

**PROXIMAL PREDICTORS AND OUTCOME OF ACADEMIC BUOYANCY  
AMONG FORM THREE SECONDARY SCHOOL STUDENTS IN MIGORI  
COUNTY, KENYA**

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**E83/27400/2014**

**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILMENT FOR THE  
AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (EDUCATIONAL  
PSYCHOLOGY) IN THE SCHOOL OF EDUCATION, KENYATTA  
UNIVERSITY**

**MAY, 2020**

## DECLARATION

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

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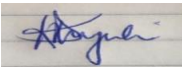
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## **DEDICATION**

To my late parents, Eusabeus Patrick Menya Okumu and Ludwina Aoko, my beloved husband Olendo Onono, and our children Hesel, Cecilia, Lucy, Flora and Joanne Sheilla for their prayers, unwavering support, encouragement, tolerance and understanding throughout the period of my studies.

## **ACKNOWLEDGEMENT**

My gratitude goes to the Almighty God who granted me good health and strength throughout the study period. I am grateful to my supervisors Dr. Wawire C. Koinange and Dr. Doyne Mugambi for their mentorship, guidance, and intellectual support. I am equally grateful to the faculty members and in particular those in the Department of Educational Psychology for their significant role in the entire process. Thank you, individually and as a team, for the unique contributions during the course of this study.

Further, my gratitude goes to Kenyatta University through the Dean, School of Education, Prof. Kombo, for the financial and material support accorded to me during this study. My appreciation goes to the Dean Graduate School, NACOSTI, and Migori County and Sub-County Education offices, for the permission granted which enabled me do the research. I am equally grateful to principals of schools, the teachers and students who participated from the twenty four schools where I collected data for both piloting and the final study. Mr. Antony Bojana deserves gratitude for editing the lexical setup of the final work and wordage.

May I thank my husband for his unwavering, immense support that made me continue and complete the study. To our children, thank you so much for giving me the peaceful time and encouragement that I needed. Thanks too, in a special way, to my big sister Joan Wandiga for being there for me and standing in the gap. I am equally grateful to my other family members; Jok'Menya and Jok'Onono, for prayers, encouragement and understanding. Last but not least, may the almighty God richly bless my friends and all those who visibly or invisibly, in one way or another, made this process succeed.

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## **ABBREVIATIONS AND ACRONYMS**

ABS	Academic Buoyancy scale
ADHD	Attention Deficit Hyperactive Deficiency
CDE	County Director of Education
5Cs	Confidence, Coordination, Commitment, Composure and Control
KCPE	Kenya certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KICD	Kenya Institute of Curriculum Development
KNBS	Kenya National Bureau of Standards
MES	Motivation and Engagement Scale
NACOSTI	National Commission for Science, Technology and Innovation

## ABSTRACT

Students from Migori County persistently perform poorly compared to those of the neighbouring Counties. Studies in Migori County have concentrated more on other factors affecting academic achievement and left out academic buoyancy. Yet reviewed literature indicates a link between academic buoyancy and academic achievement. The aim of this study was therefore to investigate if there was a relationship between proximal predictors and academic buoyancy, to establish the predictive role of proximal predictors on academic buoyancy and subsequently the prediction of academic achievement from academic buoyancy with sex as the moderator variable. The researcher employed resilience theory and used explanatory sequential mixed methods design to collect data from secondary students of form three. The study targeted all form three students in Migori County, Kenya. Participating schools and students were sampled using purposive, stratified, cluster and simple random sampling. A total of 469 participants were drawn from 21 secondary schools. Academic Buoyancy Scale and, Motivation and Engagement Scale (High school) were adapted and used to collect quantitative data. An in-depth interview comprising 10% of those students found buoyant from the analysis of quantitative data were used. Through document analysis of the student's academic records, academic achievement was thus inferred. To establish the validity and reliability of the research tools, a pilot study was conducted. The pilot study sample comprised of 47 participants drawn from co-educational and single sex secondary schools. Qualitative data were thematically analyzed while quantitative data were analyzed using SPSS. The statistical tests used included Pearson's  $r$ , simple and multiple regression, and independent samples t-test together with descriptive statistics. All hypotheses were tested at  $p < .05$  level of significance. The results revealed strong positive and statistically significant correlation between academic buoyancy and self-efficacy ( $r(469) = .76, p < .05$ ); a weak positive but statistically significant correlation between academic buoyancy and; self-control ( $r(469) = .18, p = .05$ ); academic engagement ( $r(469) = .22, p < .05$ ); and teacher-student relationship ( $r(469) = .19, p < .05$ ). Additionally, a very weak non-significant positive correlation coefficient ( $r$ ) was established between academic anxiety and academic buoyancy ( $r(469) = .04, p > .05$ ). The independent samples t-test did not establish any significant gender differences among the study variables. Regression analysis revealed that self-efficacy, teacher-student relationship and self-control significantly predicted academic buoyancy and further, academic buoyancy significantly predicted academic achievement. In conclusion therefore, self-efficacy, teacher-student relationship and self-control have an effect on academic buoyancy, and subsequently, academic buoyancy affected student's academic achievement. This study therefore recommends that intervention be directed towards enhancing students' self-efficacy, self-control and teacher-student relationships which have a bearing on academic buoyancy and subsequently, academic achievement.

## **CHAPTER ONE**

### **INTRODUCTION AND BACKGROUND TO THE STUDY**

#### **1.1 Introduction**

This chapter presents the background to the study, statement of the problem, purpose, objectives and research hypotheses. Further, it presents the assumptions, limitations and delimitations, significance, theoretical and conceptual framework of the study. It then concludes with the operational definitions of terms.

#### **1.2 Background to the Study**

Academic success of learners is important. Martin and Marsh (2009); (2006); Putwain, Connors, Symes and Osborn (2012) posit that this success depends on students' optimistic, practical, and adaptive rejoinder to the daily challenges and setbacks that they come across in the course of their learning. These contests and sufferings that are faced in academic spheres vary in intensity. Some contests may be chronic and acute, while others are minor and occur almost daily. Martin and Marsh (2009) argue that the minor challenges affect a larger percentage of students. These minor hardships may include occasional poor results from tests and assignments, inability to meet academic targets, peer pressure and pressure from teachers and parents on students to perform well in academic endeavors. Such hardships may fatigue some learners thereby causing disconnection and dissatisfaction and in the end leading to deprived academic achievement. However, Martin, Colmar, Davey, and Marsh (2010) observed that a good

number of students turn around these misfortunes and succeed academically. This turnaround is attributed to academic buoyancy.

According to Martin et al. (2010) academic buoyancy is defined as “student’s ability to successfully deal with setbacks and challenges typical of academic life”. It enables learners to pull up, recover and move on despite the setbacks (Martin & Marsh, 2003). This implies, therefore, that academic buoyancy equips learners with the capacity to successfully negotiate their academic environments. This capacity has been demonstrated by some students in the learning environments (Martin et al., 2010). For example in Waukegan, Illinois, some four teenage girls conceived while in high school and were abandoned by the fathers of their children. The girls later went back to school, worked hard and were to graduate with Masters in Business Administration (MBA) (Features, 2011).

Similar cases have also been reported of students who posted top grades in national examinations despite being inmates (Gitonga, 2013). In the 2015 Kenya Certificate of Primary Education (KCPE), a pupil from an impoverished single parent family from Western Kenya attained 415 out 500 marks (Wanga, 2015). The aforementioned imply the likelihood of good academic achievement despite adversities. Martin, Ginns, Bracket, Malmberg and Hall (2013) observed that since majority of students face varying academic challenges daily, this makes academic buoyancy to be pertinent for any student. Understanding academic buoyancy is therefore important especially among secondary

school students where it may represent a salient factor in supporting the students experiencing difficulties in the psycho-educational landscape (Martin, 2014).

Reviewed researches carried out mainly in Europe and Asia, have dealt with varied factors that bolster students' academic buoyancy. Among these are those that have looked at the distal predictors of academic buoyancy (Martin et al., 2013). It is significant to note that distal factors are characteristics outside the individual such as their ethnic backgrounds, social and economic state or parentage. These predispose an individual to vulnerability and do not imply that a specific risk will occur (Martin et al., 2013). Some of the studies have looked at proximal predictors of academic buoyancy. These are characteristics within an individual whose absence represents instant susceptibility to a condition. According to Martin and Marsh (2009), proximal predictors are divided into: Psychological; school and engagement; and family and peer factors. The current study sought to investigate psychological, school and engagement proximal predictors of academic buoyancy which according to Martin and Marsh (2008) are more amenable and manipulable and therefore, can be enhanced in students to protect them against academic adversities. Further, Borman and Rachuba (2001) observed that proximal predictors account for more variance in students' academic buoyancy. In this study, therefore, the proximal characteristics investigated included; self-efficacy, self-control, academic anxiety, teacher-student relationship and students' academic engagement.

Reisy, et al. (2014) explained self-efficacy as an individual's belief in their capacity. This implies that self-efficacy is an individuals' appraisal of their capability in organizing and behaving in a manner that enables them complete a given task. According to Bandura (1994) self-efficacy is thus influential in helping an individual in deciding which activities to involve in and which not to. He viewed self-efficacy as a motivating factor that would enable one to strive on even in the face of a frustrating experience. Several studies (Cassidy, 2015; Martin et al., 2010; Martin & Marsh, 2008) have shown that self-efficacy whether low or high has a bearing on an individual in the face of difficulty and crucially predicts academic buoyancy.

Links between self-control and academic buoyancy have also been established according to Collie, et al. (2015). Self-control is the belief that one is in charge of his future academic outcomes. Based on Attribution Theory, Weiner (2010) observed that self-control is anchored on internal locus and controllability. This implies that self-controlled students attribute outcomes to themselves. This gives such students the opportunity to take full advantage of an incidence in order to curb future re-occurrence. Subsequently, this enables students to overcome academic challenges such as academic failure since they attribute such failure to themselves. Consequently, this gives them the impetus to work harder in future to overcome failure. In this way, self-control enables students to persist even when presented with hardships, therefore, predicting academic buoyancy. This was affirmed by Collie et al., (2014); and Sadeghi and Geshnigani, (2016) who

established a significant positive correlation between self-control and academic buoyancy.

Reports have been made about the existing link between academic buoyancy and academic engagement. According to Ghasemi, Moonaghi and Heydari (2018), academic engagement is students' dedication of their time on academic activities. This increases the interaction between the students and teachers, subsequently academic activities in the educational situation. Truta, Parv and Topak (2018), reiterated that their persistence and responsiveness to both teachers and school activities made them excel academically and subsequently increased academic buoyancy. According to Martin and Marsh (2008), academic engagement can be divided into; behavioural, emotional or cognitive engagement. Behavioural engagement according to Martin and Marsh signifies physical involvement in academic activities and therefore is observable. They further argued that emotional engagement includes all positive feelings that students hold about their peers, academic activities, teachers and the learning institution. The foregoing may intensify the interpersonal interactions in the learning environment. Further, the positive feelings held by students increase their enthusiasm towards engagement thereby increasing level of engagement.

Academic buoyancy has been reported as accounting for a significant variance in students' engagement. According to Sbrocco (2009) cognitive engagement refers to investment in learning which is characterized by behaviours that go beyond stated

expectations and ability to face academic challenges. Put together therefore, academically engaged students cope better with academic stress and feel more satisfied leading to wellbeing and less burn out (Casuso, et al., 2013). This implies that when students increase their effort to remain engaged then, they reduce risks of dropping out of school or attainment of poor results. These challenges are normal occurrences in the day today academic environments.

Equally associated with academic buoyancy is teacher-student relationship. Hamre and Pianta (2001) define teacher-student relationship as a constructive relationship characterized by contiguity, pleasantness and positivity which results in a bond between them. This supportive relationship is viewed as an educational asset that safeguards students at risk from poor school adjustment. Hamre and Pianta further postulated that this positive relationship was capable of providing a protected ground under which students could traverse academic environment and counter any hardships. This may imply that when a teacher interacts positively with students then, he is able to understand their individual differences. This in turn enables the teacher to address each learner's diverse needs and subsequently makes them feel cared for and understood. Murray and Malmgren (2005) revealed that students from low socio-economic background benefitted from positive and supportive teacher student relationship which protected them from negative outcomes associated with their status. This supportive relationship will therefore make a student to strive on despite challenges. This subsequently bolsters their self-esteem thereby enabling them to counter adversities within the learning environment.

Hughes (2012) noted that both teacher involvement and autonomy, played different roles in their relationship with academic buoyancy.

Studies have linked academic buoyancy to academic anxiety. Dobson (2012) observed that academic anxiety is the feeling of apprehension over an impending academic task. In the learning environment, academic anxiety is associated more with performance and evaluative processes where it may evoke fear of failure. This may be ascribed to its negative effect on performance, cognition and physical sensations (Yun, Hiver, & Al-Hoorie, 2018). However, anxiety may not wholly be maladaptive especially in achievement perspectives where it may evoke ‘fight’ response (Martin, 2008). In instances where it arouses a ‘fight’ response, it would propel a learner to strive on despite the difficulties met which may be associated with academic buoyancy. Studies conducted by Collie et al., (2017); and Putwain, Daly, Chamberlain and Sadreddini (2016) found that students low in worry had higher levels of academic buoyancy. On the other hand, Martin et al. (2013) established that academic buoyancy negatively predicted anxiety. Further, Yun et al., (2018) observed that higher levels of anxiety negatively predicted how one fought contexts and hardships within learning environment. Due to inconclusive findings, there was need for further investigations on the role of anxiety in predicting academic buoyancy. Overall, the foregoing predictors may thus be associated with academic buoyancy.

Studies by Putwain et al. (2015) revealed that academic buoyancy accounted for a distinctive variance in students' academic processes and outcomes. They established that academic buoyancy played a significant part in lowering threat appraisal for some students while in others it played a protective role. Martin et al. (2013) reiterated the increasing evidence on the applicability of the construct to other settings. Corroborating similar findings, Martin (2014) affirmed the positive and significant correlation that exists between academic buoyancy and academic outcomes for students. However, studies by Collie et al. (2015) indicated a modest association between academic buoyancy and academic achievement. They pointed to the need for further investigation to ascertain whether there was a salient relationship between academic buoyancy and academic achievement.

Although buoyancy can be argued to be as old as mankind, researches on academic buoyancy as a construct began fairly recently (Martin & Marsh, 2009). Until then, most studies mainly focused on academic resilience (Mampane, 2014; Mampane & Bower, 2011; Wills & Hofmeyr, 2011; Yeboah, 2016). Initial studies by Martin and Marsh (2006; 2009) outlined the distinction that exists between academic buoyancy and academic resilience. For instance, Martin and Marsh observed that the two constructs differed in a number of ways. They argued, whereas resilience was relevant to students experiencing acute or chronic adversities, buoyancy was relevant for those experiencing minor and daily challenges in academic environment. Although the two constructs differ in terms of their applicability, they are both significant to students facing academic

difficulties. In such instances, the constructs acted as protective factors against adversities. However, given the fact that academic buoyancy deals with everyday adversities, it therefore prepares students to eventually handle chronic debilitating adversities that are addressed by academic resilience. In this case, academic buoyancy precedes academic resilience (Martin, 2009).

Studies on academic buoyancy have mainly been done in Australia (Collie, Ginns, Martin & Papworth, 2017; Martin, 2013; Martin et al., 2013), USA (Carrington 2016; Fong 2014), UK (Putwain & Daly, 2013; Symes, Putwain, & Remedios, 2015), and Asia (Jahedizadeh, Ghonsooly & Ghanizadeh, 2019; Reisy, Dehghani, Javanmard, Shojaei & Naeimian, 2014). Most of these studies have established the positive role academic buoyancy plays in assisting students go about the usual academic obstacles. According to Reisy et al. (2014), it was observed for instance that strengthening academic buoyancy in students enhanced their immunity towards negative influences within academic environments. This implies, therefore, that buoyancy had the potential of improving students' academic productivity.

In Africa studies on academic buoyancy have been difficult to come by. However, those encountered (Nur, 2017; Owolabi and Etuk-iren, 2014, Onyeizugbo, 2010), have looked at related variables such as self-efficacy, test anxiety, academic engagement in relation to academic achievement. These studies have established inconsistent findings in the role the construct plays in predicting academic achievement of learners. Further, it is

significant to note that some researches done in the USA have also looked at African–American students in relation to academic buoyancy (Strickland, 2015). Although Strickland established the significant role played by academic buoyancy in enabling learners to succeed within the academic environments, it was located in a different context.

Similarly, in the Kenyan context, available studies have looked at the related construct; academic resilience (Mwangi, Okatcha, Kinai & Ileri, 2015; Oyoo, Mwaura & Kinai, 2018). For instance, in Homabay, Oyoo et al. (2018) while investigating whether academic resilience had an effect on academic burn out established a negative statistically significant correlation between the two variables. In Kiambu, Mwangi et al. (2015) while exploring academic resilience among secondary school students established the significant role played by resilience in students' academic achievement. Other studies in Kisumu, (Odanga, Aloba & Raburu, 2015), in Kakamega, (Mukolwe, 2014) and in Nairobi (Mutweleli, 2014; Ndirangu, Muola, Kithuka & Nassiuma, 2009), have examined related variables such as test anxiety, self-regulation, teacher related factors, and academic achievement. For instance Mutweleli (2014) investigated if a relationship existed between self-regulation and academic achievement. The results established existence of a significant positive correlation between the two constructs. Studies by Ndirangu et al. (2009) revealed sex differences among students in their level of test anxiety. The foregoing studies were carried out in different geographical and cultural settings within Kenya.

