 Research Design

An ex- post facto research design was adopted in this research. According to Salkind (2010), an ex-post facto research is carried out with the assumption the occurrence of facts has happened without interference of the researcher. This design was adopted because it was not possible to manipulate the academic motivation and achievement emotions which are the predictor variables.

3.3 Variables

In this research the predictor variables are achievement emotions and academic motivation. Achievement emotions which included in this study were enjoyment, anger, anxiety and boredom. The dimensions of academic motivation included were amotivation, extrinsic motivation and intrinsic motivation. Predictor variable scales were rated at interval level. Gender, an intervening variable was measured at nominal level of measurement. Learning self-regulation included both cognitive and metacognitive strategies and was measured at interval level. Self-regulation was the outcome variable in this study.

3.4 Locale

The research was conducted at Nyeri Central Sub- County, Nyeri County, Kenya which is a cosmopolitan area hosting the county headquarters hence has students from diverse home and ethnic backgrounds which might not be the case in other sub-counties. This sub- county has 20 public schools that were considered in the sample selection. Poor performance in national examination which may be taken as an indicator of lack of self-regulation among students has been witnessed in Nyeri county. For instance, Nyeri Central Sub- County has fared poorly in the national examinations in the years 2017, 2018 and 2019 K.C.S.E statistics show that the sub-county's mean score dropped from grade C to D. This drop in performance is contrary to the expectations of education stakeholders that candidates should attain a quality grade which would enable them to join the universities and institutions of higher learning so as to be impacted with more knowledge and skills to steer economic development of the county and help handle one's personal issues skillfully.

The analysis of Nyeri Central's K.C.S.E performance in years 2017, 2018 and 2019 obtained from the Nyeri Central Director of Education indicates about 80% of secondary schools attained a mean ranging from grade D and E. The choice of Nyeri Central was necessitated by this alarming percentage of poor performance with an intention of understanding the likely psychological variables related to self- regulated learning which may assist the students in attaining the learning goals. Nyeri Central being in the heart of the Nyeri County headquarters and formally the provincial headquarters of Central Province, it's possible for the students to be engaged in many activities such as business, fashion, gambling, and entertainment which may interfere

with their academic motivation and achievement emotions consequently limit their self- regulation in learning.

3.5 Target Population

In this research the targeted population was entire form three class in the year 2022 in Nyeri Central Sub-County in public. The accessible population were form three students in 20 public schools. According to data sourced from the County Education Office in Nyeri this population was 2008 students (1317 boys and 691 girls). The 20 schools were eligible for inclusion. Though for a school to be chosen it had to have enrolled at least 50 students to facilitate meeting the required number of participants.

Selection of form three class was done on the basis that they have already selected the subjects for their KCSE examination which they would sit for in the subsequent year and that they have had a considerably long time in their stay in school. These students were also expected to be more determined and committed in their study. Achievement emotions and academic motivation are necessary determinants of self- regulation. According to Bandura (1986), the learning environment and one's developmental level influences the ability of the learner to self-regulate. Thus, it is expected that in preparation for their formative examinations and the K.C.S.E., they had already developed appropriate achievement emotion and academic motivation that would guide them to adopt the necessary strategies of self- regulation in their studies. The level of emotions adopted and motivation was expected to be higher in form three.

3.6 Sampling Techniques and Sample Size

3.6.1 Sampling Techniques

Purposive sampling was adopted to choose Nyeri Central Sub- County on the basis of continued poor performance in 2017- 2019 K.C.S.E. and form three students were

chosen on the basis of having selected the subjects hence they were expected to use self-regulation strategies exhaustively. Stratified sampling was employed in selection of schools included in the study. The 20 schools were arranged in three categories forming three strata. Four schools were randomly chosen from each stratum that is one from the girls' boarding strata and boys' boarding strata and two from co-educational day strata. The strata sizes were varied which enabled the samples size to be proportional to the stratum size. Kothari & Garg (2014), considers proportionate allocation to efficiently and favourably give a population estimate value of some features that sees to it that within stratum, there is no difference in variance. To select a sample size of 200 participants, the researcher used simple random techniques. This gave each student a fair chance of selection and consequently the sample represented the population truthfully.

3.6.2 Sample size Determination

From the 20 schools, 4 were chosen as the sample. The population of the four schools was 2008 (1317 boys and 691 girls). Out of these, 200 respondents, (131 males and 69 females) were chosen accounting for 20% of the population targeted. Gorard (2015), suggests that for a population that is fairly large the sample size deemed suitable should range between 10% - 20%. The researcher obtained the sample by first structuring the schools in three strata using stratified sampling procedures. This was followed by proportionate allocation of the participants in each stratum. Finally, selection of participants involved simple random techniques. The researcher used class lists from the various schools to organize the participants. In the case of co-educational schools' separate lists for both girls and boys were made to ensure gender representation. The researcher then wrote "yes" and "no" on papers and then folded

them. The “yes” were equal to the expected number of respondents. The papers were mixed thoroughly and placed in a box for students to pick. The questionnaires were filled by those students who pick a paper written “yes”.

The respondents were distributed in three categories of the school types. In line with the proportionate allocation, the study had more boys than girls as the boys were more than girls in the target population. Table 3.1 shows accessible population’s summary and the size of the actual sample.

Table 3.1

Sampling frame

Type of school	Accessible population			Sample		
	School	Students		School	students	
		Boys	Girls		Boys	Girls
Boys’ boarding	4	853	_	1	85	-
Girls’ boarding	2	_	289	1	_	29
Co-educational day	14	464	402	2	46	40
Sub total		1317	691		131	69
Total	20	2008		4 Approx. 20 %	200 Approx. 10%	

Key. Approx. - Approximately

Source: County Director of Education, Nyeri County.

3. Research Instrument

The researcher administered a questionnaire that was structured into five sections. Section I contained the instructions, Section II contained items on participant's background information such as student's age, gender, type and residential status of the school. Section III contained the Academic Motivation Scale (AMS). Section IV comprise of Achievement Emotions Questionnaire (AEQ) and finally Section V comprised of Motivated Strategy for Learning Questionnaire (MSLQ). The full scales which were adopted appear in Appendix B.

a.Vallerand, Pelletier, Blais, Briere, Senecal andVallieres (1992)Academic Motivation Scale (AMS)– Version for High school

This scale comprised of 28 items measuring the factors of academic motivation. The7 factors represented the three domains of intrinsic motivation; to know, to accomplish and to experience stimulation. The other 3 factors are of extrinsic motivation; introjection, identification and external regulation and the 7^{th} factor is on amotivation. A 7 points Likert scale was used to rate each item. Each sub- factor gives a score ranging from 4- 28 as there are no items whose scores need to be reversed. Further academic motivation was computed using the mean scores of each factor to give a score ranging between -18 and 18. Low level of academic motivation was indicated by a score of -18to -7 while a score of -6 to 6 indicated moderate level and finally sores ranging between 7 and 18 indicated high level of academic motivation.

b. Achievement Emotions Questionnaire (AEQ) Pekrun, Goetz, frenzel, Barchfled, and Perry (2011)

The subscale of learning related to emotion was adopted. This sub-scale comprised of 38 items measuring four achievement emotions and each item was rated on 6-point

Likert scale. The items measuring each achievement emotions were as follows: enjoyment 10 items, anger 7 items, anxiety 11 items and boredom 10items. The scores of each emotion ranged from 1-6. A score ranging between 1- 2.7 indicated low level while that ranging from 2.8-4.5 moderate level and from indicted 4.6-6 high level of a given emotion.

c. Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich and De Groot (1990)

The MSLQ developed by Pintrich and De Groot (1990) was adopted to measure self-regulated learning strategy use. The items comprise of 22 items measuring the cognitive and metacognitive domain. A 7 points Likert's scale was used to rate each item. Four items' scores were reversed. The total score ranged from 1-7. A score ranging 1.1-3 indicated low level of self-regulation, while a score of 3.1- 5 and that of 5.1 – 7 indicated moderate and high score respectively.

3.8 Pilot Study

A pilot study was done in a co-educational day school. The questionnaires were given to 20 students who were randomly selected from a form three class in a mixed secondary school in Kieni West Sub- County in Nyeri County. The pilot study adided the researcher to make improvements on vague and ambiguous items. The results were useful in trying out the data analysis techniques in readiness for the main study and for determination of the instruments' reliability.

3.8.1 Validity

The researcher did consultation with the lecturers who reviewed the instruments to ascertain that they had both face and content validity. The respondents were allotted

same time and upon completion they handed the questionnaire to the researcher. This information assisted the researcher to modify the items for the actual research.

3.8.2 Reliability

The internal consistency reliability coefficients of the various scales reported by the authors were taken; Pekrun, Goetz, frenzel, Barchfled, and Perry (2010) reported the reliability of the learning related subscale of AEQ to be: Enjoyment.78, Anger.86, Anxiety.84 and Boredom.92 Cronbach's alpha. The AMS scale internal consistency was found to range from.78 and.90 Cronbach's alpha reliabilities as reported by Vallerand, et. al (1992). Finally, the MSLQ reliability was found to range from 0.88 and 0.81 Cronbach's alpha reliabilities as reported by Ilker, Arslan and Demirhan (2014). However, findings of the pilot study provided the reliabilities that the researcher used this is shown in Table 3.2.

Table 3.2

The Instruments Cronbach Alpha Reliabilities

Variable	Cronbach's Alpha	No. of item
Learning motivation	.88	28
Emotion enjoyment	.76	10
Emotion anger	.85	7
Emotion anxiety	.84	11
Emotion boredom	.90	10
Self-regulated learning	.81	22

Source: Field data (2022)

The instruments were adopted for this study since their reliabilities were all above .70 which is considered reliable for a study.

3.9 Data Collection Techniques

Permission to administer the questionnaires was obtained from the school principals by the researcher. During the material day, the study's rationale was described to the students and the specific concerns it entailed as well as how they would fill. The researcher was present as respondents filled the questionnaires and upon completion, the participants personally handed them over to the researcher for confidentiality purposes. The questionnaires were administered during the preps after lunch break. The questionnaires were administered in the order of general information, followed by AMS, AEQ, MSQL which measured academic motivation, achievement emotions and self-regulation.