In Migori County, (Odumbe, Simatwa & Ayodo, 2015; Oguta, Getange, & Juma, 2019; Osea, 2018) have looked at other related factors that affect students in their academic endeavors. These studies have majored on teacher, student, or school related factors. However, none of the studies encountered so far has addressed academic buoyancy, its proximal predictors and academic achievement yet encountered studies reveal a link between these constructs.

World over, academic achievement is recognized as one of the important goals in education. This is because academic achievement is linked to numerous positive outcomes (Regier, 2011). In adolescents for example, it is a gateway to progression, placement, wellbeing and future career since it enables them acquire elementary abilities essential for any advancement. Learners therefore are expected despite any existing hindrances within the academic environment, to excel academically in order to succeed in their future lives. In this case therefore, a decline in performance of students in national examinations is bound to worry any nation. In Kenya KNEC (2019) revealed a low performance in the Kenya Certificate of Secondary Examination in the past years. For instance in 2015; the mean score was 5.33: 2016: 3.99, 2017: 3.68 and 2018: 3.90. According to KNEC (2019), the results of 2018 KCSE showed that slightly more of the candidature obtained grade D or less. Such results may deter candidates from enrolling in any professional courses yet according to Wanzala (2018) the government had spent close to 20 billion in educating the entire cohort. Although these results were better than the KCSE 2017 and 2016, it was significant to note that only 13.9% of the 2018

candidates managed to attain C+ and above (KNEC, 2019) and therefore meeting the threshold for Kenyan universities admissions requirement. However in the same year, 52.7% of the candidates scored grade D plain and below which puts such candidates in disadvantaged positions. Given the fore going, Kenya Union of Post Primary Education and Technology (KUPPET) observed in their report that such poor performance in national examinations was a precursor for crime, unhealthy behaviour and had a bearing on emotional balance, democracy and social cohesion (Wanzala, 2018).

Migori County has equally had a share of the drop in national examinations. Report from Ministry of Education [MoE] (2019a), indicated that the county has had low performance in KCSE compared to the neighbouring counties in the same regional block. Details from MoE (2019a) indicated that out of the possible 12 points, Migori has been in the lower quartile in the last three years (2016-2018), with the lowest mean score of 2.10 that was obtained in 2016. While there was a slight improvement in 2018 KCSE (3.46), this was still lower than the Country's mean average (3.90) and that of the neighbouring counties. This low performance was attributable to the socio-economic activities such as early marriages, gold mining and border town business in the environment that distracts learners (Matano, 2017) and causes socio-emotional constrains on the students therefore requiring a bounce back skill. Studies done in Migori County, (Odanga et al., 2015; Oguta et al., 2019; Osea, 2018) have addressed other factors affecting academic achievement. However, little attention has been given to students' personal characteristics or in addressing the adversities and hardships that prevent students from attaining

academic success. This study, therefore, investigated predictors of academic buoyancy in relation to academic achievement.

### **1.3 Statement of the Problem**

Migori County has persistently performed poorly in KCSE (MoE, 2019a) compared to the neighbouring counties. For instance, in 2016, it had a mean score of 2.10 and was the last among the six neighbouring counties. Similarly, in 2017 it had a mean score of 2.96 and was again the last of the counties in Nyanza region. The earlier years, 2014-2015, were no better. This low performance may be attributed to the many distractors experienced by the students in Migori County which may require a bounce back skill credited to academic buoyancy. Though there was a slight improvement that saw it move to the fourth position in 2018 KCSE, only 13.9% of the students managed the minimum entry requirement for admission into the Kenyan universities. This implies that the students graduating from secondary schools may not compete favourably for prestigious courses nationally. A continuation of this trend may be detrimental to the county and the nations' socio-economic development.

Available literature indicates that academic buoyancy demonstrates a significant role in determining students' academic achievement. However, encountered studies have mainly been done in advanced countries (Carrington, 2016; Collie et al., 2017; Jahedizadeh et al., 2019; Martin 2013; Martin et al., 2013; Reisy, et al., 2014). This limits generalizability of these results to the Kenyan context. Noteworthy, majority of these

studies looked at distal predictors and very few on proximal predictors which are more easily enhanced in learners as observed by Martin and Marsh (2008). In Migori County, studies on academic buoyancy were scarce. Although, available empirical studies (Oguta et al., 2019; Osea, 2018; Odumbe et al., 2015) have addressed varied factors affecting academic achievement, none looked at academic buoyancy. Therefore, there is little evidence on academic buoyancy and its proximal predictors and how it relates with secondary school students' academic achievement in Migori County. The central focus of this study therefore was to examine the proximal predictors of academic buoyancy and further establish the predictive role of academic buoyancy on students' academic achievement among form three secondary school students of Migori County, Kenya.

#### **1.4 Purpose of the Study**

This study sought to investigate the proximal predictors of academic buoyancy and subsequently establish the relationship between academic buoyancy and academic achievement among form three students of Migori County, Kenya. Further, the study explored gender differences among the predictors of academic buoyancy.

#### **1.5 Objectives of the Study**

The following were the research objectives:

- i. Establish the relationship between self-efficacy and academic buoyancy.
- ii. Find out the relationship between self-control and academic buoyancy.
- iii. Determine the relationship between anxiety and academic buoyancy.

- iv. Investigate the relationship between academic engagement and academic buoyancy.
- v. Find out the relationship between teacher-student relationship and academic buoyancy.
- vi. Establish the prediction equation of academic buoyancy from proximal predictors.
- vii. Test for gender differences in the proximal predictors of academic buoyancy.
- viii. Determine the prediction equation of academic achievement from academic buoyancy.

### **1.6 Research Hypotheses**

The following hypotheses guided the study:

- H<sub>a1</sub> There is a significant relationship between self-efficacy and academic buoyancy.
- H<sub>a2</sub> There is a significant relationship between self-control and academic buoyancy.
- H<sub>a3</sub> There is a significant relationship between anxiety and academic buoyancy.
- H<sub>a4</sub> There is a significant relationship between academic engagement and academic buoyancy.
- H<sub>a5</sub> There is a significant relationship between teacher-student relationship and academic buoyancy.
- H<sub>a6</sub> There is a significant prediction equation of academic buoyancy from the proximal predictors.
- H<sub>a7</sub> There are significant sex differences among the proximal predictors of academic buoyancy.

H<sub>a8</sub> There is a significant prediction equation of academic achievement from academic buoyancy.

### **1.7 Assumptions of the Study**

Several assumptions guided this study. First, that the participants were already predisposed to academic hardships for more than two years in secondary school and therefore had developed some level of academic buoyancy. Second, that the variables under study were related and influenced each other in the direction indicated by the theoretical framework. Third, that the averages obtained from the two teacher-made examinations' results were adequate for measuring students' academic achievement. Ileri (2015); Mutweleli (2014) and Wawire (2010) used results obtained from teacher-made examinations in their studies and found them adequate. Fourth, it was assumed that the schools selected to take part in the research provided the same context for development of academic buoyancy since they were in the same county and followed similar curriculum.

### **1.8 Limitations and Delimitation of the Study**

#### **1.8.1 Limitation of the Study**

Self-reports and focus group interview methods were used to collect data for this study. Self-reports may exaggerate results owing to biases caused by social desirability responses (Abernethy, 2015). Further, the reliance on the interviews may reduce the accuracy of the obtained results. This may be attributed to the presence and biases of the interviewer, and both subjective and acquiescence by the interviewees in responding to

questions posed. The second limitation was that the participants were from three secondary students selected from few schools within Migori County. This may limit the extent to which these results may be generalized to other academic levels in the school system or other counties. Further, the age bracket for this cohort may limit generalizability to other age groups. Third, the study used end of term examination results to measure students' academic achievement. Although their use was consistent with how students' academic achievement had been studied in other counties in Kenya, (Ileri, 2017; Mutweleli, 2014; Wawire, 2010), teacher made tests may be a biased measure due to inconsistencies in test content and marking procedures used by different secondary schools.

### **1.8.2 Delimitations of the Study**

This study was delineated to form three students in selected secondary schools within the eight sub-counties of Migori County. Further, the study focused on psychological, school and engagement factors as aspects of proximal predictors of academic buoyancy. These, therefore, left out peer and parental factors together with distal predictors of academic buoyancy. This was in line with existing literature which posited that psychological, school and engagement factors were more amenable and can be enhanced in learners. Further, only term one 2019 examination results were used to infer students' academic achievement. Additionally, the interviewed participants consisted of only those who scored highly in the academic buoyancy scale. Finally, the analysis of the data obtained

from the mixed methods design allowed only for comparisons therefore no causal inferences were drawn from the data.

### **1.9 Significance of the Study**

This study established the predictive role of self-efficacy, teacher-student relationship and self-control on academic buoyancy and subsequently, that academic buoyancy predicts academic achievement. The predictors are responsive to change and may bolster students' academic buoyancy. Subsequently, academic buoyancy protects students against adversities of everyday nature in academic environments leading to increased achievement. These may be useful information to students, teachers, parents, other stakeholders and policy makers. Encouraging students to inculcate a high sense of self-efficacy, self-control and positive relationship with teachers may increase their buoyancy thereby protecting them against academic adversities. These results may further help teachers and parents in restructuring both school and home environment that may favour students' acquisition of protective skills against academic challenges.

Results of this study may inform Kenya Institute of Curriculum Development (KICD), in designing a curriculum that integrates self-efficacy, self-control and teacher-student relationship in various subjects. Ministry of Education (MoE) may also incorporate these salient predictors into co-curriculum activities with an aim of enhancing students' academic buoyancy and subsequently academic achievement. Additionally, these findings may inform efforts by MoE and school administration, on the development of

counseling practices, programmes and interventions. Further, the results may inform teachers' development of instructional methods geared towards improving academic buoyancy and academic achievement.

Empirical evidence revealed by this study may refine the theory underlying academic buoyancy and academic achievement. Most of the available studies testing these theories have been done using different study samples away from the Kenyan context which require adaptability and testing before application. Therefore, these results may enrich empirical data on the two constructs for secondary school in the Kenyan context. Further, the results may add to literature on the prediction of academic buoyancy and academic achievement in the Kenyan context from the proximal predictors. Academic buoyancy being a recent construct has majority of its studies existing in western countries and very few in Africa. This study may therefore provide insight, knowledge and add value to future researches in educational psychology on matters of academic buoyancy and academic achievement among learners in Kenya.

## **1.10 Theoretical and Conceptual Framework**

### **1.10.1 Theoretical Framework**

The current study adopted Resilience Theory by Rutter (1987). This theory explains the capacity possessed by some individuals, which protect them when exposed to a risky factor. Resilience is therefore the positive end of a continuum that brings about differences among individuals in so far as their responses to difficulties are concerned.

According to Rutter, this capacity follows a protective mechanism which he postulates enables an individual to make a proactive decision when faced with a challenge. This, therefore, becomes the turning point, since; it lowers the intensity of the risk, reduces the chain reaction, establishes or maintains sequences of response or provides a window for future opportunities (Rutter, 1987). According to resilience theory, protective factors include personal attributes such as self-efficacy and confidence which Rutter calls assets while any form of social support he refers to as resources. Rutter further notes, that when an individual possess an increased level of these protective factors then, they developed the capacity that would cushion them from debilitating environments.

Rutter (1987) established that these protective factors predicted resilience and had a salient role in the protective process. The theory explains further that attributes possessed by individuals may not necessarily be positive, however of significance was the process that they instigated when provoked by a challenge. This implies that the protection process requires some level of exposure to a risk. When one overcomes such experience, then this acts as an inoculation for subsequent exposure thereby reducing their intensity and enhancing an individuals' self-efficacy and confidence. The theory, therefore, helped him explain what was unique about the people who were able to counter hardships and challenges. He concluded that such people had both internal and external characteristics that protected them from risks.

Resilience theory as observed by Rutter (1987) is grounded on an inoculative Model. This implies that exposure to some level of risk was essential in triggering protective action brought about by an individual's internal or external factors. The protective factors according to the present study are contained in the proximal predictors of academic buoyancy; self-efficacy, self-control, academic anxiety, teacher-student relationship and academic engagement. These predictors safeguarded students against adversities such as inability to meet set deadlines or negative feedbacks from teachers by reducing the impact of the risk. In this study, it was revealed that the students whose self-efficacy levels were high managed to persist and accomplish difficult tasks thereby developing academic buoyancy. Therefore, as postulated by Rutter, such students overcame the challenge because of self-efficacy which is an internal asset. The same principle applied to self-control which also enabled a student to overcome adversity.

On the same breath, in the present study, academic engagement and teacher-student relationship which according to Rutter (1987) may be classified as resources, produced a buffering effect which therefore reduced the impact of the risk as postulated in the resilience theory. These in the present study revealed a statistically significant relationship with academic buoyancy. This implied that their existence in academically buoyant students enabled the students to modify their thought pattern which then was seen as the turning point according to the resilience theory. For instance, the participants revealed during the interview session that they attributed failure in tests to themselves not to others. This enabled them to realize that the time they gave to their studies mattered.

Therefore, in the event of failure, they traced it back to themselves not to others. This in turn enabled them to control subsequent failure by putting more time to their studies and not giving up. On the other hand, those students who enjoyed a supportive teacher-student relationship observed that remarks from teachers served as a challenge that encouraged them to work even harder after failure. This gave them the power to face challenges and carry on with academic endeavors. And therefore, as explained by resilience theory, the predictor variables safeguarded the students from any anticipated risks such that they did not give up when faced with adversities.

Empirical evidence on the use of resilience theory has revealed the significance of the theory in explaining how individuals overcome setbacks in social environments. For instance Wang, Zhang and Zimmerman (2015) used this theory in their study that aimed at helping youths at risk of both externalizing and internalizing problems. They established that assets and resources played a significant role in reducing problems such as anxiety, depression, alcohol and drug use. Similarly, (Braverman, Mayers & Bloomberg, 1994; Hawkins, Catalano, Kosterman, Abbott & Hall, 1999; Smith, 2001) while developing programmes aimed at assisting adolescents at risk of substance abuse used the resilience theory. These studies revealed that protective and personal competencies reduced the potential negative effect of the risk factors. Similarly, Zimmerman (2013) used the theory in his study while trying to find out why some adolescents adjusted well to developmental needs, despite the challenges that they encountered in life. He found the theory significant in understanding the individual's

capacity used to counter adversities. In Kenya, Mwangi et al. (2015) applied the theory in her study and established that resilience qualities were essential in enabling one counter everyday challenge.

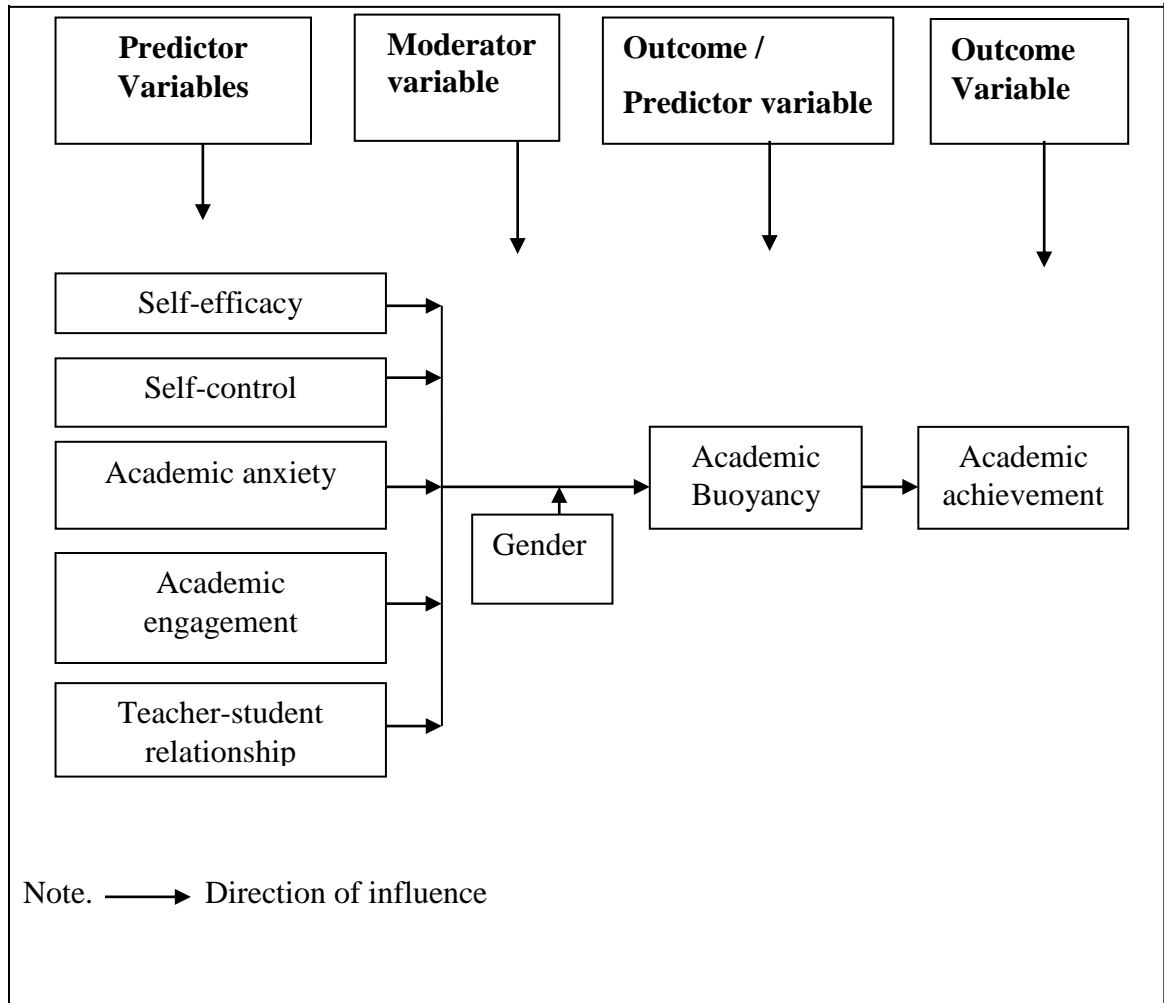
The foregoing underscores resilience theory as a broad based protective model which therefore makes it relevant in enhancing the current study. In this study, capacity to overcome setbacks is attributed to academic buoyancy which according to Martin (2013) is an everyday resilience. Therefore, resilience theory was deemed appropriate in the present study since it aids in explaining the hypothesized link between academic buoyancy and its predictors in protecting students against the adversities encountered in academic environment.

### **1.10.2 Conceptual Framework**

In this study the conceptual framework is presented on Figure 1.1. This shows the hypothesized projection that proximal predictors; self-efficacy, self-control, academic anxiety, academic engagement and teacher-student relate positively to and predict academic buoyancy. Therefore academic buoyancy becomes the first outcome variable. Further that academic buoyancy positively relate to and predicts academic achievement which then becomes an outcome variable. Gender in this study is a moderator variable.

**Figure 1.1**

*Conceptual Model Showing the Relationship among Study Variables*



Source: Researcher 2019

This study is based on the assumption that within academic spheres, challenges and setbacks are inevitable. In this case therefore it is expected that learners need personal attributes that would enable them counter the hardships in order to succeed academically. These personal attributes referred in this study as proximal predictors are hypothesized in

the model to influence students towards developing academic buoyancy. It is further hypothesized that when students develop academic buoyancy then they should be in a position to counteract adversities within academic environment such as negative feedback from teachers, pressure from parents and teachers and eventually attain excellent scores in tests. These may fatigue learners however it is expected that those with a high level of academic buoyancy should overcome such challenges and eventually emerge victorious. Additionally, sex was hypothesized to moderate the prediction between the proximal predictors and academic buoyancy.

## **1.11 Operational Definition of Terms**

- Academic Achievement** In this study was used to refer to the scores students' obtained in tests. Academic achievement was measured using the mean score for mid and end of term one examinations form three in the year 2019.
- Academic Anxiety** Academic anxiety was used to refer to any threatening appraisal for an achievement. It was measured using the MES (HS) tool whereby a high score in the corresponding questions was an indication of a high level of anxiety.
- Academic Buoyancy** Referred to the students' ability to overcome everyday academic challenges. It was measured using Academic Buoyancy Scale whereby a high score in the scale indicated a high level of the construct and vice versa.
- Academic Engagement** Refers to dedication of student's time on academic activities. It was measured using students response to questions in the Motivation and Engagement Scale-High School (MES-HS) with a high score in these questions indicating a high level of engagement.
- Proximal predictors** Refer to students personal characteristics; self-efficacy, self-control, academic anxiety, academic engagement and teacher-student relationship. These were measured using MES (HS) tool.

**Self-Control**

This was conceptualized to imply the belief that one is in charge of his future academic outcome. This was measured using MES (HS) with a high score in the corresponding questions indicating a high level of the concept.

**Self-Efficacy**

Refers to one's belief in their capacity. It was measured using questions that corresponded to it in the MES (HS) with a high score in these questions indicating a high level of self-efficacy.

**Teacher-Student Relationship**

This sought to determine students' perception on how they got along with their teachers. It was measured using MES (HS) where a high score in the questions corresponding to it indicated teachers' level of support to the student.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

This chapter presents literature reviewed in line with the objectives of the study. This included Literature reviewed on the predictive relationship between self-efficacy, self-control, anxiety, academic engagement, teacher-student relationship, and academic buoyancy. Further review was done on the relationship between academic buoyancy and academic achievement of students. A review of the sex differences among the predictors of academic buoyancy was also done. Finally, a summary of the reviewed literature was presented.

#### **2.2 Relationship between Self-Efficacy and Academic Buoyancy**

Different researchers have explored the relationship between self-efficacy and academic buoyancy among different samples using varying methodologies. For instance, Fong (2014) carried out investigations among low-income and low performing sixth-grade students in Texas. These students were put in three groups depending on how they had improved academically, based on i) resilience ii) buoyancy iii) non-resilience. Based on Bandura's (1994) self-efficacy sources, the study sought to establish whether any differences existed between the categories. The study used sex and ethnicity as mediator variables. Analysis used 3x3x2 MANOVA. This study revealed that two of the sources of self-efficacy that is vicarious experiences and social persuasions significantly differed between the students' categories in favour of those who were resilient. Fong further

established a positive correlation between self-efficacy and academic buoyancy. Additionally it came out that self-efficacy significantly differed from one culture to another. Fong's (2014) study was quantitative in nature and it lacked qualitative component which could have provided in-depth data on feelings and experiences of participants. Hence, the present study utilized both quantitative and qualitative aspects to bridge that gap. Other than the reviewed study having used a lower cadre of students, it was done in a different context from the present study. Conducting a local study would therefore assist in bridging the gap and allowing the results to be generalized to the Kenyan context.

Carrington (2016) investigated psycho-social factors which included academic self-efficacy, engagement and achievement goal orientation. His aim was to establish how these factors influenced academic buoyancy among Second Life. Data were collected using an online survey. A sample comprising 147 residents of Second Life in Minnesota, USA, were purposefully selected and invited to voluntarily participate in the study. The survey used likert scales: Self-Efficacy for Learning and Performance scale; Utrecht Study and Wellbeing Scale; Achievement Goals Questionnaire-R and the Academic Buoyancy Scale. To analyze quantitative data, multiple regression was used. Results revealed that academic self-efficacy had a positive relationship with academic buoyancy. Meaning that self-efficacy is applicable to other situations other than school setups. The above reviewed study utilized online methods of data collection which may have reduced the return rate. The current study used face-to-face methods that improved the return rate.

Further, the study under review was carried out within family setups while the present study was done in secondary schools using students in form three.

Arslan (2013) investigated the relationship between background variables, among them academic achievement, and opinions held by students about their sources of self-efficacy belief. The sample comprised 984 (51.1% girls and 48.9% boys) secondary students drawn from Zonguldak, Turkey. The sample was drawn from 6th, 7th and 8th grade students of mixed abilities coming from varied socio-economic backgrounds. Correlational design of data collection was used. Self-report questionnaires were administered to the students. Pearson's  $r$  and regression analyses were used to analyze the data. The results of the study revealed significant relationship between academic achievement and opinions of student about their self-efficacy beliefs. As the self-efficacy changed so did the students' academic achievement. Further, the study found that the students' beliefs on their sources of self-efficacy changed with performance. The reviewed study looked at self-efficacy in relation to academic achievement and was carried out in a different geographical locality. Further, the study sample was drawn based on the socio-economic background unlike the current study that never took into consideration socio-economic background of the participants. The design was not triangulated and therefore, it ignored the students' feelings in the study. The foregoing created gap for the present study.

In yet another study, Reisy et al. (2014) sought to establish if a relationship existed between family communication patterns and academic buoyancy with self-efficacy as the mediator variable. A correlational design was employed. The research sample consisted of 320 students; (150 girls and 170 boys), who had just passed their examinations in 2011/2012 academic year in Shiraz city, Iran. Data were collected using three questionnaires; Family Communication Patterns, Academic Buoyancy Scale and General Self-efficacy Scale. Using Pearson's product moment correlation coefficient, path analysis and simultaneous regression method, a small but significant relationship between self-efficacy and academic buoyancy was obtained. Further results from path analysis established that general self-efficacy had a mediating effect on the relationship. The findings of the current study held implications for the applicability of self-efficacy in different contexts. Self-efficacy still played a significant role in bolstering buoyancy among participants. The current study used buoyancy in the family context and found it applicable; the present study applied the construct in an academic environment to establish its applicability in a school context. While this reviewed study used a sample drawn across several classes, the present study used form three class. The study findings may thus be specifically relevant to form three cohorts.

In a study conducted by Aslam and Ali (2017) aimed at establishing the effect of self-efficacy on students' science achievement in secondary schools, 811 students were used. Participants were sampled from 24 schools using multistage procedure. The sample consisted of mixed gender students of science and mathematics in Okara district, Punjab

Province, Pakistan. The survey was founded on Bandura's self-efficacy theory that divided self-efficacy into three categories; academic, social and emotional. The research adapted an explanatory quantitative survey using Self-efficacy Questionnaire for Children (SEQ-C). Results of the survey revealed that a strong academic and social self-efficacy existed among participants. The variables in the reviewed study ignored academic buoyancy which was a key variable in the current study. Further, the reviewed study tested students' academic achievement in science and mathematics in relation to self-efficacy unlike the current which used all subjects in the Kenyan curriculum for secondary schools. Additionally, the study under review drew its sample across all classes unlike the present study which used specifically form three students in Migori County, Kenya. The foregoing created space for the current study in order to enhance generalizability in the Kenyan context.

Bala, Kaur, and Singh (2017) did a descriptive study with an aim of finding out whether differences existed in learners' self-efficacy in respect to their school, location, stream, gender and age. The sample for the study consisted of 500 senior secondary school students of mixed gender. The participants were selected from four districts located in Haryana. Self-efficacy was measured using a self-efficacy questionnaire (SEQ). The results obtained from the study indicated that a significant difference existed between government and private school students, urban and rural school students, science and arts stream students, male and female students. In terms of age, there existed significant difference in their level of self-efficacy. While the foregoing study was done among

secondary students, the studied variables differed from those of the present study. Bala et al. (2017) study used a questionnaire that was different from the present study. Additionally the study was in a different geographical context. These required a study in a different location in order to enhance validity and generalization to the Kenyan context.

In another study, Moradi et al. (2018) investigated between self-efficacy and academic buoyancy with schoolwork engagement and gender differences as mediator variables. Through the cluster random sampling, 384 students of Pol Dokhtar public high school in Iran (198 males and 186 females) were selected. The Participants completed the Academic Self-Efficacy Beliefs Scale, Schoolwork Engagement Scale and Academic Buoyancy Questionnaire. The study findings indicated that the academic self-efficacy beliefs had significant relationship with academic buoyancy ( $R^2 = 0.19$ ,  $\beta = 0.44$ ,  $p < 0.01$ ), and also schoolwork engagement could predict academic buoyancy ( $\beta = 0.43$ ,  $p < 0.01$ ). Accordingly, it can be concluded that academic self-efficacy beliefs contribute to increased academic buoyancy of students along with improving the schoolwork engagement. Moradi et al, study was purely quantitative and at the same time used different research tools except for the academic buoyancy scale. This may hinder the generalizability of the findings to other contexts. Hence, the present study utilized both quantitative and qualitative aspects to enrich the study findings and to further validate the MES instrument in investigating self-efficacy.

There is a dearth of studies on predictors of academic buoyancy in Africa and particularly in the Kenyan context. However, educational researchers have looked at these predictors singly in relation to academic achievement. For example, inference is made of a study by Onyeizugbo (2010) which was carried out in Nigeria on test anxiety. This study used self-efficacy, gender and trait anxiety as the moderator variables. The sample used was drawn from undergraduates of some universities in Eastern Nigeria. These were students majoring in psychology. The following questionnaires; General Self-efficacy Scale, Westside Test Anxiety, and State-Trait Anxiety Inventory index to assess the respective variables in the study. To analyze data, regression, ANOVA and Pearson's Product Moment Correlation Coefficient were used. Regression analysis revealed a statistically significant model with self-efficacy contributing 14% of the variance in test anxiety. Further, the relationship was mediated by test anxiety which contributed 49%. It was established that gender did not play a predictive role in the study. On the other hand, it was established that when self-efficacy was low, test anxiety would be higher. Additionally, a negative correlation between self-efficacy and test anxiety was established. The reviewed study was carried out among university students in Nigeria which may limit its generalizability to secondary school levels. Further the reviewed study was done a decade ago and therefore a more recent study would be necessary in bridging any existing gaps.

Ochieng' (2015) while investigating the relationship between self-efficacy and mathematics achievement used a sample drawn from secondary school students in

Nyakach Sub-county, Kenya. The study used questionnaires in a descriptive design to collect data from 390 secondary school students. The results revealed that participants' level of self-efficacy was low. Further, it established that students who were high in self-efficacy had better academic performance in Mathematics compared to those with low levels. Additionally, the study established a significant sex differences in the level of self-efficacy among participants. While the reviewed study was carried out in the Kenyan context, it did not investigate self-efficacy in relation to academic buoyancy which became the main focus of the present study. Further, the reviewed study used a self-made questionnaire which although was previously authenticated, may still require validation in the Kenyan context. Additionally, the study was mathematics specific unlike the present study that cut across all subjects in the Kenyan curriculum.

Aurah (2017) in Kakamega, Kenya, explored among form four students the relationship between science self-efficacy and academic achievement in biology with gender as a mediator variable. The sample comprised 2139 participants who filled questionnaires. Academic achievement was inferred from the results of a teacher made test on genetics. Analysis was done using both descriptive, MANOVA and Pearson's  $r$ . The results established a correlation between science self-efficacy and academic achievement. Further, it revealed that gender differences existed among the participants. Girls were high in self-efficacy and science academic achievement. Although the study used secondary school students, its main focus was not academic buoyancy in relation to self-efficacy. The reviewed study used different tools from the present study. Additionally,

the study focused on the science self-efficacy and academic achievement in genetics while the present study investigated among all the subjects in the Kenyan curriculum.

### **2.3 Relationship between Self-Control and Academic Buoyancy**

Studies carried out on the relationship between self-control and academic buoyancy revealed contradicting results. A review that was carried out for this objective established the following; For instance, Martin et al. (2013) carried out an investigation among 2971 high school students aged eleven to nineteen years. The sample was drawn from 21 co-educational and single sex schools in major urban settings in Australia. Participants comprised 52% males and 48% females. The study used longitudinal methods to investigate the effect of prior academic buoyancy on predicting subsequent psychological risk and vice versa. The analysis was done using cross-lagged structural equation modeling. This study's results may not be generalized to Kenyan settings since the sample was drawn from schools in a different cultural setting. Further, the longitudinal design that was used may be prone to attrition. To address this concern, the current study used students drawn from a different setting while at the same time used a one-off survey that has a higher return rate compared to longitudinal designs.

In yet another study carried out in Australia, Morrison and Pidgeon (2017) explored among university students, the effect of self-efficacy willpower strengthening exercises in enhancing student's resilience, self-control and reduction of psychological stress. The study employed an experimental design which divided the participants into either the

willpower strengthening or the control groups using 46 students. Analysis was done using 2-way repeated measures MANOVA. Results obtained from the willpower strengthening group revealed significantly higher levels of resilience and self-efficacy. However, this category showed lower levels of psychological stress. Positive feedback and increased levels of compliance was experienced from those involved in the study. This enhanced the reliability of the study and the importance of using such programmes which are aimed at increasing resilience. This result supported the hypothesis that willpower strengthening was significantly related to high levels of self-control, resilience and low levels of psychological stress compared to the control group. The study under review missed the qualitative component which could bring out students perception to the study. This aspect was brought in by the mixed method approach employed by the present study. Further, the reviewed study used undergraduates unlike the present study that wished to establish if similar results would be found among secondary school students. The present study was therefore carried out among secondary school students.

Honken, Ralston and Tretter (2016) in a related study carried out in the USA investigated self-control and college students' academic performance. The study sought to establish engineering students' retention and persistence in pursuing the course and subsequently, the role self-control played in their academic performance. This study involved 1295 students in their first year of study. Analysis revealed that between 27 and 42 per cent of the variance in the first semester grade point average (GPA) was predicted by self-control. Further, it was revealed that self-control had an influence on supporting students

in managing their time and study skills. The study under review was done among university students. It was carried out in a different location from the present study. These therefore created a gap for the present study to be done among secondary students in Kenya using a mixed methods approach to enhance generalizability.

Duckworth, White, Matteucci, Shearer and Gross (2016) carried out an investigation among suburban high school students in Northerneast US. A total of 577 participants in grade 9 to 12 were used. The sample comprised mainly Whites, Hispanics, Blacks, Asians and few other minority races. In the sample, 58% were females and 14% were from low socio-economic status. Participants filled an open-ended questionnaire that sought their opinion on use of self-control and they also wrote about their major dilemmas and how they effectively used self-control to resolve them. Data were thematically analyzed. The study revealed that participants used situation modification more often to resolve academic situation than for interpersonal conflicts. As far as response modification was concerned, they used it more on interpersonal conflicts than academic work responses. The foregoing study was carried out in a suburb location in a developed country as opposed to the present study. Additionally, the study was carried out across different levels in the entire school while the present study was done using only form three students.