3.10 Data Analysis

The researcher coded the quantitative data using the Statistical Package for Social Science (SPSS) in readiness for statistical analysis. Further, descriptive statistics were used in description of the participants characteristics.

The researcher used the following inferential data analysis techniques in testing the null hypotheses as follows;

H_{o1}: Academic motivation and self-regulated learning have no significant relationship. Pearson's product moment correlation coefficient tested this hypothesis.

H_{02}: Achievement emotions and self-regulated learning have no significant relationship. Pearson's product moment correlation coefficient tested this hypothesis.

H_{03}: Self-regulated learning has a non- significant model equation of prediction from academic motivation and achievement emotions. This hypothesis was tested using multiple regression analysis.

H_{04}: There is no significant gender differences in students' achievement emotions and academic motivation. This hypothesis was tested using independent test.

3.11 Logistical and Ethical Considerations

3.11.1 Logistical Considerations

From Kenyatta University, graduate school, a research clearance was acquired by the researcher. Then from National Commission for Science Technology and Innovation (NACOSTI) the researcher got a research permit. An appointment was booked with County Director of Education- Nyeri County where a research clearance was obtained. Booking an appointment with the school principals and the form three class teachers in the sampled schools followed. During the appointments, the researcher discussed the purpose and benefits of the research and agreed on the day, time and venue for data collection.

3.11.2 Ethical Considerations

The researcher ensured the research objective was exhaustively explained in the informed consent of the respondents which was issued to each respondent. The researcher ensured confidentiality was guaranteed the respondents' data was reported in percentages and averages. The researcher ensured anonymity of the respondent by asking the student not to give their identity in the questionnaires and assuring them that the information was only meant for research purposes. The researcher further, ensured that all the Covid- 19 protocols were observed where the students washed

their hands in running water, put on face masks and maintained social distance when filling in the questionnaires. The participants were assured that their participation had no risks involved whatsoever. The participants, whenever they felt uncomfortable participating, were free to withdraw from the study. Lastly, there was a pledge by the researcher to make available this study's findings to the schools and among the public through the available information sharing platforms.

CHAPTER FOUR

FINDINGS, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings, interpretations and discussion as per the stated hypotheses and objectives. General and demographic information is presented in second section. Section three captures findings, interpretation and discussions. Lastly, exploratory analysis is contained in the final section.

4.2. General and Demographic Information

Background data and rate of return of questionnaire school category and respondents' age constitutes this section.

4.2.1 Rate of Return

The questionnaires were administered to the 200 sampled students from the four high schools chosen. Table 4.1 presents a comparison of the targeted sample and the actual response rate.

Table 4.1

Return Rate

School Type	Targeted Respondents			Considered Respondents		
	Male	female	Total	Male	Female	Total
GB		29	29		28	28
BB	85		85	83		83
CD	46	40	86	46	39	85
Total (F)	131	69	200	129	67	196
	(65.5)	(34.5)	(100)	(64.5)	(33.5)	(98)

Note. N= 196. GB= girls boarding, BB= boys boarding, CD= co-educational day.

Table 4.1 indicates that 196 participants were the valid respondents out of the 200 sampled respondents. During the data cleaning process, four questionnaires were discarded. The exclusion criteria of such questionnaires involved the respondent scoring one response consistently throughout the questionnaire and having at least four unmarked items in the entire document. The student's response rate was 98%. Male students formed 64.5% of the respondents while the rest 33.5% were female students. This showed that though male students were more than the female ones, at least both genders were considered in this study.

4.2.2 Demographic Information

The categorical variables age, gender and school type of the participants were cross tabulated. Table 4.2 depicts the findings of the cross-tabulation.

Table 4.2

Participants' Distribution by Gender, Age and Type of School

		Gender		Total
Type of school	Age Category	Girls	Boys	*F*
BB	14-15	_	33	33 (39.76)
	16-17	_	38	38 (45.78)
	18-19	_	12	12 (14.46)
GB	14-15	9	_	9 (32.14)
	16-17	14	_	14 (50)
	18-19	5	_	5 (17.86)
CD	14-15	17	18	35 (41.18)
	16-17	14	18	32 (37.64)
	18-19	8	10	18 (21.18)
Total		67	129	196 (100)

Note. N=196. GB= girls boarding, BB= boys boarding CD= co-educational day.

From Table 4.2 indicates 45.78 % of the boys from boys' boarding school were aged 16-17 years, 39% were aged between 14-15 years and nearly 14.46% were in the age18-19 years. In the case of girl boarding, half of the girls were aged between 17-18 years, about 32.14% of the girls ranged between 14-15 years and the rest 17.86% was aged between 18-19 years. In the case of Co-educational day, 41.18% of the respondent fell in the age brackets of 14-15 years, 37.64% of the respondents age

ranged between 16-17 years and lastly 21.18% was aged between 18-19 years. In all the three school type categories, it was evident that the age category ranging between 16-17 years had the most students which is within the schooling age stipulated by UNESCO (2019).

4.3. Students' Self-Regulation of Learning

The student's self- regulation of learning score was computed from the MSLQ scale which comprised of the cognitive and metacognitive domain of learning regulation.

4.3.1 Descriptive Analysis of Self- Regulation of Learning.

The researcher conducted descriptive analysis on self-regulation score. Table 4.3 shows the results of this analysis.

Table 4.3

Self-Regulation Score Description

SRL	Range	*M*	*SD*	Skewness	Kurtosis
	2.23-5.77	3.9	.93	-.12	-1.4

Note. N= 196. SRL= Self- Regulated Learning

Table 4.3 shows that the respondents' self-regulated learning score ranged between 2.23 to 5.77 (M=3.9, SD=.93). A negatively skewed distribution was shown in students self-regulated learning which implied that most of the respondents rated themselves highly in their cognitive and metacognitive learning strategy use. This could be because these students were approaching their K.C.S.E thus they had internalized these strategies. Self-regulation score is further categorized into three groups of high, moderate and low levels of self-regulation. Table 4.4 presents the findings of this analysis.

Table 4.4.

Participants' Self-Regulation Levels Description

Level of SRL	*F*
Low	49 (25.5)
Moderate	124 (63.3)
High	23 (11.7)

Note. *N*=196, SRL= Self- Regulated Learning, *F*= Frequency

Table 4.4 shows that 63.3% of the respondents had moderate level of self-regulated learning. They were followed by respondents with low level and finally those who rated themselves high level of self-regulated learning were the least. The results implied that the respondents were in the process of developing their self-regulation levels since the majority of them fell in the moderate level of self-regulation. This was expected as they were in form three where more learners are expected to study more than those in the lower forms.

4.4 Students' Academic Motivation and Self-Regulation

To find out the relationship between academic motivation and self- regulated learning was the initial objective of this research. Descriptive statistics were conducted on academic motivation. Table 4.5 shows the findings of this descriptive analysis.

Table 4.5

Academic Motivation Score Description

ACMT	*SD*	Range	Min	Max	*M*	Skewness	Kurtosis
	2.29	9.58	1.0	10.58	5.97	-.15	-1.13

Note. N=196. ACMT= Academic Motivation

From Table 4.5 it is evident that the range for participants' academic score fell between 1.0- 10.58 (M=5.97, SD=2.29). The distribution of this score was negatively skewed hence most of the respondent graded themselves highly in the academic motivation scale. The scores were further analyzed to get groups of low, moderate and high scores. Table 4.6 depicts the findings of this analysis.

Table 4.6

Levels of Academic Motivation Description

ACMT Levels	*F*
Low	0 (0)
Moderate	119 (60.7)
High	77(39.3)
Total	196(100)

Note. N=196, ACMT- Academic Motivation

From Table 4.6, it was evident that there was no student who rated themselves lowly in academic motivation. More than half of the respondents rated fell in the moderate academic motivation category while the rest fell in the high academic motivation category. This implied that the respondents in this study had already developed academic motivation towards learning.

Further, descriptive statistics were carried out for the 7 subscales of learning motivation. Findings of this analysis are shown in Table 4.7.

Table 4.7

Description of Academic Motivation Dimensions

Sub scale	Range	Minimum	Maximum	Mean	*SD*	Skewness	Kurtosis
IMTK	18	9	27	18.25	3.14	0.26	-.15
IMTA	16	12	28	20.5	4.34	-0.29	-1.21
IMES	17	12	28	17.68	3.76	.14	-.64
EMER	14	14	28	22.17	2.95	-.11	0.37
EMID	15	13	28	20.62	3.61	-.07	-.89
EMIN	16	12	28	18.48	3.34	-.49	-.79
AMT	8	4	12	7.02	1.87	.17	-.07

Note. N= 196 IMTK= Intrinsic Motivation to Know; IMTA= Intrinsic Motivation Accomplish; IMES= Intrinsic Motivation to Experience Stimulation; EMID= Extrinsic Motivation Identified; EMIN= Extrinsic Motivation Introjected; EMER= Extrinsic Motivation External Regulation; AMT= Amotivation; SRL= Self-Regulation of Learning.

From the results in Table 4.7, from intrinsic motivation sub-scales, intrinsic motivation to accomplish recorded the highest mean (M=20.5, SD=4.34). While intrinsic motivation to experience stimulation recorded the least mean. Also, apart from intrinsic motivation to accomplish that was negatively skewed, the rest were positively skewed. This meant that the students' exploitation of the self- regulated learning strategy was largely not contributed to intrinsic motivation domain. Extrinsic motivation external regulation sub scale had the highest mean (M=22.17, SD=2.95)

in extrinsic motivation domain while in extrinsic motivation introjected subscale the least mean was recorded (M=18.48, SD=3.34). All the domains of extrinsic motivation distribution were negatively skewed which implied respondents scored high scores in extrinsic motivation. Lastly, in the domain amotivation, mean was (M=7.02, S. D= 1.87) and the students rated themselves lowly as the distribution of the scores was positively skewed.

4. 4.1 Hypothesis Testing

H_{o1}: Academic motivation and self-regulated learning have no significant relationship.

A bivariate analysis was conducted on academic motivation score and self-regulated learning using Pearson product moment correlation coefficient to test this hypothesis. The results are shown in Table 4.8.