Sadeghi and Geshnigani (2016) carried out an investigation using 369 students selected across all the years of study in Lorestan University Medical College, Iran. Sampling was

done using partial stratified sampling method. The study used descriptive correlational method. The study's aim was to establish if self-directed learning could predict academic buoyancy with self-control as one of the study variables. Self-reported questionnaires for Self-directed Learning and Academic Buoyancy Scales were used. Data were analyzed using Pearson's Product Moment Correlation, multiple regression and independent samples t-test. Results of the analysis established a positive correlation that was statistically significant between self-control and academic buoyancy and that self-control meaningfully predicted academic buoyancy. The reviewed study used a sample drawn from university cohort who may have developed a higher level of self-control and therefore may not allow for generalization to a secondary school cohort. The present study was necessary in order to find out whether similar results would be established among students from secondary school level of education.

In Bandung, Indonesia, a study was carried out by Kadiyono and Hafiar (2017) to establish students' academic performance during the learning process based on their grade points average. The main aim was to find out if the learners were able to exercise academic self-control on the distractors in the learning environment and improve academic performance. The study involved 105 students of Padjadjaran University. Academic Self-Concept Scale was used to collect data which were analyzed using Simple linear regression analysis. The results revealed that most of the participants were able to use self-control in the form of self-management thereby improving their performance. Further, few students were able to use other strategies such as learning or study strategies.

The study under review drew its sample from university students unlike the present. The locale and tools used for data collection were also different. The present study therefore sought to carry out the study in the Kenyan context among secondary school students. This would allow for generalization of the results to the secondary school cohort.

In Africa, self-control has been investigated in different countries. In Nigeria for instance, Achufusi-Aka and Offiah (2010) investigated self-regulated learning, which is a related construct among physics students. The study used quasi-experiment carried out in two co-educational settings that were sampled through stratified random sampling technique. A self-made Academic Self-Concept Scale and physics achievement test were administered to a sample of 66 students. These were divided randomly into two: experimental and control groups. Independent samples t-test was used for analysis. Results of this study revealed none statistically significant difference between the two groups before treatment. After the treatment, there emerged a significant difference with the experimental group performing better than the control group. This reviewed study used a methodologically different design and was carried out in Nigeria which is in a different cultural setting. Further, the study investigated resilience which is a related construct to academic buoyancy. The foregoing created room for the present study which used a mixed methods design which would incorporate students' feelings. Additionally, to allow for enhanced generalizability of the results, the present study was thus conducted in the Kenyan context.

Olawole (2017) carried out a study among university students in order to investigate the psychological factors that affect their expression of resilience. The study selected participants from certain universities in South-West Nigeria. Two factors that were established to play a key role in resilience were locus of control and effective use of both intra and extra-familial social support. These factors did not play an independent role in predicting resilience except locus of control ( $F(4, 56) = 3.39, p < .05; R^2 = .21$ ). Results of this study indicated the significance of building up learners' self-esteem by parents and this did not depend on parents' socioeconomic status or level of education. Further, to ensure later success of the youth, parents needed to be more responsive to students' needs in whichever ways possible. In as much as this study was carried out in Nigeria which is in the same continent with Kenya, there was still the need for a local study. Additionally the reviewed study used university students therefore to increase its applicability to the secondary school students there was need for another study with a sample from secondary school setting.

Mwangi, Ileri and Mwaniki (2017) investigated the role of both external and internal protective factors in predicting academic resilience among secondary school students in Kiambu County, Kenya. A sample of 390 participants drawn from form three students was used. This comprised 198 boys and 192 girls with a mean age of 17 years ( $SD = 1.31$ ). Data were collected using demographic form and California Healthy Kids Survey-Model B, 2007 version. The study employed a descriptive correlational design. Analysis of the collected data was done using Pearson's  $r$  and multiple linear regressions. The

study revealed strong positive and statistically significant correlation between external and internal protective factors ( $r(388) = .55, p < .05$ ). The study further revealed that internal protective factors had higher predictive value on academic resilience that was positive and significant ( $\beta = 0.42, p < .05$ ). The foregoing study examined the cognate construct academic resilience while the present study examined academic buoyancy. The reviewed study was only quantitative in nature and it lacked participants' feelings and experiences which may be provided by qualitative data. Hence, the present study adopted mixed methods approach with both quantitative and qualitative methods.

#### **2.4 Relationship between Academic Anxiety and Academic Buoyancy**

Martin et al. (2013) investigated the reciprocal role of academic buoyancy and psychological risks with academic anxiety as one of the study variables. The study established that after the variance explained by the time 1 psychological risk, time 1 academic buoyancy was a significant negative predictor of time 1 anxiety. Similar findings were revealed in the second phase after controlling for time 2 psychological risks. The foregoing study was done among Australian high school students of mixed ages. The study was longitudinal thus prone to a reduced return rate. The current study examined the role of anxiety among a specific class of students while using mixed methods design to incorporate feelings of participants.

Collie et al. (2017) while developing a model for examining the mediation role of academic buoyancy on anxiety and learning strategies used 380 Australian high school

students in twelve boarding schools. These schools were located across five Australian states. The average age of the participants was 14.41 years of which 58.4% were females, the rest were boys. These had either English or Chinese as their first language. Data were collected using questionnaires and analysis done using confirmatory factor analysis, regression and mediation analyses. After the mediation effect of academic buoyancy, the results of this study revealed a positive correlation between anxiety and learning strategies. The study recommended future researches aimed at developing interventions to address academic buoyancy and academic anxiety. Following the recommendation of the foregoing study, the current study sought to establish the relationship between anxiety and academic buoyancy among form three students. This may thus allow for interventions aimed at assisting the pre-candidate class as they prepare for the final examinations. The reviewed study involved students in a developed country who had different education systems. This may reduce generalizability of the findings the study.

While using person-centred approach, Putwain and Daly (2013) investigated the difference that existed among clusters of students in terms of their test anxiety and academic buoyancy in relation to academic achievement. The study used 469 candidates who were preparing for high-stakes examinations and formed five empirically distinct clusters. Analysis was carried out using cluster analysis. The analysis revealed that three clusters corresponded to a continuum of high test anxiety with low academic buoyancy; medium test anxiety with medium academic buoyancy and lastly; a low test anxiety with low academic buoyancy. The remaining two clusters corresponded to students with mid-

high test anxiety and mid-high academic buoyancy. The results revealed a higher academic performance for the cohort that had low test anxiety/ high academic buoyancy or mid-test anxiety/ high academic buoyancy. Significantly, the study revealed that when test anxiety was high and academic buoyancy low, then the academic performance was low. This may imply that buoyancy had the capacity to lower the threat appraisals brought by high test anxiety.

The reviewed study involved quantitative paradigm only and it lacked in-depth feelings and experiences of participants which could have been reported using qualitative data. The present study adopted a mixed methods model with both quantitative and qualitative methods. The study under review used students who were preparing for their final examination. These may have been high in test related anxiety unlike the current study that used a pre-candidate class deemed to be lower in test related anxiety given that they were still over one year away from the final examinations.

Putwain, Daly, Chamberlain and Sadreddini (2015) examined the relationship between test anxiety and academic buoyancy. A sample of 705 students in their final year of secondary education in UK was involved in the study. Students completed self-report questionnaires using academic buoyancy scale and test anxiety which were filled twice among eleventh grade students. Academic performance was inferred from students mean scores from General Certificate of Secondary Education Examinations (GCSE) performance in English, mathematics and science at the end of the school year. The

findings indicated that test anxiety showed reciprocal relations with academic buoyancy. It was further revealed from the tension component of test anxiety, that lower tension was related to academic buoyancy while academic buoyancy predicted an increased mean score in GCSE performance. Statistically significant correlations were found between worry and academic buoyancy.

The study by Putwain et al (2015) was purely quantitative in nature and therefore lacked participants' feelings and experiences normally provided by qualitative data. Hence, the present study adopted triangulation method that involved collection of both quantitative and qualitative data which would enable integration of the results to allow for in-depth interpretation. The reviewed study used a longitudinal design as opposed to the current study. While both studies used tests results to estimate students' academic performance, the reviewed study used high stakes examination results obtained after the research. The present study used already achieved results drawn from the internal examinations. These may therefore be contextually different requiring further interrogation.

Symes, Putwain and Remedios (2015) examined whether academic buoyancy played a role in student appraisals of fear appeals as threatening or challenging. The study was carried out among high school students who were preparing for high-stake examinations. A total of 770 participants were used in the study. Self-report questionnaires to test how frequently teachers used threat appeals, their appraisal of fear appeals and level of academic buoyancy were filled by the respondents. The study revealed that appraisals of

fear appeals as threatening was more likely when academic buoyancy was lower ( $\beta = -.49, p < .001$ ). At the class level, the appraisal of fear appeals as threatening was more likely when consequences ( $\beta = .62, p < .01$ ) and exam reminders ( $\beta = .21, p < .05$ ) were used more frequently. The above reviewed study was subject specific and was done in a different context. There was need for the present study given the Kenyan perspective and one which cut across various subjects as was the case in the present study.

Putwain et al. (2016) study explored the relationship between students' self-report levels of cognitive test anxiety, academic buoyancy, coping processes and their achieved grades in high-stakes national examinations at the end of compulsory schooling. The study used 325 English students who were preparing for high-stakes examinations. The study controlled for previous examinations. It was established further that the result was partially mediated by reduced use of effective strategies for pre-examination coping. This indirect established relationship between worry and academic performance was mediated by academic buoyancy such that the indirect negative relationship was stronger when academic buoyancy was lower.

It was thus concluded from the foregoing study that worries that interfere with performance could be reduced through provision of in-school training aimed at helping students develop capacity that would enable them to withstand academic pressures and reduce worry. Subsequently, this may boost their academic performance. The current study was carried out among English students in a developed country while the present

study was done in Kenya. The two countries have different dynamics, culture and educational systems hence the need for the study in Kenya. At the same time, the two study samples were different since one was already preparing for high stake exams while the other was not. These may, therefore, interfere with the applicability of the results to other situations. This necessitated the need for the present study.

Studies in Africa have equally looked at related variables to the present study. For instance, Chukwuorji and Nwonyi (2015) sought to establish if gender, self-esteem, age and parents occupation had an influence on test anxiety. This study was done in Nigeria with a sample drawn from students of secondary schools. Participants were 281 candidates preparing for high-stakes examinations. The two participating secondary schools from Anamba state were randomly selection from Onitsha, Nigeria. Two questionnaires, State Self-esteem Scale and Test Anxiety Inventory with a section containing relevant socio-demographics were used to collect data. Data analysis used hierarchical multiple regression. Results indicated that both age and gender did not have a significant contribution to test anxiety. The reviewed study was carried out in a different cultural context thereby creating room for a similar study in Kenya.

Syokwaa, Aloka and Ndunge (2014) did an investigation in Langata Sub-county, Kenya, with an aim of establishing whether different levels of anxiety were related to academic achievement of students. A sample of 180 students drawn from secondary schools within the sub-county with an equal number of boys and girls was used. To collect data,

participants were given a personality anxiety quiz and anxiety test and the results used. Analysis of data was through descriptive and inferential statistics. Results of this study showed a correlation between levels of anxiety and academic achievement of students, with a high anxiety impacting negatively on performance. The study revealed that girls were more prone to the higher level of academic anxiety than boys. The reviewed study was done in an urban setting which was contextually different from the current study. The study used different instruments from the current study thus verification of the findings may be necessary using different instruments as was used by the present study.

Mukolwe (2015) did a study in Kakamega that sought to find out if a relationship existed between examination anxiety, resilience and academic achievement among other variables. The sample (359) was drawn from form four students in public secondary schools. This comprised 203 boys and 156 girls. The study employed a correlational design and used questionnaires for data collection. To analyze the results, Pearson's product moment correlation coefficient and independent samples t-test were employed. The outcome of this study showed that more students were high on academic anxiety. Further, girls were high in academic resilience while boys showed higher levels of procrastination. Additionally, a significant negative relationship was established between examination anxiety and academic achievement. This was similar to what was revealed between locus of control and examination anxiety. Resilience was also negative and significantly related to examination anxiety. Though this reviewed study used mixed

methods design, the topology was different from the current study. Qualitative and quantitative data were analyzed at different points allowing too for different emphases.

Studies by Oluoch, Aloka and Odongo (2018) carried out in Homabay County, Kenya, investigated the prediction of chemistry achievement from test anxiety beliefs. The study employed expectancy value theory of motivation by Eccles-Wigfield to aid in explanation of the research findings. A mixed methods design was used. Data were collected using questionnaires and interview guides involving both teachers and students. Both descriptive and inferential statistics were used to analyze data. Qualitative data were analyzed thematically. The study revealed a statistically significant but negative correlation between test anxiety and chemistry achievement. The reviewed study was carried out in the Kenyan context but with a different sample from the current study's sample. This created a gap for the current study which was carried out among form three students. Further, the foregoing study used a different mixed methods design from the present study therefore giving room for validation of the findings. The study variables used in the fore mentioned study were slightly different from the current study's variables.

## **2.5 Relationship between Academic Engagement and Academic Buoyancy**

Martin (2012) investigated the role played by academic buoyancy in cognitive, affective and behavioural engagement. This study was done among children with Attention Deficit Hyperactive Deficiency (ADHD) and their non- ADHD counterparts residing in an

inclusive classroom and school setup. The sample comprised 87 learners with ADHD, 3374 non-ADHD learners and a further weighted 87 learners randomly drawn from the non-ADHD sample. These were drawn from junior high school (61%) students whose age was between 11-14 years and senior high school (39%) student whose age range was 15-19 years. The participants comprised 53% males and 47% females. The random gender profile weighted sample without ADHD comprised of 70% males and 30% females with a mean age of 14.15 years. Academic buoyancy scale and academic engagement questionnaires were used. To measure academic achievement, the average obtained by students in the annual literacy and numeracy tests given by Australian Curriculum, Assessment and Reporting Authority together with analysis of results in the school tests were used.

Martin (2012) analyzed data using multi-group multivariate analysis. Results revealed that academic buoyancy predicted academic engagement (enjoyment, participation and intention). Further between students with ADHD and those without, it was observed that there was a comparatively higher significant role played by academic buoyancy in favour of those with ADHD. While this reviewed study investigated students with and without ADHD in an inclusive setup, the present study sought to investigate the construct in an exclusive setup in order to establish whether there is any significant relationship between academic engagement and academic buoyancy. Further, the study sample combined both junior and senior high school students. These had a wide age range of 11-19 years which may have had an effect on the results. The current study investigated among a specific

age bracket thus allowing generalizability to such a cohort. At the same time, while the reviewed study used average results from literacy and numeracy high-stakes examination, the present study used teacher-made examinations covering the entire curriculum in order to test buoyancy across all subjects taken at form three.

In yet another study, Rabiei (2015) examined the relationship between unstable (Academic engagement) psychological factors in predicting the academic buoyancy. A sample was drawn from among high school students comprising of 200 males and 200 female. The study was done in Shahrekord province of Iran. To select research participants, random cluster sampling was used. These filled research questionnaires of intelligence, personality, academic skills, academic engagement and academic self-efficacy. The data were analyzed using Pearson correlation coefficient and multivariate regression. The findings revealed that academic buoyancy may be predicted negatively by academic engagement. While the reviewed study used almost similar constructs, the present study sought to introduce qualitative aspects which could provide participants' feelings and experiences. Hence, the present study adopted a mixed methods paradigm which incorporates both quantitative and qualitative methods. Further, in order to increase generalizability of the findings, the present study used a sample drawn from the Kenyan context using adapted research instruments from the different sources.

Farhadi (2016) predicted academic buoyancy based on cognitive, motivational and behavioural involvement among students of Lorestan University of Medical Sciences,

Iran. The study was a descriptive-correlation method. The research population consisted of students studying at the University of Medical Sciences in 2014-2015. Sampling relative to the class and the sample size of 369 patients was determined based on Cochran formula. To facilitate collection of data, two different questionnaires were used; Academic Engagement and Academic Buoyancy. Analysis was done using Pearson correlation, step-wise multiple regression.

Results from Farhadi (2016) study showed that among the predictor variables (cognitive, emotional and behavioral engagement), a significant relationship existed between cognitive engagement and vitality in academics which further had the ability to predict academic vitality among students ( $p < 0.001$ ). The reviewed study was carried out among university students who may have developed a higher level of academic engagement compared to secondary school students. The present study therefore sought to involve secondary school students and establish if similar results could be arrived at. Additionally, the reviewed study used descriptive-correlational design. This created a gap for the present study that used triangulation in order to capture the participants' feelings which was missing in the reviewed study.