Table 4.8

Correlation Coefficients of Academic motivation and Self-regulated learning

Academic motivation	r^a
	.77

Note. N=196. [a=] correlation with self-regulated learning.

The results from Table 4.8 indicated existence of a positive relationship which was statistically significant between learning motivation and self- regulation (r (196) =.77, p<.01). Hence the rejection of the null hypothesis was rejected. Therefore, the conclusion was that a significant relationship existed between academic motivation and self- regulated learning. The findings suggest that high score the academic motivation was proportionate to high the score in self- regulated learning and the lower the academic motivation score the lower the self-regulation score.

Further analysis was conducted to identify the correlation of academic motivation dimensions on self-regulated learning using multiple regression analysis. The findings are depicted in Table 4.9.

Table 4.9

Model Summary for Types of Academic Motivation on Self- Regulated Learning

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.817[a]	.66	.65	.547

a. Predictors: (Constant), Amotivation, intrinsic motivation to know, extrinsic motivation

Table 4.9 depicts a model of regression for prediction of self- regulation from academic motivation dimensions. 65% of the variance in self- regulated learning (Adjusted R^2 =.65) can be explained by academic motivation dimensions. Further, the predictive values of each domain of learning motivation on self-regulation are depicted in Table 4.11.

Table 4.10

Beta Coefficient of Academic Motivation Sub Scales on Self- Regulated Learning

Model	Unstandardized Coefficients		Standardized Coefficients	*T*	Sig.
	B	Std. Error	Beta		
(Constant)	1.80	.79		2.27	.02
Intrinsic know	.11	.05	.09	2.01	.04
Intrinsic Accomplish	.48	.06	.56	7.53	.00
Intrinsic Experience Stimulation	-.02	.06	-.01	-.24	.80
Extrinsic Identified	.10	.07	.10	1.49	.13
Extrinsic Introjected	.01	.05	.01	.22	.83
Extrinsic External Regulation	-.15	.05	-.13	-2.68	.00
Amotivation	-.29	.11	-.14	-2.54	.01

Note. N=196

From Table 4.11, the findings showed that four sub-scales of academic motivation significantly predicted self- regulation. Intrinsic motivation to accomplish had the highest positive predictive weight on self- regulated learning ($\beta=.56$, $p<.05$) followed by intrinsic motivation to know ($\beta=.09$, $p<.05$). A significant negative predictive weight was witnessed in the domain external regulation whose predictive weight was negative and significant ($\beta=-.13$, $p<.05$) which was a similar trend in amotivation (($\beta=-.14$, $p<.05$).

A significant regression equation was obtained

$\tilde{y}$= 1.80+.09 IKN+.56IMA - .13EIT -.14AMT. (R^2=0.65) $p < 0.05$

Where $\tilde{y}$= predicted value of self- regulated leaning score, IMA= intrinsic motivation to know, EID= extrinsic motivation identified, EIT= extrinsic motivation external regulation, AMT= amotivation.

From this equation, it is evident that dimensions of academic motivation were significant in predicting self- regulated learning. These findings prompted the researcher to conduct an independent samples T-test with an intention of finding out whether different levels of students' academic motivation among students had differences in means that were significant. Table 4.11 shows the findings analysis.

Table 4.11

Respondents' Self-Regulation Mean Difference between Students with High and Average Academic Motivation

	Learning Motivation Category	N	Mean	Std. Deviation	Std. Error Mean
Self-Regulation	Average	119	3.41	.858	.07
	High	77	4.65	.371	.04

Note. N= 196

Further, to determine whether there was a significant mean difference, independent sample t- test was conducted. The findings are presented in Table 4.12.

Table 4.12

Independent Sample t-test

	Levene's test for equality of variance		t- test for equality of means			
Self-regulated learning	*F*	*Sig.*	*T*	*Df*	Sig.	*MD*
	54.85	.00	-12.00	194	.00	-1.24
			-13.93	173.68	.00	-1.24

Note. N= 196

Table 4.12show that the difference in mean between the two levels of academic motivation was significant in favour of students with high academic motivation (t=-12, ρ=.00).

4.4.2 Discussion of Results

The present study's findings were consistent with Cetin (2015) study which reported a presence of a positive relationship between self-regulated learning and academic motivation. Cetin (2015) however used a different scale to measure self-regulated learning and having a sample comprising university students whereas in the current study students in high school comprised the sample. Thus, regardless of the level of school and scale, different location and cross-cultural differences, academic motivation was shown to have a positive correlation with self-regulation. These studies suggested that academically motivated learners extensively utilized strategies of self- regulation to their advantage.

This study's findings agree to some extent with those of Sean (2015) who reported existence of positive relationship between both extrinsic motivation and intrinsic motivation domains of self-regulation. In this study, whereas a positive correlation was reported between self- regulated learning and domains intrinsic motivation to know and intrinsic motivation towards accomplishment, a negative relationship was evident between self-regulated learning and intrinsic motivation domain to experience stimulation. In the case of extrinsic motivation, where Sean (2015) had reported positive relationship the current study findings differed with these findings since a negative correlation was dominant in extrinsic motivation domain since a positive relationship was only reported in extrinsic motivation domain identified with self-regulation.

The current findings on the relations of amotivation and self-regulation validated findings of Aydin (2015) and Walker, et al, (2006) which reported a negative correlation between the two variables. This implied that amotivation was a hindrance effective use of strategies of self-regulation among learners. The present study findings in the other both intrinsic and extrinsic motivation agree to some extent with those of Aydin (2015) and Walker, et al, (2006). For instance, both Aydin (2015) and Walker, et al, (2006) reported a positive relationship of intrinsic motivation and self-regulation strategies. This was similar trend observed in two out of the three domains of intrinsic motivation (to know, to accomplish) but a negative relationship was observed in the subscales of intrinsic motivation to experience stimulation and self-regulation. Lastly, for the case of extrinsic motivation, the current study reported a negative correlation in two domains of extrinsic motivation (introjected and external regulation) whereas the domain extrinsic motivation identified was the only domain

with a positive correlation value with self-regulation. These findings contrasted with that of Aydin (2015) which reported a positive relationship of extrinsic motivation with metacognitive regulation. This variation in findings may be credited to the fact that the current research narrowed down to the three domains of extrinsic motivation while Aydin (2015) studied extrinsic motivation as a whole entity.

Findings from multiple regression analysis revealed that some academic motivation domains were significant predictors of self -regulation. The findings reported by Walker, et al, (2006) study identified a positive predictive value in intrinsic motivation on student's self-regulation are supported by the current finding. Although this study did not narrow down to the specific domains of intrinsic motivation as is the case in this study, a positive and significant weight was reported intrinsic motivation (to accomplish and to know). Findings on amotivation having a predictive value that was negative and significant on cognitive learning strategy was consistent with that of the current study. Despite the current study's findings that extrinsic motivation (identified and introjected) domains had positive predictive value, on self- regulation, the value was not significant. Hence students who depicted this kind of motivation were not likely to exploit both cognitive and metacognitive strategies thoroughly as this score in extrinsic motivation domain would be attributed to chance. This was a contradiction of the earlier findings by Walker, et al, (2006) that extrinsic motivation positively predicted shallow cognitive engagement tasks. The difference in the findings may be attributed to the fact that in Walker, et al, (2006) study the sample was drawn from university students aged between 19 -22 years whose academic motivation and self-regulation was higher than the sample used in this study that was drawn from high school students and aged between 14 -19 years.

Finally, students who scored highly in academic motivation scored highly in self-regulation in comparison with the ones who scored low level of the same. This finding supported Mutweleli (2014) who attributed student with high level of academic motivation to have more academic achievement as a result of engagement in learning activities. Further, these findings were in support of Ajayi, Lewani and Salomi (2012) postulation that academic motivation was an integral construct in studying and consequently academic performance.

4.5 Students' Achievement Emotions and Self- Regulation of Learning

Determining the relationship of students' achievement emotions and self- regulation was the second objective of this study. Four achievement emotions were involved namely enjoyment, anger, anxiety and boredom.

4.5.1 Descriptive Statistics

Descriptive statistics of students' achievement emotions were carried out on students' achievement emotions scores. Table 4.13 shows descriptive analysis findings.

Table 4. 13

Achievement Emotions Score Description

Variable	Range	Min	Max	Mean	*SD*	Sk.	Kur.
Enjoyment	4.00	1.50	5.50	3.60	1.06	-.42	-1.22
Anger	3.86	1.43	5.29	3.06	1.02	.34	-1.16
Anxiety	3.91	1.45	5.36	2.99	1.03	.57	-.78
Boredom	3.70	1.40	5.10	2.92	.97	.55	-.95

Note N= 196.

From Table 4.13 it was evident that the highest mean was in achievement emotion enjoyment (M=3.60, SD=1.06, Range=4) and the least mean was in in achievement emotion boredom (M=2.92, SD=.97, Range=3.86). All the negative emotions anger, anxiety and boredom had scores with a positive distribution. The positive distribution meant that the students rated themselves lowly on these emotions. However, in the case of positive emotion enjoyment the distribution of scores was negative. This implied that the students scored high scores in emotion of joy.

4.5.2 Hypothesis Testing

The study's second hypothesis was;

H_{02}: Achievement emotions and learning self-regulation have no significant relationship.

The researcher further formulated four supplementary hypotheses to make this hypothesis testable.

$H_{02.1}$: There is no significant relationship between enjoyment and self-regulated learning.

$H_{02.2}$: There is no significant relationship between emotion anger and learning self-regulation.

$H_{02.3}$: There is no significant relationship between emotion anxiety and learning self-

regulation.

$H_{02.4}$: A non- significant relationship exists between emotion boredom and learning self-regulation.

To tested theses hypotheses, Pearson Product moment correlation was done. Depicted in Table 4.14 are the correlation analysis findings.

Table 4.14

Achievement Emotions and Self- Regulated Learning Correlation Coefficients

Achievement emotion	r[a]
Enjoyment	.87
Anger	-.81
Anxiety	-.73
Boredom	-.72

Note. N=196. [a]=correlation with self-regulated learning.