Piia, Paivi and Tera (2018) did a longitudinal study in Finland with the aim of investigating academic buoyancy under the broader academic resilience construct. The study was incorporated under the Steps to the Healthy Development and Well-being among Finnish children, which is a multidisciplinary project. The data were collected

within a longitudinal multidisciplinary project called Steps to the Healthy Development and Well-Being of Finnish Children. The research was carried out among 8-10 year old children. The study was carried out in the period December 2017 and January 2018. A total of 405 participants took part in the cross-sectional sub-survey which was administered by their parents. International Survey of Children's Wellbeing (ISCWeB) was adopted and used to collect data. The results of the study revealed a positive correlation between academic buoyancy and school engagement. While the study variables were similar to the present study, the reviewed study used a sample drawn from primary school pupils. This created room for the present study involving adolescent learners in secondary schools. Further, the questionnaires were administered in the reviewed study by the children's parents not physically by the researcher as was the case in the present study. This may have allowed room for clarifications during the process of filling the data thereby improving the reliability of the results.

Najafzadeh (2018) investigated the relationship between metacognitive strategies and academic enthusiasm with academic resilience. The study used second elementary school and first period high school students. A population of 3979 students, in the Plain of Rokh School, Iran, was targeted. Using Cochran formula and cluster sampling 350 students were selected. Students responded to the meta-cognitive, study enthusiasm and resilience questionnaires. The results showed that academic engagement could significantly predict 53.1 per cent of variations in resilience variables. The reviewed study looked at academic resilience which is a cognate construct to academic buoyancy. Hence, the present study

while borrowing from the foregoing looked at academic buoyancy. Najafzadeh's study was carried out among a younger cohort unlike the present that used form three secondary school students. This may enable generalizing of the results to the form three level of study.

In South Africa, Olwage (2012) carried out a study whose objective was to investigate the predictors of academic engagement among university students of multi-ethnicity background drawn from several faculties of the institution. Self-report questionnaires were used to collect data from 786 students. Analysis was done using descriptive, Pearson's  $r$  and hierarchical multiple regression. The study revealed that self-esteem was a significant predictor of academic engagement. The reviewed study used academic engagement with other variables while the present investigated academic engagement with academic buoyancy. This may add to knowledge in educational psychology on the variables of study. Further, the sample used in the reviewed study was university students thereby creating a gap for a study in a secondary school setup.

A cross-sectional approach was employed by Amir, Saleha, Jelas and Hutkemri (2014) in Malaysia to investigate students' engagement level at school including the demographic variables of age and gender. The sub-levels of academic engagement comprised of cognitive, affective and behavioural components. The participants were selected from ages 12, 14 and 16 years. An adapted version of Students' Engagement Inventory was used to collect data. Analysis of pilot test data using Cronbach's alpha, showed an

acceptable value of the instrument (.85). The study revealed that the levels of engagement among different sexes and ages varied in a school setup. Further, that higher school engagement was more evident among the younger students. On the other hand, females recorded higher engagement levels than the male counterparts. This was an indication that depending on gender or age, engagement was perceived differently. This may probably be because as the children grew they found school activities to be either less interesting or that they fail to meet their growth needs. The study although carried out in Malaysia which may not be too different from the Kenyan context, used a different scale for data collection from the present study's scales. Further, engagement was separated into three different sub-divisions in the reviewed study yet in the present, it was treated as one variable.

## **2.6 Relationship between Teacher-Student Relationship and Academic Buoyancy**

Oreshkina and Greenberg (2010) carried out a study involving participants drawn from South Africa, Russia and USA. The study used phenomenological interviews with teachers who handle underachieving children. The aim of the study was to investigate teachers' perception of their relationship with students with the main focus on the nature of words used. The study revealed that the kind of phrases teachers used as they related with the children had a significant influence on the learner. It was further revealed that mutual, responsive, time and space given to a learner had a significant bearing on the child's learning outcome. Additionally, the study established that while pedagogy may vary from country to country, teacher-student relationship played a central role across all

countries studied in the teaching experience. The reviewed study used purely qualitative method for data collection unlike the present that employed mixed methods approach. Further, the study used teachers' opinions while the current study used students' perceptions. Additionally, Oreshkina and Greenberg's study was carried out in a different cultural context therefore allowing similar investigations in the Kenyan context.

Roorda, Koomen, Spilt and Oort (2011) carried out a meta-analytic study involving countries across the world (USA, 77; Canada, 2; Europe, 9; Asia, 6; Australia, 4 and Africa, 1). The aim of the study was to investigate the correlation between teacher-student relationships (TSRs) affective quality, with student engagement and academic achievement. A total of 99 studies were reviewed. These studies involved both negative and positive teacher-student relationships from pre-school to high school levels. The results revealed overall that both negative and positive teacher-student relationship with academic achievement were statistically significant. Students with higher grades experience greater effect from the relationship. The study by Roorda et al used archival methods to establish the relationship among the study variables. Such archival data may not give the actual situation on the ground regarding teacher-student relationships. There was therefore need to establish the significance of the relationship between teacher-student relationship and academic buoyancy by carrying out a study in the present time. The present study was carried out to fill the existing gap in the Kenyan context.

Hamre and Pianta (2001) carried out a longitudinal study on children from Kindergarten through to eighth grade in USA. The study aimed at investigating the role teachers' perception played in teacher-student relationship on a number of academic and behaviour outcomes. A total of 179 children were used. Data were analyzed using bivariate analysis, Pearson's  $r$  and hierarchical regression. Results of this study revealed that an early teacher-student relationship with children at kindergarten stage distinctively predicted both academic and behavioural outcomes in elementary level. A negative relationship had a prediction only on behavioural outcomes for upper and middle primary schools. The reviewed study was done among primary children and therefore created room for a study among secondary school students. Further, Hamre and Pianta's study used longitudinal method that is prone to attrition thereby reducing reliability of results. The present study used a one-off survey method that allowed for a higher return rate while adding to it an interview component for gaining further insight from respondents. Additionally, results obtained through Hamre and Pianta's review of several studies was established in the past nineteen years thus requiring a more current study that would bring out the present situation on the ground. These created gaps for the present study.

Carreno and Dizal (2011) carried out an investigation among Kindergarten children in USA. The study aimed at establishing the effect of quality teacher-student relationship on academic achievement and behaviour problems from kindergarten across elementary school. The age range was 4-11 years. Data were collected using results obtained from National Institute of Child Health and Human Development (NICHD) study of early

child care. A sample of 1364 children was used. Results of this study revealed that there was an improvement on academic skills and decreased behavioural problems among children when the quality of their relationship with teachers improved. The importance of the quality of this relationship did not change as the children moved from kindergarten to fifth grade. The reviewed study was carried out among younger children therefore the findings may not be generalized to older children. The current study aimed at establishing if similar findings would be arrived at with older learners in secondary schools.

Hughes (2011) examined the shared and unique contributions of teachers and students reports concerning teacher-student relationships among second and third grades. A sample of 714 students drawn from three school districts in Texas was used. The aim of the study was to find out the relationship on academic views, behavioural engagement and academic achievement of at risk students. Longitudinal method was used to collect data. Analysis involved descriptive, correlational and regression. Results indicated that relational support and conflict reports by teachers were more correlated than those given by students. The results revealed statistically significant improvement in academic self-view, behavioural engagement and academic achievement. Hughes' study used a longitudinal design while the present used explanatory mixed methods design which allowed for incorporating the participants views into the results. Additionally, the reviewed study's sample was a younger cohort compared to the present that was older students to allow for increased generalizability of the findings. The reviewed study sampled participants from public institutions only while the current study had samples

drawn from both public and private schools. This would further allow generalization of the present study results to a larger population.

In another study done among Turkish grade one children, Koca (2017) examined both indirect and direct influence of the relationship between teachers and students on academic competency. The study used 24 teachers and 420 students of an age range 6-8 years from 5 public schools. Analysis was done using structural equation modeling and chi-square. The study revealed that supportive teacher student relationship significantly impacted academic development and social competency. The reviewed study investigated teacher-student relationship using survey method for both teachers' and students opinions. The current study employed use of mixed methods in order to establish in-depth feelings from students. Further, the reviewed study used a lower age cadre of children thus creating room for the present study that used students of a higher age bracket.

## **2.7 Prediction of Academic Buoyancy from the Proximal Predictors**

The sixth objective of this study was to investigate the predictive weight of the following proximal predictors; self-efficacy, self-control, academic anxiety, teacher-student relationship and academic engagement on academic buoyancy. Literature was thus reviewed in line with the objectives. Majority of studies have revealed the predictive role of the foregoing predictors on academic buoyancy. For instance, Martin and Marsh (2008) carried out a longitudinal study in Australia which was done in two phases: in the middle of the year and at the end of the year.

This study by Martin and Marsh (2008) was carried out among high school students in grade eight and ten. The average age of the sample was 14.3 years with 59% males and 41% females. The study aimed at finding out the effect of the predictors of academic buoyancy (self-efficacy, control, academic engagement, anxiety, teacher-student relationship) on academic buoyancy and subsequently, performance in Mathematics. Students rated themselves in Mathematics while academic buoyancy and motivation and engagement scales were used to measure the other concepts in the study. Data were analyzed using inferential statistics.

Results revealed that self-efficacy and academic engagement significantly predicted academic buoyancy in the first phase. While anxiety significantly predicted academic buoyancy in the same phase, it was however on the negative direction. Over and above the variance at phase one, self-efficacy, academic engagement, teacher-student relationship (positively) and anxiety (negatively) significantly predicted phase two academic buoyancy. It was further revealed that among the significant predictors, anxiety contributed most of the variance. In as much as the study under review used the same scales as the current study, the sample and the location differed. Further, the study used a longitudinal design that is prone to attrition. The study sample was drawn among grade eight and ten students thereby limiting the generalization to a higher cohort.

With the fore mentioned, the current study intended to fill the gap by carrying out a similar study in the Kenyan context among form three students in order to find out

whether similar findings would be achieved. Further, the reviewed study incorporated only survey method for data collection which gave room for the present study to explore more by using explanatory sequential mixed methods design in order to bring in participants perception about the variables of study. Additionally, while the reviewed study was mathematics specific, the present study investigated all the subjects offered in the Kenyan curriculum in order to increase generalizability to more subjects in the curriculum.

Martin et al. (2010) used a sample of (1866) high school students drawn across grade seven to ten. This study was carried out in Australia using a longitudinal design. The aim was to find out the effect of self-efficacy on academic buoyancy among other motivational variables. The participants comprised 61% boys and 31% girls drawn from co-educational and single sex schools. The average age was 13.86 and 14.79 in the respective phases. Data were analyzed using structural equation model. The results revealed that among the investigated variables (control, self-efficacy, composure, commitment and co-ordination), self-efficacy was a significant predictor of academic buoyancy and that it mediated the relationship between prior and the subsequent academic buoyancy. This implies that self-efficacy was pivotal in determining academic buoyancy. Further, it can be enhanced in learners to improve buoyancy. Although the reviewed study used students sampled from high school, it combined several grades. This made it possible for the current study which specifically examined form three high school students in the Kenyan cultural setting with an aim of enhancing generalizability in the

Kenyan context. While the reviewed study used a longitudinal research design which is prone to attrition, the current study employed a one-off survey method and incorporated the qualitative component in order to delimit the reduced reliability as a result of possible attrition.

Yun, Hiver and Al-Hoorie (2018) did a study in South Korea to find out the effect of academic buoyancy and a set of predictors on second language (L2) achievement among college students. The sample comprised 787 college students. Analysis used structural equation modelling to establish the existing links between the predictors. The results showed the significant role buoyancy played on the L2 achievement and GPA of college students. Further the results revealed the mediation effect that it had on the prediction of the two outcomes. The foregoing reviewed study was carried out in Korea which is culturally different from the present study's context. Further, Yun, et al (2018) used college students while the present study was carried out among secondary school students to find out if similar results could still be established. Generally, to enhance generalizability of the reviewed study's findings to the Kenyan context, there was need for a study within the Kenyan context. This was fulfilled by carrying out the study in Migori, Kenya among secondary school students.

## **2.8 Sex Differences Among Predictors of Academic Buoyancy**

Relevance of the interventions in academic settings may require gender specificity. This study therefore carried out literature review on related studies which have investigated

gender differences among the study variables. Notably, majority of the studies have looked at the predictors singly with just a few investigating them as a group of variables. In Netherlands for instance, Huang (2013) did a meta-analysis of 187 studies which were sampled from across the world. These contained a further 247 independent studies and with a population of 68429. This study aimed at finding out if gender differences existed on individuals domains of self-efficacy. From the moderator analysis, this study revealed that content domain was a salient moderator and contributed the greatest effect size on the variation in self-efficacy. This moderation effect was more in favour of women in so far as their self-efficacy on language arts was concerned. Huang's study further established gender differences in self-efficacy for mathematics, computer and social science, and these were favouring the male participants. Additionally, age played a role in the gender differences in academic self-efficacy with the most significant variance revealed after age 23 years. Among adolescents, the greatest gender difference was revealed in mathematics self-efficacy which was found to be more evident in late adolescence.

Huang (2013) study was more quantitative in nature and it lacked qualitative aspects which could have provided participants' feelings and experiences. This enabled carrying out of a study that could incorporate qualitative component as was provided by the present study. Further majority of the studies reviewed were drawn from across the globe. Although these left out samples from African context, the gap was filled by the present study that was conducted in the Kenyan context. The foregoing study took a historical

perspective unlike the present study which was current and therefore allowing for investigation using current situation. Additionally the present study employed a mixed methods design for data collection in the Kenyan context to enable incorporation of the participants feeling that would enhance findings.

Similarly, Quaglia, Gastaldi, Prino, Pasta, and Longobardi (2013) carried out an investigation among primary school children in Italy. The study sought to establish teacher-student relationship characteristics when the teacher is male. Data was collected from both pupils and teachers. The sample had 310 children who were equally distributed by gender and 52 teachers, 42 were females and the rest were males. The analyses carried out revealed statistically significant differences between the two groups of teachers on the issue of the way male teachers assessed their relationship with female pupils. More than their male colleagues, female teachers tended to evaluate girls in a significantly different way as far as closeness and dependency were concerned. Quaglia et al study was done among pupils in primary schools which may limit generalization of the results to other levels of learners. To enhance generalization of the results to other levels, the present study was thus carried out among students in secondary schools. Further, the reviewed study laid more emphasis on teachers' opinion on teacher-student relationship than on the students' opinion. The present study sought to investigate teacher-student relationship from students' perspective and further incorporated the interview component to receive insight from students. Additionally, the present study was carried out within the Kenyan

context in order to increase generalizability of the obtained results to the Kenyan cultural context.

Jo and Bouffard (2014) carried out a study among Korean youths within the age arrange of 10-14 years. The central focus of this study was to test whether self-control, its sources and patterns of development exist and persist in terms of gender differences. Data was collected longitudinally five times from the sampled youths. Independent samples t-tests were conducted to examine whether males had significantly lower self-control than females and whether the self-control differences across two genders persisted. To test gender differences in developmental patterns of self-control, growth mixture modelling was utilized. Finally, hierarchical linear modelling was used to examine gender differences in the relationships between social factors and self-control. Three major results were established. Firstly, in the short term, self-control gender differences existed. Secondly, the experiences of developmental patterns were the same for both sexes. Thirdly, similarities were detected in the relationship between social factors and self-control in both males and females. The reviewed research was longitudinal in nature and could have had challenges of attrition of participants, but the present study adopted a one-off survey paradigm thus enhancing the return rate and improving reliability of the results.

Wilcox, McQuay, Blackstaffe, Perry, and Hawe (2017) study was carried out in Canada to investigate whether a relationship existed among study variables; social support,

gender, academic engagement and anxiety between gender, social support, anxiety and academic engagement. The sample of the study was drawn from both elementary and junior high school levels. Selected from grades 5-9, a total of 1904 students were used. Self-report questionnaires were filled by the students and were used to measure academic engagement, anxiety, and perceived social support from family, friends, and school staff. This study results revealed girls' perception of social support as important and that they also scored highly in anxiety compared to boys. For boys, grade level was established as a significant predictor of academic engagement. Wilcox, et al study was done among students from Canadian set up which may limit generalization of the findings across cultures. The present study therefore bridged the gap by carrying out a similar study using participants from Kenyan setting with a view to find out whether similar results could be revealed in this cultural context. This may therefore enable the obtained results to be generalized to the Kenya situation.

Varughese, (2017) sought to find out if the teacher's gender had an influence on motivation and engagement of learners. Data was collected using Motivation and Engagement Scale (MES). This involved 629 online undergraduate students at Liberty University, Virginia, who were enrolled for a science course. Data collection was through online means using both male and female teachers and the students. Owing to the statistical data violations, mean differences in scores for the four groups was carried out using Kruskal-Wallis statistical test. Caution was thus taken at interpretation of results owing to the violation of normality and variance. The study results showed increased

levels of motivation and engagement for both male and female students when were taught by male teachers. Varughese's study employed an online survey which may reduce return rate leading to a reduced reliability. The present study therefore used face-to-face methods of data collection in order to enhance the return rate. Further the reviewed study involved university students as opposed to the present that involved secondary school students with a view to establish whether similar results may be arrived at. Additionally, owing to the reduce statistic violations of the data collected from the secondary school students, the present study used parametric statistic as opposed to the reviewed study thereby increasing the statistical power of the obtained results.

In yet another study, Van Rooij, Jansen and Van De Grift (2017) sought to investigate whether behavioural engagement, academic interest and out of school activities had an influence on students' self-efficacy. Gender was included among background variables. The sample consisted of high school students who were in grades 10 and 11. The study used 5 schools drawn from different geographical locations in Netherlands. Data were analyzed using independent samples t-test, ANOVA and structural equation modelling. The study did not find any significant gender differences in influence of behavioural engagement, academic interest and out of school activities among the participants. While the study drew its participants from secondary school settings, geographical location was different from the current study. The present study used participants from form three in Migori, which would allow for generalizability of the findings to secondary school students in the Kenyan context.

In China, Wang, Fan, Tao, and Gao (2017) carried out a nationwide cross-sectional survey. Using young adults and adolescents, the study sought to establish if there were any age and sex differences in self-control. The study used a dual-systems viewpoint to collect data from both parents and students. The sample was drawn from five provinces in China. Two questionnaires were used; the Dual-Modes of Self-Control Scale (DMSC-S) and the Parents' Perceived Self-Control Scale. A total of 2910 adolescents and their parents filled the questionnaires. The adolescent participants' average age was 17.47 (12.50 - 25.42). Results revealed that boys exhibited higher self-control compared to the girls. Further there was an increase in poor self-control between ages 12 and 17 with a decline thereafter. Additionally it was noted that in the entire study period, there was an increase in good self-control. Subsequently the study revealed a significant link between both good and poor self-control of students and perceived self-control of their parents. Further that this association was mediated by their socio-economic status. The reviewed study was done in a different cultural setting and therefore to allow for generalizability to another locale, there was need to carry out the present study in the Kenyan context. Additionally, the present study used different tools to establish if similar findings would still be arrived at.

Related studies have also been done in the African continent. For instance, Owolabi and Etuk-iren (2014) in a study done among college students sought to establish if age, sex and anxiety in mathematics had an effect on their algebra achievement. This study was conducted using students training to become mathematics teachers in the states of Lagos

and Ogun, Nigeria. This study never intended to influence any study variables therefore used an ex post-facto design. Two research instruments; Mathematics Anxiety Scale and scores from the MAT 111 test were used to collect data from the respondents. The combined questionnaire also collected data on sex and age. Data analysis used both descriptive and inferential methods. Demographic analysis revealed an average performance in algebra. ANOVA results established no significant difference across the different ages, sex and mathematics anxiety in the different groups' achievement. Additionally, no significant gender differences were established from the independent sample t-test analysis for the Algebra performance ( $t$  calculated = 0.37,  $df = 15$ ,  $p > 0.05$ ). While the study under review used college students, the present study wished to establish if similar results would be realized using secondary school students in Kenya.

Ahmed, Yunnus, Mahmud, Salim and Sulaiman (2017) explored secondary school students' mathematics engagement with main focus on affective, cognitive and behavioural domains of engagement. The study used participants from both urban and rural secondary schools in Pahang state of Malaysia. The sample comprised 186 males and 201 females distributed at a percentage of 40.8 selected from urban and the remaining from rural schools. From the descriptive analysis, the highest mean in mathematics engagement domains was achieved by students who were behaviourally engaged ( $M = 3.74$ ,  $SD = .63$ ). These were followed by the cognitively engaged ( $M = 3.56$ ,  $SD = .43$ ) and last were the affectively engaged ( $M = 3.48$ ,  $SD = .47$ ). Overall, the

mathematics engagement mean performance was  $M = 3.56$  ( $SD = .46$ ) which was an average performance.

Ahmed, et al (2017) study further revealed significant mean differences in the various categories of mathematics engagement domains in both urban and rural schools. However, the highest mean differences were experienced in the urban schools in all the three domains. Additionally, mathematics engagement was better for urban compared to the rural schools. While testing for gender differences, the study established statistically significant mean differences in the students' overall mathematics engagement in favour of female students. Girls were overall best in mathematics learning and also in respect to affective, cognitive and behavioural engagement. While the study under review was conducted in Malaysia among urban and rural students, the present study intended therefore to establish if similar findings would be arrived at in a different geographical and cultural context.

In a study carried out in the Nyeri County, Kenyan, Ndirangu, Muola, Kithuka and Nassiuma (2009) sought to test whether a relationship existed between students' test anxiety and their academic performance. The study collected data from secondary school teachers and form four students. This was a correlational study which had a sample of 80 students and 12 teachers who were randomly picked from four schools in the sub-county. A questionnaire for teachers aided in collection of data from the teachers, while for the students, a questionnaire and interview schedule were used. Three instruments prepared

by the researchers were administered, that is, a Students' questionnaire, teachers' and students' interview schedules. Results from this study established that test anxiety experienced before and after examinations had a significant ( $t = -3.74, p < 0.01$ ) correlation with academic achievement and further, prior to examinations in all subjects, test anxiety levels were elevated. Additionally, using Wilcoxon signed rank test, no statistically significant mean differences ( $F = 0.45, p = 0.5$ ) were established between males and females in their levels of test anxiety. The reviewed study was correlational in nature and it lacked qualitative aspects which could have provided in-depth responses and feelings from the sample. This created a gap for a mixed methods approach adopted in the present study.

## **2.9 Relationship between Academic Buoyancy and Academic Achievement**

Literature was further reviewed in relation with the eighth objective of this study which sought to establish the relationship between academic buoyancy and academic achievement of students. Studies have revealed inconclusive findings in this area. For example, Barnett (2012) sought to establish whether there were any effects on the different profiles of academic buoyancy on female students' achievement in Mathematics and English through the year. The sample comprised of female students (153) selected from a private high school situated in the metropolitan New York. The participants who were in ninth and tenth grade filled online questionnaires four times in 2009/2010 year of study. The experiment employed adopted tools from established instruments which included indices of motivation for success, performance-avoidance goals and affect.

Barnett (2012) study used cluster analysis which revealed variations in the students' level of academic buoyancy for the groups. Additionally, a main effect on academic achievement was established from the cluster solutions. The study found that students high in academic buoyancy also got high grades. This study was domain specific, with girls only sample and therefore did not cover other subjects taken in the school curriculum. Further, the reviewed study findings relied on data obtained from a culturally different setting which reduced its generalizability to other contexts. Barnett's study was experimental and purely quantitative. Given the aforementioned, a study using a mixed methods design would help bridge the gap by incorporating students' feelings. Further having been carried out in the Kenyan context, it widened the scope of generalizability of the results.

Miller, Connolly and Maguire (2013) carried out a correlational study aimed at finding out whether students' wellbeing was related to their academic achievement. Further they tested if the existing correlation was mediated by deprivation and sex. Students (1081) aged between 7-11 years who were drawn from the Northern part of Ireland were used. . The results revealed that essential aspects of wellbeing played a positive role on its' relationship with academic achievement and that sex and deprivation played no moderation effect in this relationship. In Miller (2013) study the sample comprised of younger children while adolescents were used in the current study to establish if similar results could be arrived at. This may thus allow for generalization of results to an older cohort. Further, given that Miller's study was done away from the current study's locale

there was room for a similar study in Kenyan cultural context to add to literature on the subject of study.

Strickland (2015) carried out a study using first Year University students enrolled for Freshmen Year Experience course. This study sought to establish if a relationship existed between motivation, academic buoyancy and students' academic achievement. The study adopted two questionnaires to aid in data collection; The Motivation and Engagement Scale for University and College students and the Academic Buoyancy Questionnaire. In the first wave of study which used 120 participants, results of the regression analysis established that academic buoyancy was a significant predictor of academic achievement ( $R^2 = .05$ ). Of the explored study variables, academic buoyancy was the only variable that significantly predicted academic achievement. In the second wave of study, it was established that Scholastic Aptitude Test (SAT) was a stronger predictor of academic achievement and accounted for about 14% variation in students' Grade Point Average (GPA) by the end of the semester. However for the first year cumulative GPA overall performance, the contribution of SAT reduced to around 12% of the variance in SAT and was still the stronger predictor of academic achievement among the study variables for those who enrolled for the course. Of the motivation variables, uncertain-control, self-sabotage, persistence and failure avoidance emerged as the most salient predictors of academic success. Although academic buoyancy was revealed too as a significant predictor of GPA for the first year students, the contribution was less comparatively. While the reviewed study was done among first year university students, the present

study was done among secondary school students to establish if similar results could be arrived at. Further the findings of the reviewed study may not be generalized to a sample in another cultural setting without validation. The present study thus investigated academic buoyancy among form three students in the Kenyan context in order to enhance its generalizability to the Kenyan context.

Kim (2017) investigated among undergraduates, the predictive effect of perseverance and consistency of interest (Grit) and academic buoyancy on academic achievement while incorporating gender and ethnicity in the study. Results of the study indicated that grit positively predicted Grade Point Average (GPA) of undergraduate students over and above motivational and demographic variables. Further analyses on individual differences revealed gender differences on future time perspective. At the same time, Americans of Asian origin compared to those of Hispanic and White origins showed low levels of grit. Overall, the American whites emerged the best in Grade Point Average compares to the Asian and Hispanic American nationals. The study under review used undergraduate samples which may limit generalizability of finding to such samples. The present study was therefore necessary at a different level to its increase generalization.

Shafi, Hatley, Middleton, Millican and Templeton (2018) did a study among undergraduate students (91) with an aim of finding out among other variables, the role academic buoyancy played in students' academic success. One of the main outcomes of this study was that students relied more on feedback they received and reached out for

specific information to better their performance. Further the study came up with five pointers to students thought of as academically buoyant. These consisted of those with internal locus of control, grade understanding, forward looking, improvement focused and action oriented. These further served as the distinction between academically buoyant students and none buoyant category. Noteworthy, the less academically buoyant students appeared more focused on emotional response than was action orientated. The reviewed study was carried out among undergraduates. The present study was necessary since it used high school students with an aim of finding out if similar results could be obtained. Carrying out another study in a different cultural setting may also enhance generalization of the results to high school students.

## **2.10 Summary of Literature Review and Gaps Identification**

The foregoing chapter reviewed related literature to academic buoyancy, its predictors; self-efficacy, self-control, anxiety, academic engagement and teacher student relationship, and academic achievement. Literature was reviewed per objective and gaps were thus summarized as follows:

Most of the studies reviewed on the relationship between academic buoyancy and self-efficacy revealed that the two constructs were related. It was apparent that most of these studies were conducted in different cultural settings. Further, most of the studies used longitudinal research designs conducted across several classes in an entire school. Noteworthy, the few related studies from the locality that were encountered focused

mainly on self-efficacy and academic achievement. There was therefore need for an empirical investigation using secondary school students to establish the relationship between self-efficacy and academic buoyancy in the Kenyan context in order to widen the generalizability scope.

Reviewed studies on the relationship between academic buoyancy and self-control revealed inconclusive findings. Some of the studies reveal negative relationship and others positive relationship between academic buoyancy and self-control. There was need to carry out an empirical study to bridge the existing knowledge gap. Further, majority of these studies used varied samples ranging from lower secondary to university levels thereby reducing generalizability of the results to the secondary school students. The studies done in Africa and Kenya that focused on academic buoyancy and self-control were hard to come by. However those encountered were done among university students or focused only on other related constructs. There was therefore need to investigate academic buoyancy and self-control among secondary school students.

Literature on the relationship between academic buoyancy and academic anxiety revealed inconsistent results. There were those establishing a negative relationship others positive and others found the relationship non-significant. Quite a number of these studies were carried out in different cultural settings. In the Kenyan context, encountered studies looked at academic anxiety in relation to different variables from the present study. There was therefore a dearth of data in the Kenya context. Though a number of the

reviewed studies used samples drawn from secondary schools, most of the participants were candidates who were high in test anxiety unlike the present study whose participants were drawn from a pre-candidate class. Further, literature on academic anxiety was mainly domain specific. This created room for a study in the Kenyan context in order to investigate academic anxiety and widen the generalizability.

Literature on academic engagement and academic buoyancy reviewed in this study indicate that most studies investigated the construct in terms of cognitive, behavioural or emotional engagement. Samples for these studies varied in age, school levels and cultural backgrounds. The studies reviewed used varied methodologies to arrive at the results. The foregoing therefore created a gap for the current study to be carried out in secondary schools to enable investigation on engagement in a learning environment. This would further allow for generalization to secondary school students in Kenya.

Studies on teacher-student relationship were mainly conducted in western countries with a majority done among children in elementary levels. Very few studies in this area investigated teacher-student relationship among secondary students. Applicability of the study findings was therefore narrowed to the primary school levels. There was need to carry out a study among secondary students to widen the scope.

Although many of the reviewed studies were in tandem with the hypothesis that academic buoyancy was predicted by the predictor variables under study, there was little on the

most salient predictor of academic buoyancy among the variables. Studies carried out on these predictors addressed them singly. Such studies only revealed predictive weight of an individual predictor. Combinations of the exact variables used in the present study were difficult to come by. Subsequently, there was need to investigate these predictors together in order to establish the most salient among them.

Literature reviewed on the sex differences among the study variables revealed inconsistencies in the results. The cohorts that were used in the available studies to draw the samples also varied. Additionally, these studies were few in the Kenyan context therefore reducing applicability of the study findings. This study was necessary in order to bridge the knowledge gap and further increase generalizability of the findings.

From the review of related literature on the last objective to this study, it was revealed that studies on academic buoyancy and academic achievement were not readily available in the Kenyan context. Majority was from western culture and these used longitudinal methods without triangulation of data. Further, the findings were inconsistent. The current study therefore incorporated qualitative methods of data collection to create further insight and validations of the obtained results.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

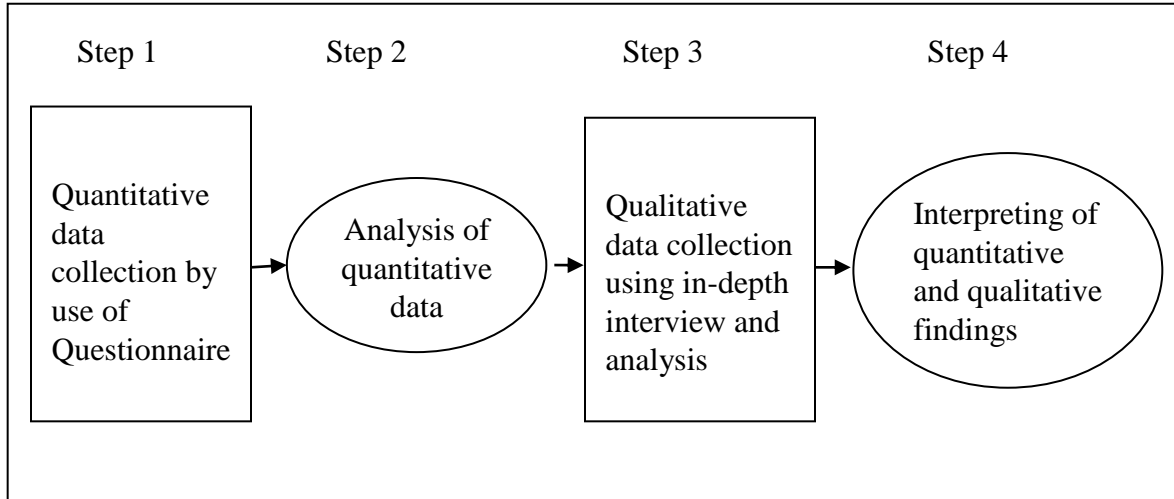
This chapter discusses the methodology and design used in the study. It further describes the target population, sampling techniques and sample size determination, piloting and research instruments used. The data collection procedures including the logistical and ethical consideration are discussed. The chapter concludes with the analyses procedures used for both qualitative and quantitative data.

#### **3.2 Research Design**

This study adopted an explanatory sequential mixed method design. This according to Creswell (2018) enables the researcher to follow a logical sequence while handling the research process to the end. The procedure involved in this kind of design is presented in Figure 3.1.

**Figure 3.1**

*Research Design*



Source: Creswell, 2018

As illustrated in Figure 3.1, the design follows four steps. The first step involves collection of quantitative data. In this study students' questionnaire was used to collect data. The obtained data were analyzed in step two and used to inform the selection of participants involved in step three. The results of the analysis done in step two guided the formulation of the interview protocol (Creswell, 2018). In step three, data was collected using focus group interviews. The obtained data were analyzed thematically. The last step involved integration of results obtained from the two (quantitative and qualitative) analyses and drawing conclusions.

The mixed method design used in this study according to Creswell (2018) is appropriate when the researchers intention is to incorporate both qualitative and quantitative methods

so as to achieve the research goal. The combination of the two methods in this study enabled the pooling of strengths of each, thereby gaining from their advantages (Creswell & Clark, 2017). In this study, quantitative data were collected first from the entire sample followed by the qualitative data collection. Creswell (2018) refers to this as the explanatory sequential method, where the quantitative data obtained are used to aid in identifying the participants for the qualitative phase.

In phase one of this study, data were collected using ex post facto design. This allowed the researcher to investigate characteristics already manifested (Simon & Goes, 2013), without having to influence any of the study variables. This design was appropriate for the study since academic buoyancy and its predictor variables were measured using students' responses to questions relating to both current and past learning activities which did not require any manipulations.

Phase two of the study subjected participants to a focus group interview. This enabled the researcher to obtain an in-depth inquiry from the participants and gain further insight into the variables under study (Yin, 2011). The adoption of triangulation method was appropriate for the researchers' intention of understanding the individual characteristics in the students that enabled them to bounce back when faced with adversity. Therefore, it allowed the researcher to collect respondents' views and perceptions on the impact of the predictors on academic buoyancy thus complemented the quantitative data (Creswell, 2018).