Table 4.14 shows that all the achievement emotion domains had a significant relationship with self-regulated learning. Achievement emotion enjoyment had a strong positive relationship with self-regulated learning (r (196) =.87, p<.01). Consequently, rejection of the hypothesis and the conclusion was that achievement emotion enjoyment had a positive and significant relationship with self- regulation.

Similarly, there was a negative statistically significant relationship in emotions anger, anxiety and boredom. Anger had the highest negative correlation (r (196) =-.81, p<.01) and boredom the least negative correlation (r (196) =-.72, p<.01). Form this data, the researcher rejected all the supplementary hypotheses and the conclusion was that there was a significant relationship between achievement emotion anger and self-regulated learning, between anxiety and self- regulated learning and also between boredom and self- regulated learning. Prompted by these findings, the researcher conducted a multiple linear regression analysis with an aim of establishing the differential levels of contribution of achievement emotions on self-regulation. Table 4.15 shows the findings.

Table 4.15

Stepwise Regression Analysis for Achievement Emotions

	R	R^2	Adjusted R^2	Change statistics				
Achievement Emotion				R^2 change	F	df1	df2	Sig.
Enjoyment	.87	.76	.76	.76	646.92	1	194	.000
Anger	.81	.65	.65	.65	371.95	1	194	.000
Anxiety	.73	.54	.54	.54	232.37	1	193	.000
Boredom	.72	.52	.52	.52	212.47	1	194	.000

Note. N=196

Table 4.15 shows that emotion enjoyment accounted for 76% of variation in self-regulated learning (R^2=.76), emotion anger 65% (R^2=.65) while achievement emotion anxiety and boredom accounted for 54% and 52% respectively. The predictive weights for academic emotions on self-regulated learning are shown in Table 4.16.

Table 4.16

Beta Coefficients for Achievement Emotions

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.98	.28		10.38	.00
Enjoyment	.52	.04	.60	11.98	.00
Anger	-.25	.06	-.28	-4.00	.00
Anxiety	-.15	.06	-.16	-2.40	.01
Boredom	.08	.07	.08	1.11	.26

Note. N=196

Achievement emotion enjoyment was found to be the best predictor of self- regulated learning (β=.60, p<.05) followed by anger (β=-.28, p<.05) and lastly emotion anxiety (β=-.16, p<.05). Emotion boredom was a non-significant predictor of learning self-regulation (β=-.08, p>.05).

A significant regression equation was derived from Table 4.15 and Table 4.16.

Equation

$\hat{y}$=2.98+.60JOY-.28ANX-.28ANX.

Where $\hat{y}$ is the predicted value of self-regulated learning, JOY is emotion enjoyment, ANG is emotion anger and ANX is emotion anxiety.

4.5.3 Discussion of Findings

The current study utilized Achievement Emotions Questionnaire to evaluate students' achievement emotions; enjoyment, anger, anxiety and boredom. Descriptive statistics show that students scored higher scores in achievement emotion enjoyment. However, in emotions anger, anxiety and boredom the students rated themselves lowly. Achievement emotions had significant relationship with self-regulated learning strategies. Achievement emotion enjoyment had a positive significant relationship with self-regulation while emotions boredom, anxiety and anger had a negative significant relationship with self-regulation. These results implied that students who valued academic tasks and they it they could overcome extensively utilized cognitive and metacognitive learning strategies as opposed to those who experienced negative emotions anger, anxiety and boredom. The implication of these findings is that emotions of joy facilitate self-regulation while emotions of anger, anxiety and boredom should hinder self-regulation.

The findings of the current research were a replica of earlier research by King and Areepattarnani (2014) who studied the impact of academic emotions on self-regulation among high school students but utilized a different scale to measure self-regulation. The findings reported achievement emotions had a positive correlation with self-regulation while negative emotions specifically boredom had a negative correlation with self-regulated learning. Emotions anxiety, though reported to have an ambiguous effect on self-regulated learning, the present research indicated that it had a negative correlation with self-regulated learning. These results suggest that despite the cultural background of the learners and variation in scales to measure the outcome

variable, positive achievement emotion joy had a positive relationship with self-regulation and emotion boredom negatively correlated with self-regulation.

There was consistency in the current study findings with the earlier studies by Artino and Jones (2012) who reported similar patterns of correlation as that of the current study among a sample of 302 USA service navy academy. Further, Pekrun, et al. (2011) also reported similar patterns of relationship in emotions joy and boredom and self-regulated learning from a sample drawn from university undergraduates. From these findings it was evident that level of schooling did not influence the relationship of achievement emotions and self-regulated learning. In both studies the findings were similar thus no cross-cultural difference was reported in the relationship of achievement emotions and achievement emotions. This implied that emotions which hindered self-regulation should curb in whatever level of school and create an environment that fosters growth of emotion of joy in order increase self-regulation and consequently academic performance.

4.6 Prediction of Self- Regulated Learning from Achievement Emotions and Learning Motivation.

The null hypothesis was;

H_{03}: There is no significant predictive equation of self-regulated learning from academic motivation and self-regulated learning.

To test this hypothesis a multiple regression analysis was conducted and the results are shown in Table 4.17.

Table 4.17

Model Summary for Academic Motivation and Achievement Emotions on Self-Regulation.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.90[a]	.81	.81	.40

Note. N=196

The findings from Table 4.17 show that the R^2 value (.81) suggest that only 81% of variation in students' use of self-regulation learning strategy was contributed by academic motivation and achievement emotions. This means that if students developed his level of academic motivation and achievement emotions, their self-regulated behaviour would be largely improved. Further, the predictive weights of each variable are depicted in Table 4.18.

Table 4.18

*Academic Motivation and Achievement Emotions Predictive weights on Self-Regulation***.**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.84	.38		7.47	.00
Enjoyment	.52	.04	.59	11.40	.00
Anger	-.20	.05	-.23	-3.51	.00
academic motivation	.01	.02	.03	.54	.00
Anxiety	-.09	.05	-.10	-1.73	.08

Note. N=196

Table 4.18 shows that that significant predictive weight was only in achievement emotions enjoyment and anger on self- regulated learning (β=.59, ρ<.05; β=-.23, ρ<.05) respectively. However, emotion anxiety had a negative predictive value on self-regulation that was not significant (β-.10, ρ>.05) Academic motivation was a positive significant predictor of self- regulated learning (β=.03, ρ<05). These findings implied that emotion anxiety did not affect students' self-regulation in any way though it is a negative predictor. Achievement emotion of anger should be avoided by learners as it had detrimental consequences on self-regulation. Both achievement emotion of joy and academic motivation fostered the use of self-regulated learning strategies.

An equation of self-regulation from achievement emotions and academic motivation that was significant advanced as follows;

$\hat{y}$=2.84+.03ACMT+.59 JOY-.23ANG (R^2=.81) (ρ<.05)

Where ŷ is the predicted value of self-regulated learning, ACMT= academic motivation, Joy= emotion enjoyment, ANG= emotion anger.

4.6.1 Discussion of Findings

The present study's results agreed with those of Artino (2009) who reported a significant positive predictive value on continued motivation and self-regulation and a significant negative predictive value from negative emotions on self-regulation. Similarly, Mega, et al (2014) had reported that positive emotions had a high predictive weight on self-regulation hence strong contributors of self-regulation while negative emotions were weak negative contributors of self-regulation. The current study's findings showed emotion enjoyment had a high positive predictive value however emotion anger had a low negative predictive value on self-regulated learning. These findings showed that regardless of the schooling level of students and different social and cultural background, there was a significant prediction of self-regulation learning strategy from academic motivation and academic emotions. These findings imply that without factoring in the cultural differences, level of school, emotion of anger should be done away with at whatever cost. The students should be academically motivated and depict emotion of joy which will facilitate self-regulation as well as academic performance.

The predictive equation shows that the combined effect of the two variables studied showed a high variance on self-regulation. This meant that students who were highly academically motivated and had exhibited high level of emotion enjoyment and lower level of emotion anger were likely to extensively use self-regulated learning. These findings suggest that, if learners develop their academic motivation and achievement

emotions, their likelihood to be more self-regulated will increase and consequently impact will be realized in academic performance.

4.7 Gender Difference in Academic Motivation and Achievement Emotions

To determine if there were gender difference in learners' academic motivation and achievement emotion was the study's fourth objective. Additionally, the researcher explored gender differences in self-regulation.

Hypothesis testing

H_{04}: There is no significant gender differences in academic motivation and self-regulated learning.

The researcher formulated two supplementary hypotheses to make this hypothesis testable.

$H_{04.1}$: There are no gender difference in academic motivation that are significant.

$H_{04.2}$: There are no significant gender difference in achievement emotions.

a. Supplementary hypothesis testing

$H_{04.1}$: There are no significant difference in learning motivation.

Respondents' academic motivation score by gender were analyzed with an aim of testing this hypothesis. Table 4. 19 depicts results of this analysis.

Table 4.19

Learning Motivation Score by Gender Description

	Gender	N	Mean	SD	SE
academic motivation	Male	129	6.33	2.40	.21
	Female	67	5.28	1.89	.23

Note. N= 196

Table 4.19 shows that male students scored a higher mean in learning motivation (M= 6.33, SD= 2.40) than the female ones (M= 5.28, SD= 1.89). Further, an independent sample t-test was done to identify which means were statistically significant. The findings are depicted on Table 4.20.

Table 4.20

Independent t-Test Learning Motivation

	Levene's test for equality of variance		t- test for equality of means			
Academic	*F*	*Sig.*	*T*	*Df*	Sig.	*MD*
motivation	10.01	.00	3.08	194	.00	1.04
			3.32	163.93	.00	1.04

Note. N = 196.

From Table 4.20 it was evident that difference in mean in students' academic motivation was significant (t (196) =3.08, ρ<.05). This meant that there was sufficient evidence that male students were highly academically motivated than their female counterparts. Hence the null hypothesis was rejected as there was a significant mean difference in academic motivation in favour of the male students.

Further, analysis on mean differences were conducted on the dimensions of academic motivation. The findings are shown in Table 4 .21.