### 3.3 Research Variables

This study used predictor, criterion and moderator variables which were measured at different levels as shown in Table 3.1.

Table 3.1

*Types of Variables Used in the Study and Their Levels of Measurements*

Variable	Type of variable	Level of measurement
Self-efficacy	Predictor	Interval
Self-control	Predictor	Interval
Academic anxiety	Predictor	Interval
Academic engagement	Predictor	Interval
Teacher/Student relationship	Predictor	Interval
Sex	Moderator	Nominal
Academic buoyancy	Criterion/ Predictor	Interval
Academic achievement	Criterion	Interval

Source Researcher, 2019

As indicated in Table 3.1, the study had six predictor variables and two outcome variables. The first group of predictors measured at interval level included; self-efficacy, self-control, academic anxiety, academic engagement, and teacher-student relationship referred to in this study as proximal predictors of academic buoyancy. The foregoing had academic buoyancy as the outcome variable. The second predictor variable was academic buoyancy with academic achievement as the outcome variable. Both were measured at interval level. Sex was the moderator variable, and was measured at nominal level.

### **3.4 Location of the Study**

The study was conducted in Migori County, Kenya (Appendix M) which is situated at 0.39°59.99'N Latitude and at 34°49'59.99'E Longitude (GPS Coordinates of Migori County, Kenya, March, 2020). Migori county borders Tanzania and a vast section of it lie along Lake Victoria. It is one of the Counties in the former Nyanza Province which was sub-divided into Homabay, Kisii, Nyamira, Kisumu, Migori and Siaya Counties. Of these Counties, Migori consist of a diverse population made up of approximately eight 8 tribes. The County's administrative headquarters, Migori town, is the main linking town between Kenya and Tanzania and therefore very vibrant commercially. Further, it links Kenya and Uganda via Migingo Island through Sori town. The region is rich agriculturally with sugar cane as the main cash crop. This area is known for Gold mining that is carried out in three out of the eight sub-counties that constitute the County.

Migori County according to Ministry of Education (2019a) has had a low performance in KCSE compared to the neighbouring counties (see Appendix I). Further, its 8 sub-counties have equally had varied results in KCSE. This is indicated by the sub-county results tabulated on Table 3.2.

Table 3.2

*Comparison of Migori Sub-Counties' KCSE Performance*

Sub-county	<u>Mean Score</u>		
	2016	2017	2018
SE	3.15	3.66	3.34
SW	1.32	1.44	1.19
UR	4.16	4.02	4.35
RO	3.83	3.51	3.73
AW	3.18	4.30	3.84
NT	2.81	3.30	3.45
KE	0.25	3.32	3.57
KW	0.24	3.53	3.75
<b>Migori</b>	<b>2.10</b>	<b>2.96</b>	<b>3.46</b>

Note. Adapted from Ministry of Education Offices, (2019a)

SE= Suna East; SW= Suna West; UR= Uriri; RO= Rongo; AW= Awendo; NT= Nyatike; KE= Kuria East; KW= Kuria West.

Data presented on Table 3.2 show that the sub-counties have had low mean scores in KCSE. Notably, one of the sub-counties has persistently been extremely low in mean performance compared to the rest. Although the County's KCSE performance in the last three years has shown an upward trend, the improvement was still very small. This may imply that many of the students may not qualify for the prestigious courses.

The low performance in KCSE may be attributed to the locale of the County which makes many of the students get distracted by the many socio-economic activities (Matano, 2017). For instance, it is evident from the results shown on Table 3.2 that the sub-counties which are the immediate neighbours of Tanzania and lake region posted the lowest results in the county (Kuria East, Kuria West, Suna West and Nyatike). Studies carried out in this County, (Odumbe et al., 2015; Oguta et al., 2019; Osea, 2018) indicate that very few researches have addressed student's personal characteristics such as self-efficacy, academic anxiety, self-control, teacher-student relationship or academic engagement that predict academic buoyancy which was the central focus of the current study. These variables may have the potential of enabling students counter the challenges in academic environments. The foregoing therefore informed the choice of the locale.

### **3.5 Population of the Study**

This study's accessible population was 19,093 form three students drawn from 211 public and private secondary schools in the eight sub-counties of Migori County. Data obtained from the Ministry of Education County Offices (2019b) indicated 10,148 (53.2%) males and 9,845 (46.8%) females were distributed in different category of schools.

The selection of the participating schools was based on their having enrolled students for KCSE in the past three years; 2016, 2017 and 2018. Second, the involved schools' enrollment targeted those with at least 30 students at form three. This was in line with the assertion by Alvi (2016) which indicated that having a good number of participants to

pick from ensured a representative selection that consequently would produce statistically significant results.

The selection of form three students was informed first, by the assumption that they had selected their subjects to pursue for national examinations. This may imply an increased level of committed to their studies and subsequently stable performance in the internal examinations. This is in line with Mutweleli (2014) who asserted that such obtained internal examinations results could be used to measure students' academic achievement. Second, having been in secondary school for more than two years may imply that they could have encountered several challenges and pressures within the academic environment. Therefore, as they progressed with the studies, they must have developed ways of managing such challenges.

### **3.6 Sampling Techniques and Sample Size Determination**

#### **3.6.1 Sampling Technique**

Purposive sampling was used to select Migori County, the participating category of secondary schools and form three classes. The use of purposive sampling was to ensure inclusion of the characteristics of interest to the researcher. This is in line with Nachmias and Nachmias (2003) assertion that purposive sampling was an appropriate sampling procedure particularly when a researcher had specific features to be investigated. In lieu of the fore going, therefore, the researcher purposively selected all the eight sub-counties that constitute Migori County. This ensured that all the characteristics of the sub-regions

within Migori County were taken into consideration. Thereafter, specific sampling techniques were used for each phase of the study as indicated in the sub-sections following this.

**a) Sampling Technique for the Quantitative Data**

In the quantitative phase, stratified, cluster and simple random sampling methods were used to select participants. These probability sampling methods were to ensure that all subjects had an equal chance of participating. This is in agreement with Omair (2014) who observed that probability sampling methods ensure selection of a representative sample that would allow for generalization of the results. Further, stratified random sampling was used to select the participating categories of schools from the eight sub-counties which according to Omair ensured representativeness of schools from all the strata. Therefore, every sub-county had the schools stratified as follows; boys only, girls only, co-educational and private. From every sub-county, at least a school from any two of the strata was randomly picked. This was to ensure diversity of the schools from every sub-county thereby allowing for comparisons.

Further, cluster sampling was used to select one private school from the entire region. This was necessitated by the fact that the private schools were few while some sub-counties did not have any that fulfilled the laid out criteria. This sampling method therefore, enabled the selection of one participating private school within Migori County. From the cluster, a co-educational private boarding school was purposively selected to ensure representativeness of the category.

Different sampling procedures were then used to select the participating students from the various categories of schools. In co-educational schools, stratified sampling was used to select boys and girls. This was to ensure representativeness of the two sexes. This was followed by simple random sampling which was also employed in the single sex schools. This method according to Alvi (2016) gave the respondents an equal chance for participation in the study.

Data for the students were obtained from class registers in every school that took part. This enabled the researcher to sample students who were in school and had consistently been attending classes and subsequently sat for mid and end of term one 2019 examinations. According to Salkind (2010) inclusion criteria was significant in order to reduce confounding variables in a study. In this study, therefore, inclusion criteria ensured that all the respondents had results for their academic performance. Salkind further observed that inclusion criteria assured homogeneity of a selected sample. Paper folds containing yes and no were used to select the required number of participants. Those who picked paper folds with yes constituted the respondents for each school.

#### **b) Sampling Technique for the Qualitative Data**

Participants for the interview phase were purposively selected from three schools; girls only, boys only or co-educational. This was to ensure representation of each category of school. From each school category therefore, one school was selected on the basis of having attained the highest mean from the analysis of academic buoyancy. This

according to Guest et al. (2017) is referred to as intensity variation of purposive sampling where they postulate that participants who possess a good amount of a variable of interest are selected. In this study, participants were eligible to take part if they scored within the range of 21-28 points in academic buoyancy analysis. According to Salkind (2010) this procedure that was used for selecting participants ensured selection of information-rich category. Therefore, the top participants per selected school were purposively sampled to constitute the focus group.

### **3.6.2 Sample Size Determination**

#### **a) Quantitative Sample Size Determination**

Sample size determination according to Omair (2014), is an important consideration because it ensures representativeness of the population in terms of essential characteristics and other demographic factors. This study used a sample of 500 respondents drawn from a population of 19,093 form three students in Migori County. This sample was considered sufficient and within the range of 400-500 that was recommended by Gray (2009) who asserted that once the population was over 5000, a sample of 400-500 was sufficient. The sample of 500 was decided on which according to Omair (2014) was advantageous, since it ensured accuracy of the obtained results. The sampling frame is tabulated in Table 3.3.

Table 3.3

*Sampling Frame*

S-C	Target Population						Sample Size					
	Student			Schools			Students			Schools		
	Boys	Girls	Bo	Go	Coed	Pr	Boys	Girls	Bo	Go	Coed	Pr
NT	1393	1199	7	4	19	1	38	32	1	-	2	-
SW	745	807	1	7	8	1	19	21	-	1	1	-
SE	1310	1764	2	12	10	1	13	66	-	2	1	-
UR	1648	956	8	6	7	1	44	26	1	-	1	-
AW	1112	1237	6	11	9	3	28	32	-	1	-	1
KE	693	586	10	9	5	1	19	16	1	1	-	-
KW	1309	1221	8	8	7	1	34	31	1	1	1	-
RO	1938	1175	7	8	20	1	50	30	1	1	2	-
TOTAL	10148	8945	49	65	85	10	245	255	5	7	8	1
	(53.2)	(46.8)					(49)	(51)	(10.2)	(10.4)	(9.7)	(10)

*Note.* Adapted from *Secondary Schools Enrolment Data-2019b* by Migori County Education Office, (2019, January).

Bo = Boys only; Go = Girls only; Coed = Co-educational; Pr = Private; NT = Nyakike; SW= Suna West; SE= Suna East;UR= Uriri; AW= Awendo; KE= Kuria East; KW= Kuria West; RO= Rongo.

Table 3.3 presents the participants for the quantitative phase. The data indicate that there were more females than males selected to take part in the study. While all the sub-counties were proportionately represented, Suna-East Sub-County had more females selected. This was occasioned by the fact that other than the higher enrolment for girls than boys, the two girls' secondary schools that were randomly selected had an enrolment

of more than half the population of girls in the entire Sub-County. According to Alvi (2016), this increased sample size had the advantage of enhancing validity of the results.

#### **b) Qualitative Sample Size Determination**

Three schools of different categories were purposively selected to constitute interview groups. This was in line with Guest, Namey, and Mitschell (2017) who postulated that for none-stand-alone data, three focus groups were adequate. The three schools represented approximately 14.3% of the total sample in this study. This according to Vanvoorhis and Morgan (2007) was adequate for obtaining reliable qualitative results since it was more than their recommendation of 10%. Qualitative data in this study aided in the explanation of the results obtained from the quantitative phase. To constitute the interview respondents, a total of twenty-six participants who obtained high scores (21-28) in academic buoyancy (182) were selected. These were proportionately sampled from the three schools, and resulted in a sample of 9, 8 and 9 respectively. The interviewees constituted 14.8% of the entire study sample which according to Vanvoorhis and Morgan was within the threshold that they considered adequate for obtaining reliable results.

### **3.7 Research Instruments**

The study used the following tools for data collection; closed-ended self-administered questionnaire, interview schedule and a pro forma for extracting students' academic records.

### **3.7.1 Questionnaire**

In this study, a questionnaire with closed ended items was used to collect data from the participants. According to Bird (2009), the use of a questionnaire enabled faster and uniform collection of data across a population. This made the questionnaire appropriate for collecting data from participants who were spread in 21 schools across the eight sub-counties of Migori County. Participants were presented with a questionnaire (Appendix B) that was sub-divided into two parts. The first part contained the general guide on how to go about answering the questions, (Appendix B, Part one). The second part which contained the actual response questions was sub-divided into three sub-sections.

#### **a) Demographic Data**

Sub-section one had the general inquiry about the participants demographic data. Included in sub-section one was the student's code number, where they were to indicate their admission number to aid later in document analysis. They were also expected to indicate their sex and whether they attended school as a day or boarding students. Further, they were required to indicate the type of school that they attended which was categorized as boys only, girls only, co-educational or private. Lastly, they indicated whether the school attended was day or boarding or both. The remaining two sub-sections of the questionnaire had the adapted tools; Academic Buoyancy Scale and Motivation and Engagement (Scale- High School) version.

### **b) Academic Buoyancy Scale (ABS)**

Sub-section two of the questionnaire contained the adapted Academic Buoyancy Scale that was adopted from Martin and Marsh (2008), (Appendix B, sub-section II). On advice by the author and having been given the correct link to follow (Appendix C), the researcher purchased the document. Academic Buoyancy Scale had four questions framed on a 7-point likert scale. The items were rated 1 = *strongly disagree* to 7 = *strongly agree*. From the given guide obtaining a score of 7 attracted the highest value while a score of 1 attracted the least. This implied that the highest possible score was 28 and 4 as the lowest.

### **c) Motivation and Engagement Scale-High School**

The third sub-section of the questionnaire had the Motivation and Engagement Scale-High School version (MES-HS) adopted from Martin (2007), (Appendix B, Sub-section III). The request to use the tool was granted by Longlife Achievement Group (Appendix C). After settling the required payments, the tool together with its guide were sent. This scale measured several constructs and the necessary guidance was given for each construct of interest to the researcher. In the current study, self-efficacy, self-control, academic anxiety, teacher-student relationship and students' academic engagement were the variables of interest. The tool had a total of 36 items covering the variables of interest to the present study. The first four predictors had four items each in the MES-HS. These 16 items were used to elicit responses from the participants on self-efficacy, self-control,

academic anxiety and teacher-student relationship. The last predictor, academic engagement, had 20 items assigned to it to aid in collecting the data.

After modifications from pilot study, the thirty-six items were randomly distributed in the questionnaire in order to reduce acquiescence by the respondents. The tool was measured on a 7 point Likert scale ranging from 1 to 7 where 1=*disagree strongly* to 7= *agree strongly*. A score of 7 attracted the highest value while score of 1 attracted the least. This implied that the highest possible score for each of the first four predictors was 28 with 4 as the lowest. Further, for academic engagement which had 20 items, the highest possible score was 140 and 20 as the lowest. The scoring guide is accessible at the bottom of the questionnaire (Appendix B).

### **3.7.2 Pro Forma Summary of Students Examination Results**

The researcher obtained the students, mid and end of term one 2019 examination results from the schools' official class merit lists. Studies carried out in Kenya Ireri (2015); Mutweleli, (2014) and Wawire, (2010) have demonstrated that teacher evaluations are reliable and therefore qualify to be used to gauge a student's academic performance. In that case therefore, the average score from the two examinations were calculated for each participant in seven best subjects. The resultant average scores for mid and end term one, which constituted the student's academic achievement, were filled for each student in the Pro forma table (Appendix E) which was specifically made for this research purpose.

These averages were transformed to standardized z and t-scores using SPSS to allow for comparability across the schools.

### **3.7.3 Interview Schedule**

The study used an interview schedule (Appendix F) constructed by the researcher in consultation with the experts to guide the in-depth interview process. The guide according to Creswell (2014) enabled the researcher to exercise control and ask consistent questions to the interviewees thereby ensuring content validity. The interview schedule had open-ended items derived from the first five objectives of the study. This was in line with the researchers' intention of gaining further insight into academic buoyancy from the information rich participants. The foregoing was in agreement with Creswell (2018), who posits that qualitative data collection enables the participant to shade more light on the key findings revealed by the quantitative analysis.

### **3.8 Pilot Study**

The pilot study was carried out using 47 informants drawn from three schools within the County. This was in line with Connelly (2008) recommendation of a 10% sample of the final study. Mesa et al. (2016) reiterated that this was representative enough to give insights to the final study. Three schools from three sub-counties were randomly picked to participate in the pilot study. These comprised a boys only, girls only and co-educational schools which never took part in the final study.

From the pilot study the assessment and analysis which was done revealed significant issues for consideration such as clarity of items and amount of time required for the process. This was in agreement with Salkind (2010) observation that information gathered from the pilot study may enable the modification of the final instruments. In this study therefore, some of the questions which appeared ambiguous on the questionnaire were modified. On the adopted Academic Buoyancy Scale, wordings in two of the items were paraphrased as follows to suit the participants; 1) *I do not let study stress put me down from i don't let study stress get on top of me* and 2) *I do not let a bad mark affect my confidence from I don't let a bad mark affect my confidence*. However, the number of items contained in the instrument was maintained. Two of the questions were negatively worded while the remaining two were positively worded.