Table 4.21

Mean Difference in Academic Motivation Sub-Scales

	Gender	N	Mean	SD
Intrinsic Motivation to Know	Male	129	4.71	.77
	Female	67	4.26	.72
Intrinsic Motivation to Accomplish	Male	129	5.25	1.02
	Female	67	4.86	1.16
Intrinsic Motivation to Experience Stimulation	Male	129	4.22	.92
	Female	67	4.79	.84
Extrinsic motivation introjected	Male	129	4.50	.87
	Female	67	4.84	.72
Extrinsic Motivation External Regulation	Male	129	5.51	.72
	Female	67	5.56	.77
Extrinsic motivation Identified	Male	129	5.24	.94
	Female	67	4.98	.80
Amotivation	Male	129	1.68	.46
	Female	67	1.89	.44

Note. N=196

Table 4.21 shows that there existed mean differences all the subscales of academic motivation. This prompted the researcher that to run independent sample t-test to evaluate if these differences in mean were significant. Gender differences results are depicted in Table 4.22.

Table 4.22

Academic Motivation Independent Sample t- Test for Sex Difference

	Levene's test for equality of variance		t-test for equality of means		
Domains of academic motivation	*F*	Sig.	*T*	*Df*	Sig
Intrinsic motivation to know	1.95	.16	3.91	194	.00
Intrinsic motivation to accomplish	3.77	.05	2.41	194	.01
Intrinsic motivation to experience stimulation	.63	.42	-4.23	194	.00
Extrinsic motivation introjected	3.41	.06	-2.78	194	.00
Extrinsic motivation external regulation	.19	.68	-.44	194	.65
Extrinsic motivation identified	3.86	.05	1.87	194	.06
Amotivation	.11	.73	-3.00	194	.00

Note. N= 196.

The findings from Table 4.22 show that in intrinsic motivation domains, gender differences were significant. Of the three domains, intrinsic motivation to experience stimulation gender difference was in favour of girls ($t(196) = -4.23$, $p<0.05$). It was concluded that males had higher mean in intrinsic motivation that was statistically significant. Only one subscale of extrinsic motivation domain was significant in favour of females which is extrinsic motivation introjected ($t(196) = -2.78$, $p<0.05$). Though male students scored higher mean in most domains of extrinsic motivation the difference was insignificant. However, the conclusion was that male learners were more extrinsically motivated than females. The mean difference in domain amotivation was statistically significant in favour of girl ($t(196) = -3.00$, $p<0.05$).

These findings implied that there was sufficient evidence to support the higher mean in intrinsic motivation in females than males. However, there was no sufficient evidence to support the higher means in males in both extrinsic motivation domains and amotivation.

b. Second Supplementary Hypothesis Testing

$H_{04.2}$: There is no significant mean differences in achievement emotions.

To test this hypothesis, descriptive analysis was conducted on each individual achievement emotion by gender to come up with mean, standard deviation. Table 4.23 shows the findings of this analysis.

Table 4.23

Mean Differences in Achievement Emotions

Achievement Emotion	Gender	*N*	Mean	Std. Deviation	Std. Error Mean
Anger	Male	129	3.04	1.10602	.09738
	Female	67	3.11	.85625	.10461
Enjoyment	Male	129	3.55	1.06358	.09364
	Female	67	3.68	1.06451	.13005
Anxiety	Male	128	2.81	1.00438	.08878
	Female	67	3.35	1.01786	.12435
Boredom	Male	129	2.8574	.99732	.08781
	Female	67	3.0612	.92882	.11347

Note. *N*=196

Table 4.23 indicates that male students had lower mean score in all the four achievement emotions than the female ones. The researcher further conducted independent sample t-test to identify if the gender difference in the findings was significant.

Table 4.23

Achievement Emotions Independent Sample t- Test

Achievement emotion	Levene's test for equality of variance		t- test for equality of means		
	F	Sig.	*T*	*Df*	Sig.
Anger	14.73	.00	-.46	194	.64
Enjoyment	.07	.79	-.81	194	.41
Anxiety	.36	.54	-3.52	194	.00
Boredom	.17	.67	-.1.38	194	.16

Note. N=196

From Table 4.23 it is evident that only achievement emotion anxiety had a mean difference that was statistically significant (t (196) = -3.52, p=0.00) in favour of females. In the other three achievement emotions; anger, enjoyment and boredom mean difference was in favour of girls in these emotions though the difference was statically non-significant. These findings meant female students were more nervous than male students.

4.8 Exploratory Analysis

The researcher investigated whether a statistically significant mean difference existed in academic motivation and achievement emotions across age and type of school. This was intended to offer further insights into the findings of the study, although not included in the objectives of the study.

4.8.1 School Type, Academic Motivation and Achievement Emotions

The researcher run analysis of variance (ANOVA) to investigate if there was significant mean difference between academic motivation and achievement emotions across school type. Table 4.24 show the findings of this analysis.

Table 4.24

Analysis of Variance for Mean Difference in Academic Motivation across School Type

Achievement motivation	Sum of Squares	*Df*	Mean Square	*F*	Sig.
Between Groups	7159.22	2	3579.61	9.21	.00
Within Groups	74979.48	193	388.49		
Total	82138.70	195			

Note. N=196.

Results from Table 4.24 shows that a mean difference that was significant in academic motivation across school type (F (2,193) =9.21, ρ<.05). This implied that academic motivation was not influenced by the type of school and consequently self-regulated learning. Further, the researcher identified which type of schools had significant mean

difference by conducting a post hoc analysis (Tukey's HSD). Table 4.24 depicts results of this analysis.

Table 4.24

Differences in Mean in Academic Motivation and School Type

(I) type of school	(J) type of school	Mean Difference (I-J)	Std. Error	Sig.
Boys	Girls	-2.05	4.30	.88
	Co-educational	11.60*	3.04	.00
Girls	Boys	2.05	4.30	.88
	Co-educational	13.65*	4.29	.00
Co-educational	Boys	-11.60*	3.04	.00
	Girls	-13.65*	4.29	.00

Note. N=196 *. Significance level 0.05 of mean difference

From Table 4.24 it was evident that the difference in mean between co- educational day and boys' school and girls' school was statistically significant. However, the differences in mean between boys' and girls' school was not significant. This implied that academic motivation was not impacted by the school type of the learner.The researcher went ahead further in seeking the difference in mean of achievement emotions across school type. Table 4.25 depicts results of the men differences.

Table 4.25

ANOVA for Academic Emotions Mean Differences across Type of School

Achievement Emotion		Sum of Squares	*df*	Mean Square	*F*	Sig.
Enjoyment	Between Groups	23.43	2	11.71	11.48	.00
	Within Groups	196.89	193	1.02		
	Total	220.32	195			
Anxiety	Between Groups	71.15	2	35.57	49.50	.00
	Within Groups	137.97	192	.71		
	Total	209.13	194			
Anger	Between Groups	42.37	2	21.18	25.11	.00
	Within Groups	162.82	193	.84		
	Total	205.19	195			
Boredom	Between Groups	55.59	2	27.79	41.11	.00
	Within Groups	130.49	193	.67		
	Total	186.08	195			

Note. N=196

From Table 4.25 a mean difference that was significant between the four achievement emotions across school type; Emotion enjoyment ($F(2,193) = 11.48$, $\rho < .05$), emotion anxiety ($F(2,193) = 49.5$, $\rho < .05$), emotion anger ($F(2,193) = 25.11$, $\rho < .05$) and emotion boredom ($F(2,193) = 41.11$, $\rho < .05$) was evident. This meant that the school which the participants may have contributed to the emotions that one exhibited. These findings implied that school type was a significant factor in achievement emotions and consequently self-regulated learning. Additionally, post hoc analysis (Tukey's HSD) was done to identify which type of school had significant mean difference. Table 4.26 presents the results.

Table 4.26

School Category and Mean Differences in Achievement Emotions

Dependent Variable	(I) type of school	(J) type of school	Mean Difference (I-J)	Std. Error	Sig.
Enjoyment	BS	GS	-.43	.22	.12
		CD	.52*	.15	.00
	GS	BS	.43	.22	.12
		CD	.96*	.22	.00
	CD	BS	-.52*	.15	.00
		GS	-.96*	.22	.00
Anxiety	BS	GS	-.63*	.18	.00
		CD	-1.30*	.13	.00
	GS	BS	.634*	.18	.00
		CD	-.67*	.18	.00
	CD	BS	1.30*	.13	.00
		GS	.671*	.18	.00
Anger	BS	GS	-.166	.20	.68
		CD	-.97*	.14	.00
	GS	BS	.16	.20	.68
		CD	-.80*	.20	.00
	CD	BS	.97*	.14	.00
		GS	.80*	.20	.00
Boredom	BS	GS	-.27	.17	.28
		CD	-1.12*	.12	.00
	GS	BS	.27	.17	.28
		CD	-.85*	.17	.00
	CD	BS	1.12*	.12	.00
		GS	.85*	.17	.00

Note. N=196 *. The difference in mean is significant at the 0.05 level, BS- boys boarding, GS- girls boarding, CD- co-educational day.

From Table 4.26 it was evident that in achievement emotions enjoyment, anger and boredom, the means of boys secondary and co-educational day were significant and those of girls secondary and co-educational day. However, the means of girls' secondary and boys' secondary were not statistically significant in the three emotions.

In the case of achievement emotion anxiety, all the three types of school had means that were statistically significant from each other.

4.8.2 Age, Academic Motivation and Achievement Emotions

The researcher further explored if there was a significant mean difference in student academic motivation and achievement emotions across the age categories. Table 4.27 depicts results of the analysis of variance.

Table 4.27

ANOVA for Academic Motivation Mean Differences across Category of Age

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	294.95	2	147.47	39.06	.00
Within Groups	728.71	193	3.77		
Total	1023.670	195			

Note. N=196

From Table 4.27 a statistically significant difference in mean of academic motivation across age category (F (2,193) =39.06, $\rho<.05$). This implied that age range was an important factor that may influence academic motivation and consequently self-regulated learning. Further, the researcher identified which age categories had different means by running Tukey's HSD post hoc analysis. Table 4.28 depicts the findings of this analysis.

Table 4.28

Category of Age and Mean Differences in Academic Motivation

(I) age category	(J) age category	Mean Difference (I-J)	Std. Error	Sig.
14-15	16-17	-2.44*	.30	.00
	18-19	.09	.39	.97
16-17	14-15	2.44*	.30	.00
	18-19	2.54*	.39	.00
18-19	14-15	-.091	.39	.97
	16-17	-2.54*	.39	.00

Note. N=196 *. Significance level0.05 of mean difference

From Table 4.28 it was evident that ages 14-15 and 18-19 had significant mean differences but the mean difference for ages 14-15 and 16-17 was not significant. The finding age was a significant factor in determining academic motivation as sufficient evidence shows students in age 14-15 and 18-19 were different yet findings of students whose ages were closer to each other were not having different academic motivation.

Analysis of variance was done to find out the differences in mean of achievement emotions. Table 4.29 shows the findings of the analysis.

Table 4.29

ANOVA for Mean Differences in Achievement Emotions

		Sum of Squares	Df	Mean Square	F	Sig.
Enjoyment	Between Groups	57.67	2	28.836	34.215	.000
	Within Groups	162.65	193	.843		
	Total	220.32	195			
Anger	Between Groups	48.52	2	24.264	29.890	.000
	Within Groups	156.67	193	.812		
	Total	205.19	195			
Anxiety	Between Groups	48.11	2	24.058	28.688	.000
	Within Groups	161.016	192	.839		
	Total	209.132	194			
Boredom	Between Groups	28.637	2	14.318	17.551	.000
	Within Groups	157.450	193	.816		
	Total	186.087	195			

Note. N=196

Table 4.29 revealed that that all achievement emotions had statistically significant mean differences across the three age categories; emotion enjoyment (F (2,193) =21, $\rho<.05$), emotion anger (F (2,193) =29.89, $\rho<.05$), emotion anxiety (F (2,193) =28.68, $\rho<.05$) and lastly emotion boredom (F (2,193) =17.55, $\rho<.05$). Tukey's HSD (post hoc analysis) to evaluate which age ranges had mean difference that was significant were run.

Table 4.30

Age Categories and Differences in Means in Achievement Emotions

Dependent Variable	(I) age category	(J) age category	Mean Difference (I-J)	Std. Error	Sig.
Enjoyment	14-15	16-17	-1.19*	.14	.00
		18-19	-.60*	.18	.00
	16-17	14-15	1.19*	.14	.00
		18-19	.59*	.18	.00
	18-19	14-15	.60*	.18	.00
		18-19	-.59*	.18	.00
Anger	14-15	16-17	1.02*	.14	.00
		18-19	.05	.18	.94
	16-17	14-15	-1.02*	.14	.00
		18-19	-.96*	.18	.00
	18-19	14-15	-.056	.18	.94
		16-17	.96*	.18	.00
Anxiety	14-15	16-17	.92*	.14	.00
		18-19	-.21	.18	.47
	16-17	14-15	-.92*	.14	.00
		18-19	-1.14*	.18	.00
	18-19	14-15	.21	.18	.47
		16-17	1.14*	.18	.00
Boredom	14-15	16-17	.76*	.14	.00
		18-19	-.01	.18	.99
	16-17	14-15	-.76*	.14	.00
		18-19	-.78*	.18	.00
	18-19	14-15	.01	.18	.99
		16-17	.78*	.18	.00

Note. N=196 *. Significance level 0.05 of mean difference

Findings from Table 4.30 shows that in emotion enjoyment, all the age categories had significant mean difference. In both emotions anger and anxiety, a similar trend was observed where age ranges 14 -15 and 16-17 and 16- 17 and 18- 19 have a significant mean difference but the age range of 14-15 and 18- 19 the difference in mean was not significant.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter entails three sections the summary, conclusions and recommendations of the study. The first section presents summary of the findings based on the study's objectives, conclusions based on the findings make the second section and lastly the recommendations of the study. This entails both the policy recommendation and further areas of research.

5.2. Summary of the Study

The aim of the study was to explore the prediction of self-regulated learning from academic motivation and achievement emotions in Nyeri County among form three students. The study also examined the relationship between academic motivation and self-regulated learning. Similarly, the existence of a significant relations of achievement emotions and self-regulated learning was investigated. It further explored sex differences in academic motivation, achievement emotions and self-regulation. Finally, the study's overall goal was to identify a predictive model of self-regulation from learning motivation and achievement emotions.

The first objective was to identify the relationship between self-regulated learning and academic motivation. Findings of correlation studies shows a significant positive relationship between academic motivation and self-regulation. Multiple regression analysis was done on academic motivation 7 domains and self-regulated learning. The seven domains included; intrinsic motivation to know, intrinsic motivation towards accomplishment, intrinsic motivation to experience stimulation, extrinsic motivation external regulation, extrinsic motivation introjected, extrinsic motivation identified

and amotivation. Multiple regression analysis showed that 4 out of the 7 dimensions were significant predictors of self- regulation. Intrinsic motivation domains (towards accomplishment and to know) had positive and significant predictive values while extrinsic motivation – external regulation and amotivation had negative and significant predictive value. Shockingly, intrinsic motivation to experience stimulation had a value that was negative and non-significant in prediction of self-regulation. However, non- significant positive values were shown by extrinsic motivation introjected and extrinsic motivation identified.

The second objective of the study was to identify the relationship between achievement emotions and self-regulated learning. Four emotions were included in the study, that is; enjoyment, anger, anxiety and boredom. Correlational analysis studies showed that there was a significant relationship between achievement emotions and self- regulated learning. Only emotion enjoyment had a positive relationship while the other three had a negative relationship.

The third objective was to develop a predictive equation for self-regulated learning from academic motivation and achievement emotion. Multiple regression analysis on variables gave the following equation

SRL =2.84+.03 ACMT +.59 JOY-.23ANG R^2=.81

Emotion enjoyment (JOY) was the best positive predictor of SRL. Academic motivation (ACMT) also had a positive predictive weight on self-regulated learning. But a negative significant predictive value was evident in emotion anger. Emotions anxiety and boredom had predictive weight that was negative non-significant on self-regulation.

The last objective was to test for gender differences in student's academic motivation and achievement emotion. A significant mean difference in favour of boys was reported in academic motivation. Precisely, except for domain intrinsic motivation to experience stimulation where the mean of girls was significantly higher than that of boys, in the domains intrinsic motivation to accomplish and intrinsic motivation to know the mean difference was significant and in favour of boys. In extrinsic motivation domain, boys also had a high non-significant mean in domains extrinsic motivation external regulation and extrinsic motivation identified. However, girls had a high significant mean in extrinsic domain introjected and also in domain amotivation.

With regard to achievement emotions, high mean score was recorded by the female gender in all the emotions. However, significant mean difference was in only in emotion anxiety. In the other three achievement emotions, that is; anger, enjoyment and boredom girls had non- significant high mean score.

5.3 Conclusions

The results showed that academic motivation and achievement emotions had significant relationship with learning strategies of self- regulation. Academic motivation correlated positively and significantly with self-regulation. However, negative relations were identified in domains extrinsic motivation external regulation and amotivation. These domains can be used to single out learners with high likelihood to have difficulties using self- regulation strategies. Both parents and teachers may devise ways of firing inner drive among the learners by explaining to them the significance of high school studies on their future lives. This may help the student to develop both intrinsic motivations to know and intrinsic motivation towards

accomplishment that will facilitate the use of strategies of self-regulation. Amotivation was recorded the highest negative significant influence on self-regulated learning. This kind of motivation crops up among learners when they lack initiative or the impetus to carry on the learning tasks. The study suggests that amotivation inhibits self-regulated leaning thus teachers and parents should aspire to challenge the learners to develop academic motivation. This can be done through creating a learner friendly environment and also being sensitive in the students' issues. Teachers should therefore; incorporate teaching methods that enhances students' curiosity, long-term persistence and inner drive so as to enhance self- regulated learning strategies.

Both positive and negative relationships were identified in achievement emotions and self-regulation strategy use. Self- regulation and achievement emotion enjoyment showed a relationship that was positive and significant. Both emotion anger and emotion anxiety had a negative relationship with self-regulated learning. The findings indicate that learners who view learning tasks as beyond their ability and control tend to shy away from them thus influencing their self-regulation negatively. It is thus important that teachers should devise ways to ward of such emotions of anger and anxiety among the learners and in their place develop enjoyment. For instance, teachers can recognize student's effort, appreciate achievement and also give learners feedback on their progress in the various learning tasks. Consequently, this will help the students to more be involve in self- regulated learning.

Achievement emotion enjoyment had the highest predictive weight while achievement emotion anger had a negative predictive weight on self- regulation. Academic motivation was a significant positive predictor of self-regulated learning. From these findings, it is important that students are taught to be academically

motivated as well as develop positive emotion enjoyment and do away with emotion anger so as to facilitate their self-regulation.

On gender differences and academic motivation, a higher mean was recorded in boys compared to that of girls. Thus, programs need to be put in place to ensure that the female gender raise their level of academic motivation. In the case of achievement emotions, girls had high mean in all achievement emotions. In this case, boys should be sensitized on the need to develop emotion enjoyment as it influences positively self-regulation, however, in the case of emotions anger, anxiety and boredom, girls need to be properly mentored so as not to habour them for they negatively influence self-regulation.

5.4 Recommendations

The following recommendations are made for policy and further research;

5.4.1 Policy Recommendations

i. The first objective of the study was to identify the relationship of academic motivation and self-regulated learning. This study indicated that a significant positive relationship between the two variables. Thus, education stakeholders, teachers and parents should collaborate to create a home and school environment which is conducive to foster development of academic motivation among learners.

ii. The second objective of this study was to establish the relationship of achievement emotions and self-regulated learning. Whereas achievement emotion of joy correlated positively and significantly with self-regulated learning, a negative relationship was evident in achievement emotions anger, anxiety and boredom with self-regulated learning. Thus, the school

administrators and teachers should aim at lessening anxiety, anger and boredom levels of the learner and creating and learning activities which will evoke emotions of joy among the students which will in turn facilitate use of self-regulated learning strategies.

iii. To bridge the gap in gender differences in academic motivation and achievement emotions, schools should develop proper intervention programs especially targeting the girl child so as to raise their academic motivation and deal with the negative achievement emotions which limit their effective self-regulation.

iv. The results fourth study's objective to come up with a prediction model form self-regulated learning academic motivation and achievement emotions. Academic motivation and achievement emotion of joy were the significant positive predictors of self –regulated learning while achievement emotion of anger was a negative predictor self-regulated learning. Thus, the school administrators should come up with intervention measures to psyche leaners to be academically motivated as well create exciting school experiences which will make learning more enjoyable and assist learners to deal with anger issues. This can be done through guidance and counselling sections where the student will be equipped with getting rid of distractors of learning such as anger.

5.4.2 Recommendations for Further Research

i. The results of the current research identified academic motivation and achievement emotions as significant predictors of cognitive and metacognitive learning strategies. To evaluate the geographical effects and factors related to

culture, a replica of this study in other counties was recommended. This is because this study's results are only limited to Nyeri County where the study was involved form three class thus the findings may not be generalized beyond this population.

ii. The researcher recommends a similar study that would use of different sample involving students from higher institutions of learning and primary school so as to further the understanding of the relationship among the study variables and self-regulated learning. This is because this study was only meant for high school students whose level of achievement emotions and academic motivation may be different from the other students.

iii. The researcher recommended that more variables on the predictors of self-regulation strategies be studied in order to broaden the scope.

iv. In order to identify causes of significant difference in mean across age and school type with academic motivation and achievement emotions an elaborate study on these variables is recommended.

REFERENCES

Ajayi K.O., Lawani, A.O., & Salomi, M. O. (2012). The Influences of Self Concept and Academic Motivation on Students' Attitude to Mathematics in Selected Secondary Schools in Ogun State, Nigeria. *European Journal of Scientific Research,67* (3),444-455.

Artino, A. R. (2009). Think, feel, act: Motivational influences on military student's online academic success. *Journal of computing in Higher Education, 21*(8), 146-166.

Artino, A. R. Jr. & Jones, K.D. II. (2012). Exploring the complex relations between achievement emotions and self-regulated learning behaviour in online learning. *Journal of Internet and Higher Education, 15*(2),170-175.

Artino, A.R. & Stephens, J.M. (2009). Beyond grades in online learning: Adaptive profiles of academic regulation among naval academy undergraduates. *Journal of Advanced Academics, 20*(4), 568-601.

Aydin, S. (2015). An analysis of the relationship between high school students' self-efficacy, metacognitive strategy use and their academic motivation for learning Biology. *Journal of Education and Training Studies, 4*(2), 53-59.

Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice- Hall.

Bandura, A. (1986). *Social foundations of the thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Blair, C., Calkins, S., & Kopp, l. (2010). Self- regulation as the interface of emotional and cognitive development: implications for education and academic achievement*. American psychological Association. 122*(1) 60-90.

Barkoukis, V., Tsobatzoudis, H., Grousious, G. & Sideridis, G. (2008). The assessment of intrinsic and extrinsic motivation and amotivation: Validity and reliability of the Greek version of Academic Motivation Scale assessment in Education. *Principles, Policy &Practice, 15*(1)39-55.

Bothma, F., & Monteith, J.K. (2004). Self-regulated learning as a prerequisite for successful distance learning. *South African Journal of Education, 24*(2), 141-147.

Carver, C.S., & Harmon, J.E. (2009). Anger is an approach- related affect: Evidence and implications. *Psychological Bulletin, 135* (2), 183-204.

Cazan, A.-M. (2013). Teaching Self-Regulated Learning Strategies for Psychology Students. *Procedia – Social and Behavioral Sciences 78*, 743-747.

Cetin, B. (2015). Academic motivation and self- regulated learning in predicting academic achievement in College. *Journal of International Education Research, 11*(2), 95-106.

Chraif,A. & Anitei (2013). Gender and educational differences in the conceptions of learning. *Procedia Social and Behavioural Sciences, 127*(4),812-81.

Cocoranda, E. (2016). Achievement emotions and performance among university students. *Bulletin of the Transivania university of Brasov, 9*(59), 119-126.

Dabbagh, N., & Kitsantas, A. (2012). Supporting self-regulated learning in student-centered wed based learning environments. *International journal on E-learning, 3*(1) 40-47.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and Self-determination in human Behaviour.*New York: Plenum.

Deci, E. L., & Ryan, R. M. (2000). Self-determination theory and facilitation of Intrinsic motivation, social development, and well- being. *American Psychologist, 55* (1) *68-78.*

De Jong, F. P. C. M. (1992). *Zelfstandig leren. Regulatie van het leerproces en leren reguleren: Een procesbenadering. Proefschrift.* Katholieke Universiteit Brabant, Tilburg.

Donker, A., & Kostons, D. (2012). *Effective strategies for self-regulated learning: A meta-analysis*. Rijksuniversiteit Groningen: Gronings Instituut voor Onderzoek van Onderwijs.

Felidad, T.V., & Allan B.I. (2012). Positive academic emotions moderate the relationship between self- regulation and academic achievement. *British Journal of Educational Psychology. 2013* (83) 329-340.

Gachigi, P.N. (2018). Academic self-concept, and resilience as predictors of mathematics achievement among secondary school students in Nairobi County, Kenya. (*Unpublished Doctorate of Philosophy Thesis,) Kenyatta University, Nairobi, Kenya.*

Gatimu M. W. ,(2010). Relationship Between Students Self-Esteem , Orphanhood and Educational Performance in Neyi and Kirinyaga Counties, Kenya. (*Unpublished Doctorate of Philosophy Thesis,) Kenyatta University, Nairobi, Kenya.*

Gorard, S. (2015). Context and implications document for rethinking 'quantitative' methods and the development of new researchers. *Review of Education, 3*(1), 97–99. https://doi.org/10.1002/rev3.3042

Ilker, G. E., Arslan, Y. & Demirhan, G. (2014). A validity and reliability study of Motivated Strategies for Learning Questionnaire. *Educational Sciences: Theory and Practice, 14* (3*),* 821-833.

Järvelä, S., Järvenoja, H., & Malmberg, J. (2012). How elementary school students' motivation is connected to self-regulation. *Educational Research and Evaluation, 18(1),* 65-84.

Lucieer, S. J, Jonker,L., visscher,C. Rikers, J,P. and Themmen, P. M. (2015). Self-Regulated Learning and Academic Performance in Medical Education. *Early Online Medical Teacher* 2015 (*1)*,1–9.

King, R. B., & Areepattanani, S. (2014). What students feel in school influences the strategies they use for learning: Academic emotions and cognitive/metacognitive strategies. *Journal of Pacific Rim Psychology, 8,* 18-27.

Koseoghu, Y. (2013). An application of the self-determination Theory-Academic motivationss of the first year students in Turkey. *Journal of Emerging Trends in Educational Research and Policy Studies, 4* (3), 447-454.

Kothari, C. R., & Garg, G. (2014). *Research methodology: Methods and techniques*. 5th ed: New Age International (P) Ltd.

Mega. C, Ronconi. L, & De Beni. R. (2014). What makes a good student? How Emotions, self- regulated learning and motivation contribute to academic achievement. *Journal of Education Psychology, 106* (2), 121-131.

Mutweleli, S.M. (2014). Academic motivation and self- regulated learning as predictors of academic achievement of students in public secondary schools in Nairobi County, Kenya. (*Unpublished Doctorate of Philosophy Thesis,) Kenyatta University, Nairobi, Kenya*.

Mwathi, D.W. (2018). Metacognitive knowledge and cognitive reading strategy use as predictors of reading comprehension performance among form three students in Kiambu County, Kenya. (*Unpublished Doctorate of Philosophy Thesis,) Kenyatta University, Nairobi, Kenya.*

Njogu, B,W.,(2020). School Based Variables Based Variables Influencing Students' Performance in Kenya Certificate of Secondary Education (KCSE) in Public Day Secondary School in Nyeri County, Kenya. (*Unpublished Master Thesis,) Kenyatta University, Nairobi, Kenya.*

Oates, S. (2019). The importance of autonomous, Self-regulated learning in primary initial teacher training curriculum, instructions and pedagogy. *Frontiers in Education. 4* (1) 102-116.

Obergiesser, S. & Stoeger, H. (2016). The influence of emotions and learning preferences on learning strategy use before transition into high-achiever track secondary school. *High Ability Studies, 27*(1), 5-38.

Pekrun, R. (2006). The control- value theory of achievement emotions: Assumptions, corollaries, and implications for educational research and practice. *Educational Research Review, 18,* 315-341.

Pekrun, R., Goetz, T., Frenzel, A.C., Barchfled, P., & Perrey, R.P. (2011). Measuring emotions in students' learning and performance. The achievement Emotions questionnaire (AEQ). *Contemporary Educational Psychology, 36* (1), 36-48.

Perry, J. C., Fisher, A.L., Caemmerer, J.M., Keith, T. Z.,& Poklar, A.E. (2018). The role of socialsupport and coping skills in promoting self-regulated learning among urban youth. *Youth society, 50* (4) 551-570.

Salkind, N. J. (2010). *Encyclopaedia of research design*. Thousand Oaks, CA: SAGE Publications. doi: http://dx.doi.org/10.4135/9781412961288.n145

Sean, E. (2015). The effects of student's motivation and self-regulated learning on strategies perceived E- learning outcomes and satisfaction. *Contemporary Psychology Journal, 37, (1),* 201-219.

Schunk, D.H., & Zimmerman B.J. (2013). Self-regulation and learning. *Handbook of Psychology: Educational psychology, 2* (7) 45-68.

Schunk, D. H. (2008). *Learning Theories: An Education Perspective*. Pearson Merrill Prentice Hall: New Jersey.

UNESCO. (2019*). Data for sustainable Development Goals,* Kenya. Institute for Statistics.

Van B, J. (2015). Teaching for student self-regulated learning: Studies in secondary vocational education. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.

Vallerand, R., Pelletier, L., Blais, M., Briere, N., Senecal, C., &Vallieres, E. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic and amotivation in education. *Journal of Educational and Psychological Measurement, 52,* 1003-1017.

Walker, C.O., Greene, B. A. & Mansell, R.A. (2006). Identification with academics, intrinsic/extrinsic motivation, and self-efficacy as predictors of cognitive engagement. *Learning Individual Differences, 16,* 1-12.

Zeider, M. (1998). *Test anxiety: The state of art.* New York: Plenum. Zimmerman, B.J. (1989). A Social Cognitive View of Self- Regulated Learning. *Journal of Educational Psychology, 81*(3), 329-339.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal, 45(1),* 166-18.

APPENDICES

APPENDIX A: CONSENT FORM

I Rosalyne Karuana Bundi, a masters student in the Educational Psychology department of at KU. I am doing a research among form three class in Nyeri County. The research will involve questionnaires with statements about academic motivation, achievement emotions and self-regulated learning. From the information you give, students, teachers and parents may be helped to facilitate learners to adopt self-regulated learning strategies. Your responses will be kept confidential.

I wish to let you know that you have been selected to take part in the study because you are in form three. You are free to choose whether to take part or not. If you agree to participate and you happen to feel uncomfortable in the process, you are free to quit. I promise to avail the study's findings upon its completion with all the participants. If you agree to participate kindly sign as indicated below.

Signature……. Date…….

APPENDIX B: STUDENTS QUESTIONNAIRE

SECTION I

Personal Data

Kindly read through the questions in the questionnaire and tick (√) in the brackets where suitable.

2. Gender : Boy ( ) Girl( )

3. Name of school_____

4. Age ( )

5. School type:

Girls'( ) Boys'( ) Mixed'( )

6. Residential status:

Boarding ( ) Day ( )

SECTION II

ACADEMIC MOTIVATION SCALE

Rate yourself on how these reasons correspond to your intentions of schooling. Put a thick where appropriate.

Totally Disagree (D)	Disagree	Undecided (U)	Agree (A)	Totally Agree (TA)
1	2 3	4	5 67	

	I go to school	TD 1	D 2	3	U 4	A 5	6	TA 7
1	In order to obtain a KCSE certificate to help me find a job that pays well in future.							
2	Since I feel pleased and satisfied while learning							
3	I feel this secondary school course will help me to be prepared for my chosen career.							
4	I enjoy being in school so much							
5	I don't have a reason. I honestly feel this is time wastage.							
6	Because of the pleasure I have when I accomplish my objectives.							
7	To show proof that I can complete high school							
8	In order to have a good future job							
9	So that I experience the pleasure of discovering novel things							
10	So as to aid me join my dream job in my desired field.							
11	Because I find it fun to attend school.							
12	Sometimes back I had valid reasons for attending school but I wonder if there are still there.							
13	Because I enjoy making personal accomplishment							
14	Because I will feel important when I succeed in school							
15	With education there is the promise of a "good life" in future.							
16	So as to feel pleased to broaden my knowledge in my appealing subjects.							
17	So as to help me make proper career choice							
18	I feel the pleasure when teachers who are interesting are discussing areas in their subjects.							
19	I have no reason for attending school and I care less about it.							

20	I feel satisfied when I accomplish challenging learning tasks							
21	I want to proof that I am knowledgeable							
22	For me to have a better salary in the future							
23	So as to have an opportunity to learn new things which are interesting for me.							
24	I think this education will boost my level of competence as a worker.							
25	Because my spirits heighten when I am reading subjects that interests me.							
26	There is nothing that I am doing at school							
27	To have an opportunity to quench my thirst for excellence in learning							
28	In order to prove to myself that I can be successful in my studies							

SECTION III

ACHIEVEMENT EMOTIONS QUESTIONNAIRE

(Learning Related Emotions)

Below are questions on the emotions you experience when learning. Tick the response that corresponds to how you feel.

Completely Disagree (CD)	Disagree (D)		Agree (A)		Completely Agree (CA)
1	2	3	4	5	6

		CD	D		A		CA
		1	2	3	4	5	6
	BEFORE STUDYING						
1	I look forward to studying						
2	I feel nervous to start studying.						
3	I feel I don't want to start a voluminous topic because it upsets me						
4	When I study I start feeling sickly						
5	Looking at materials I am supposed to study I get anxious						
6	I feel angry that I must study						
7	It annoys me I have so much to study						
8	I post pone reading a boring topic until the next study						
	DURING THE STUDY						
9	I worry if I will manage my studies						
10	It bores me to sit at my desk studying						
11	When studying I get angry I feel like tearing my books to pieces						
12	I am so anxious during the study that I feel I should distract myself						
13	The topic is so boring that I feel completely exhausted						
14	I am inspired by thoughts of achieving my learning goals						
15	Irritation of sitting at my desk studying makes me restless						

16	I often wonder why I study						
17	I enjoy my study so that I find myself doing more than is required.						
18	The thought that I am short of time races my heart.						
19	Studying my course material is extremely boring.						
20	Studying makes me irritated						
21	I tense and sweat when I am reading						
22	I feel so bored that I don't desire to learn						
23	I derive my joy in learning challenging materials						
24	I am scared by involving topics						
25	I am never settled since the material I am reading is so boring						
26	The thought of studying annoys me						
27	I feel joy when I interact with my course materials.						
28	That I can't manage my studies worries me						
29	Studying for my course bores me						
30	I enjoy acquiring new knowledge						
31	I daydream when I am reading a boring material						
	AFTER THE STUDY						
32	I am worried if I understand what I have learnt well						
33	When I extend my studying time, I get so angry and restless						
34	My progress excites me						
35	I feel I have the motivation to do extra study						
36	When I am studying a boring material, I feel that time isn't moving.						
37	I am so happy when I reflect on my progress						
38	Some topics are so sweet that I think I have more energy for extra study in them.						

SECTION IV

MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE (MSLQ).

Tick where you feel your study habit fits. Key.1= unlike me completely 7= completely like me.

		1	2	3	4	5	6	7
1	I learn from mistakes of my failure in examinations.							
2	When I am revising for examination, I put together information from the book.							
3	When I am doing my assignment, I try remembering what the teacher taught in order to have correct answers.							
4	When studying I question myself to assess if I know what I am learning.							
5	I find it hard to pic the key points in class in what I am studying in this class.							
6	When a topic is hard, I quit or opt for simpler topics							
7	I paraphrase key points when I am doing my study.							
8	I take time to understand even insensible things that the teacher says							
9	When revising for examinations, I try to remember what I have learnt.							
10	I make my own summary notes to help me remember what I have learnt.							
11	I attempt answering questions in revision exercise questions even if the teacher doesn't assign them.							
12	I study the entire topic even if it is boring							
13	When revising for a test, I recite key points so I can remember							
14	I plan what I want to read before embarking on the study.							
15	I borrow what I learnt in assignment and books in doing my present assignment.							
16	I find myself reading but can't really tell what I have read							
17	I get myself not paying attention to what is being taught by the teacher.							
18	When I am reading a topic, I try fitting together what I have read.							
19	When studying I stop and revisit what I have read.							
20	I find myself reciting key points over and over of topics I learn.							

21	I make a chapter outline in my notebook to ease my study.							
22	When am doing my study, I relate what I know to what I am learning							

APPENDIX C: RESEARCH LICENCE

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **206995**

Date of Issue: **09/June/2022**

RESEARCH LICENSE

This is to Certify that Miss.. Rosaline Karuana Bundi of Kenyatta University, has been licensed to conduct research in Nyeri on the topic: Academic Motivation, Achievement Emotions as Predictors of Self -Regulated Learning Among Form Three Students in Nyeri County ,Kenya for the period ending : 09/June/2023.

License No: **NACOSTI/P/22/18072**

206995

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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

APPENDIX D: KUERC APPROVAL

KENYATTA UNIVERSITY
CENTRE FOR RESEARCH ETHICS AND SAFETY

Fax: 8711242/8711575
Email: chairman.kuerc@ku.ac.ke
Nairobi, 00100

P. O. Box 43844,

Tel: 8710901/12

Website: www.ku.ac.ke
Our Ref: **KU/ERC/APPROVAL/VOL.1**

Date: 17th /05/2022

Rosalyne Bundi
P.O BOX 43844-00100
Nairobi.

Dear Ms. Bundi,

APPLICATION NUMBER: PKU/2394/I1530 - ACADEMIC MOTIVATION AND ACHIEVEMENT EMOTION AS PREDICTORS OF SELF-REGULATED LEARNING AMONG FORM THREE STUDENTS IN NYERI COUNTY, KENYA

This is to inform you that ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** has reviewed and approved your above research proposal. Your application approval number is **PKU/2394/I1530.** The approval period is **17th /05/2022 to 17th /05/2023**

This approval is subject to compliance with the following requirements;

i. Only approved documents including (informed consents, study instruments, MTA) will be used
ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be

reported to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE*** within 72 hours

v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to ***KENYATTA UNIVERSITY ETHICS REVIEW COMMITTEE***

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke and also obtain other clearances needed.

To serve you better, researchers are kindly requested to access and complete a customer feedback form and sent it back online as you continue with research and upon completion of data collection found on the following website link; ;(https://docs.google.com/forms/d/1ytWefDwvyz5h1oz_VIn0xbxg3uGdlDzMXFWNDsMrRPQ/edit?usp=sharing

Yours sincerely

Prof. Judith Kimiywe

Director: Centre for Research Ethics and Safety

APPENDIX E: RESEARCH AUTHORIZATION LETTER

KENYATTA UNIVERSITY
GRADUATE SCHOOL

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

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: E55/CE/29016/2015

DATE: 8th September, 2021

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

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR ROSALYNE KARUANA BUNDI – REG. NO. E55/CE/29016/2015.

I write to introduce Rosalyne Karuana Bundi who is a Postgraduate Student of this University. The student is registered for M.A degree programme in the Department of Educational Psychology.

Rosalyne intends to conduct research for a M.A Project Proposal entitled, "Academic Motivation and Achievement Emotions Predictors of Self-Regulated Learning among Form Three Students in Nyeri County, Kenya".

Any assistance given will be highly appreciated.

Yours faithfully,

KENYATTA UNIVERSITY
OFFICE OF DEAN
GRADUATE SCHOOL
P.O. BOX 43844 NAIROBI
08 OCT 2021

PROF. ELISHIBA KIMANI
AG. DEAN, GRADUATE SCHOOL

HI/lnn

APPENDIX F: MAP OF NYERI COUNTY