Modifications were made on the Motivation and Engagement Scale ( High School version) which was used to measure the proximal predictor as follows; *"If I have enough time, I believe I can do well in my school work"* to *"given enough time, I believe I can do well in my school work"*. Academic engagement which was part of the measured items though with more items assigned to it had further modifications done. The following four items were paraphrased; *"when we are given group work I normally get involved"* to *"I normally get involved in group work"*: *"I participate when we discuss things in class"* to *"I participate in class discussions"*: *"I'm happy to carry on with my studies and complete school"* to *"I want to carry on with my studies and complete school"* and *"I would like to continue studying or training after I complete school"* to *"I would like to*

*continue and train after my KCSE*". Therefore as postulated by Teijlingen, Rennie, Hundley, and Graham (2001) even if piloting did not guarantee perfection, it may have contributed to the study's success. Therefore, the pilot study served as a dress rehearsal that was done to validate the research instruments (Simon, 2013) and increase reliability in the final study.

### **3.8.1 Reliability of the Instruments**

During the pilot study, the adopted questionnaire from Academic Buoyancy Scale (ABS) adopted from Martin (2007) and Motivation and Engagement Scale-High School version (MES-HS) adopted from Martin and Marsh (2008) was administered to the 47 participants. This enabled the researcher to check the instrument's internal consistency using Cronbach's alpha reliability. The results are tabulated in Table 3.4.

Table 3.4

*Cronbach's Alpha Reliability Coefficient for the Adapted Tools*

Scale/ sub-scales	No. of items	Original alpha	$\alpha$ , piloting
ABS	4	.83	.77
MES( HS)	36	.78	.72
SES	4	.74	.72
SCS	4	.77	.73
ANS	4	.72	.69
TSRS	4	.89	.74
AES	20	.79	.72

*Note.*  $N = 469$ ; ABS = Academic Buoyancy Scale; MES (HS) = Motivation and Engagement Scale-(High School); SES= Self-efficacy scale; SCS = Self-control scale; ANS= Anxiety scale; TSRS= Teacher student relationship scale; AES = Academic engagement scale

Results of the Cronbach's alpha presented on Table 3.4 indicate that during the pilot study the alphas were lower than those of the original tools. For instance, Cronbach's alpha for the Academic Buoyancy Scale and Motivation and Engagement Scales were .77 and .72 respectively. This implied that reliability for ABS was slightly lower than the original tools (.83). Further, the MES (HS) reliability of .72 was equally lower than the original tool (.78). However with the feedback from the pilot study and the subsequent adjustments (See sub-section 3.8) the reliability of the instruments in the final study improved to satisfactory levels ( $\geq 7.8$ ). This was enhanced by the more intense clarifications to the participants prior to filling in of the questionnaires. These

corroborated observations by Teijlingen et al. (2001) who posited that piloting improves the research process. This implied that the pilot study improved the tools making them more appropriate for this study.

### **3.8.2 Validity of the Instruments**

Content validity for both the questionnaire and the interview guide were ascertained by peer and expert assessment. This was in line with Taherdoost (2016) who explained this as a judgmental approach which only requires that relevant literature is reviewed then assessment is done by experts in the study area. In line with this therefore, the tools were scrutinized by peers and the supervisors and where flaws were noticed, corrections were made before the actual collection of data. This was in agreement with Gray (2009) who observed that once the measures incorporate the various elements of the constructs as operationally defined then it qualifies for content validity. This implies therefore that following the scrutiny and acceptance by the peers and experts the tools were found appropriate for the study.

## **3.9 Data Collection**

### **3.9.1 Logistical Considerations**

The proposal was authorized by both the department and graduate school, Kenyatta University. The researcher sought further authorization and permit (Appendix J & K) from the National Commission for Science and Innovation (NACOSTI). This was granted. Permission was thereafter sought from Ministry of Education County Offices to

allow the researcher carry out the study in the various institutions of learning. During this time, the goal of the study was explained to the officer concerned. With permission granted (Appendix M), the researcher then visited the sampled schools to request to be allowed to carry out the research. Further explanation about the nature of the research was given to the principal in each of the sampled schools. Once the permission was granted, a formal appointment date for the actual exercise was also sought. The schools' principals assigned contact persons to assist with the process. The familiarization meeting held with the contact teachers (class teacher or deputy principal), enabled the researcher to discuss the appointment day, and set out logistics of the actual data collection process.

### **3.9.2 Ethical Considerations**

To ensure that research ethics were adhered to, the researcher explained to the participants prior to actual research, the purpose of the study and the possible benefits. Thereafter, those students who accepted to take part in the study signed the consent letter (Appendix A). They were assured of confidentiality and were given anonymous codes in order to conceal their identity. It was confirmed to them that they were free to pull out of the study in case of any discomfort with the study. Further, they were informed that the generated data would be securely kept under the custody of the researcher until the process was over. Thereafter, the researcher would share the findings with the concerned participants and stakeholders through different forum.

### **3.9.3 Actual Data Collection Technique**

Explanatory sequential mixed methods design was used to collect data. This implied that data were collected in two phases. The first phase involved the collection of quantitative data using self-administered questionnaires. These were personally distributed and collected by the researcher or an assistant to enhance the return rate. During administration of the questionnaires, the researcher explained the procedure and the requirements for filling the items. The process of filling the tool was supervised by the researcher and in some instances overseen by the teacher assigned by the principal of the school. The exercise took about 35 minutes. At the end of the exercise, questionnaires were collected and safely kept by the researcher to ensure confidentiality. The class teachers provided the term one 2019 mid-term examination results. Arrangements for collection of the end of term examination results, which were not yet ready at the time of the survey, was made with the relevant teacher.

The collected data were cleaned, coded and analyzed. The analyzed results were used in the identification of the academically buoyant students. These were then used as the interview participants. The interview group was briefed about the process and informed about the audio recording. This was to allow for verbatim transcription later. All the participants were given pseudo-identification numbers. They were requested to cite them as they responded to the questions for ease in transcription later. The researcher assured them of confidentiality. The interview lasted approximately thirty minutes. They were carried out in each of the three schools in a quiet room that was provided by the school.

The interview schedule was used to guide the in-depth interview using focus group method. The researcher personally conducted the three interviews which allowed for further probing whenever there was need.

### **3.10 Data Analyses**

#### **3.10.1 Analysis of Quantitative Data**

This study used both descriptive and inferential statistics to analyze the quantitative data obtained from the questionnaires. Data were coded, entered and cleaned to ensure outliers and improper entries were removed before analysis. Descriptive statistics were analyzed according to objectives. The hypotheses were tested at  $p \leq .05$  using appropriate inferential statistics as indicated.

Hypotheses (H<sub>01</sub> to H<sub>05</sub>) were all tested using Pearson's Product Moment Correlation Coefficient ( $r$ ). That is;

H<sub>01</sub>: There is no significant relationship between self-efficacy and student academic buoyancy;

H<sub>02</sub>: There is no significant relationship between self-control and academic buoyancy of students;

H<sub>03</sub>: There is no significant relationship between academic anxiety and academic buoyancy of students;

H<sub>04</sub>: There is no significant relationship between academic engagement and academic buoyancy of students;

H<sub>05</sub>: There is no significant relationship between teacher-student relationship and academic buoyancy.

The sixth hypothesis;

H<sub>06</sub>: There is no significant predictive equation of academic buoyancy from the proximal predictors.

This was tested using step-wise multiple regressions.

The seventh hypothesis;

H<sub>07</sub>: There is no significant sex difference among the proximal predictors.

This hypothesis was made more testable with the formulation of the following supplementary hypotheses;

H<sub>06.1</sub>: There are no significant sex differences in students' self-efficacy.

H<sub>06.2</sub>: There are no significant sex differences in students' academic anxiety.

H<sub>06.3</sub>: There are no significant sex differences in students' self-control.

H<sub>06.4</sub>: There are no significant sex differences in teacher-student relationship.

H<sub>06.5</sub>: There are no significant sex differences in students' academic engagement.

The foregoing hypotheses were tested using independent samples t-test.

The eighth objective was;

H<sub>08</sub>: There is no significant prediction equation of academic achievement from academic buoyancy.

This was tested using linear regression in order to establish the predictive weight of academic buoyancy on academic achievement.

### **3.10.2 Analysis of Qualitative Data**

In this study qualitative data was collected using focus group interviews which were guided by interview schedules (Appendix F) for objective one to five. These objectives tested if there was significant relationship between proximal predictors and academic buoyancy. The obtained qualitative data were used to provide further insight on the quantitative data earlier obtained from the first five objectives. The data were audio recorded and transcribed verbatim. A deductive coding method was used to analyze the contents. Using a code book (Appendix D), major themes and sub-themes were picked which then informed the qualitative analysis.

## **CHAPTER FOUR**

### **PRESENTATION OF FINDINGS, INTERPRETATIONS AND DISCUSSIONS**

#### **4.1 Introduction**

In this chapter, results are presented guided by the study objectives and hypotheses. For each objective, the results of the quantitative analysis of both descriptive and inferential statistics are tabulated followed by the relevant interpretations. Further, analyses from qualitative data were presented under each related objective. Finally, at the end of each objective a discussion that integrates both qualitative and quantitative findings of the study is presented.

#### **4.2 General and Demographic Information**

In this section, general information is given on the questionnaire return rate and the summary for the participants' involvement according to the type of school, sex, and schooling status.

##### **4.2.1 Return Rate**

The 21 sampled schools located in the eight Sub-Counties of Migori County were visited personally by the researcher. Administration of the questionnaires was done with the help of the assisting teachers. At the end of the exercise, the questionnaires were immediately collected and this resulted in 100% return rate. During cleaning of the questionnaires, some flaws were detected and this resulted in the rejection of thirty-one questionnaires. The flaws included: i) incomplete filling of the questionnaires that led to one being

rejected; ii) multiple responses, led to six rejections; iii) giving one answer throughout, six rejections; iv) wrong admission, seventeen rejections, and v) no admission number indicated, which resulted in one rejection. Of the rejected questionnaires, 28 were from boys and 3 from girls. Therefore, only 469 questionnaires were eligible for data analysis as indicated on Table 4.1.

Table 4.1

*Return rate*

Types of schools	Returned Questionnaires			Eligible Questionnaires		
	Boys	Girls	Total	Boys	Girls	Total
Boys only	122	0	122	121	0	121
Girls only	0	167	167	0	166	166
Co-educ.	110	76	186	89	75	164
Private	13	12	25	7	11	18
Total	245(49)	255 (51)	500(100)	217(43.4)	252(50.4)	469 (93.8)

*Note.* N= 469; Co-educ. = Co-educational; ( ) = percentage of the target total

Results on Table 4.1 shows that the questionnaires that were eligible for data analysis were 469 representing 93.8 per cent of the initial sample. However, this number was still within the range of 400-500 recommended by Gay (1999) and therefore, would result in accurate results (Omar, 2014). The discarded questionnaires were from all the categories of schools that were involved in the study; Boys only (1); Girls only (1); Co-educational

(22) and Private (7), totalling to 31 rejected questionnaires. It was significant to note that more of the males (28) had their questionnaires rejected as opposed to the females (3) thereby affecting the eligible percentage of the representation of the gender in the study (males 43.4 and females 50.4 %).

#### 4.2.2 Demographic Data on Type of School and Sex

To enhance understanding of the distribution for the 469 participants in the study, a cross-tabulation of school type by sex was done. The results are presented on Table 4.2.

Table 4.2

*Participants' Sex and School Type*

Sex	TYPE OF SCHOOL				Total
	Bo	Go	Co-ed	Pr.	
Male	121(55.8)	0 (0)	89(41.0)	7(3.2)	217(46.3)
Female	0(0.0)	166(65.9)	75(29.8)	11(4.3)	252(53.7)
Total	121(25.8)	166(35.4)	164(35.0)	18(3.8)	469(100)

*Note.* N=469; Bo= Boys only; Go= Girls' only; Co-ed= Co-educational; Pr. = Private; ( ) = percentage of the specific sex.

The results on Table 4.2 show that 469 participants (53.7% females and 46.3% males) were eligible for analysis in the research. The figures were affected by the cleaning of the data which found more boys questionnaires faulty. Further, the criteria of selecting schools with an enrolment of at least 30 students and above, in form three, mostly

affected mixed schools. These schools had more boys than girls enrolled at form three. For instance in Suna-East Sub-County, out of a total of 32 schools, 14 had enrolment below the threshold of 30 at form three (MoE, Migori County, 2019b). According to the MoE, Migori County, most of the girls' boarding schools, had higher enrollments at form three. Overall, majority of the girls were from girls' only schools while the male students were mainly from boys' only schools. Further, the presented figures show that there were few participants (18) from private schools who took part in the study. This was due to the few private schools in the County; of which majority were not eligible given the criteria of having at least 30 students enrolled in form three.

#### 4.2.3 Demographic Data on the Mode of Schooling for Students and Sex

Description of participants in terms of their schooling mode (day or boarding student) was cross tabulated with sex. Table 4.3 represents the demographic statistics.

Table 4.3

##### *Participants' Schooling Mode and Sex*

Sex	Schooling Mode		Total
	<i>Bs</i>	<i>Ds</i>	
Boy	146 (40.6)	71(65.1)	217(46.3)
Girl	214(59.4)	38(34.9)	252(53.7)
Total	360(76.8)	109(23.2)	469(100)

*Note.*  $N = 469$ ; *Bs* = Boarding student; *Ds* = Day student; ( ) = percentage of total

The data on Table 4.3 show that there were more boarding school students (76.8 %) in the study compared to day school students (23.2 %). Further, of those who attended school as boarders, there were more girls (214) than boys (146). At the same time, there were more boys attending school as day scholars, (66.1%) compared to girls.

### **4.3 Relationship between Self-Efficacy and Academic Buoyancy**

The first objective was to establish the relationship between Academic Buoyancy and Self- efficacy. The investigations were first done using descriptive analysis to give an overview of the study variables.

#### **4.3.1 Description of Participants' Self-Efficacy**

Students' self-efficacy (SE) was measured using the Motivation and Engagement Scale-High School version (MES-HS) by Martin and Marsh (2008). Self-efficacy was operationalized through the analysis of the participants' scores in 4 questions that were related to it on the 7 point likert scale (MES-HS). The 4 items on self-efficacy were randomly distributed among other questions measuring other constructs in the scale. Participants selected between 1 = *strongly disagree* to 7 = *strongly agree* as was appropriate for them. This would result in a respondent getting 28 which was the highest possible score. The total scores of the participants on self-efficacy items were analyzed in order to get the range, mean, standard deviation, skewness and kurtosis as was presented on Table 4.4.

Table 4.4

*Descriptive Statistics of Self-efficacy*

Range	Min	Max	Mean	<i>SD</i>	<i>Sk</i>	Kur
24.00	4.00	28.00	21.30	6.33	-.99	-.08

*Note.* *N* = 469; Min = Minimum; Max = Maximum; *SD* = Standard deviation; *Sk* = Skewness; Kur = Kurtosis

From Table 4.4, it is revealed that self-efficacy had a range of 24 with the lowest score as 4 and highest as 28. It further indicated that the mean was 21.30 (*SD* = 6.33). The negative coefficient of skewness implied that the participants rated themselves highly in self-efficacy. The value of the coefficient further indicated a Kurtosis of -.08. According to Schemider et al. (2010), this generally qualified for diagnosis of a distribution shape that was considered normal.

Further, sub-division of self-efficacy into three categories (Low, Moderate and High) was done to allow for further analysis and interpretation of the results. The categorization used the following cut off scores; 4 to 12 for low; 13 to 20 for moderate and 21 to 28 for high. The results were tabulated on Table 4.5.

Table 4.5

*Participants' Level of Self-efficacy*

Self-efficacy	<i>f</i>	%	<i>M</i>	<i>SD</i>	<i>Sk</i>	Kur
Low	75	16.0	9.31	2.27	-.65	-.42
Moderate	117	24.9	18.80	2.39	-1.33	.70
High	277	59.1	25.60	1.98	-.44	-1.08

*Note.* *N* = 469; *M* = mean; *SD* = Standard deviation; *Sk* = Skewness; Kur = Kurtosis

The categorization presented on Table 4.5 further revealed that majority of the participants scored highly (59.1%) in self-efficacy and very few (16%) scored low in the variable. This was further demonstrated by the negative coefficient of skewness (-.65, -1.33 and -.44).

#### 4.3.2 Description of Academic Buoyancy

Academic buoyancy was operationalized through the analysis of participants' scores in the four items obtained in Academic Buoyancy Scale (ABS) by Martin (2007). Participants marked answers on the seven-point modified Likert scale ranging from 1= *strongly disagree* to 7= *strongly agree*. A score of 7 was an indication of a high level of the trait while a score of 1 was an indication of a low level of the construct.

The total scores for the participants' in academic buoyancy were used to compute the range, the mean, standard deviation, skewedness and kurtosis. The findings were presented in Table 4.6.

Table 4.6

*Description of Academic Buoyancy Score*

Range	Min	Max	<i>M</i>	<i>SD</i>	<i>Sk</i>	Kur
24.00	4.00	28.00	18.41	6.66	-.54	-.76

*Note.* *N* = 469; Min- Minimum; Max- Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; Kur = Kurtosis

As indicated on Table 4.6, the range for the participants' scores in academic buoyancy was 24 with a minimum score of 4 and maximum of 28. This was within the anticipated range of scores. The mean for academic buoyancy was 18.41 ( $SD = 6.66$ ). The distribution of the scores had skewness of  $-.54$  and kurtosis of  $-.76$ . This was an illustration that the distribution of scores was moderately skewed to the negative meaning that there were many high scores. The kurtosis results pointed to light tails and flatness which according to De-Carlo (1997) was still within the acceptable range given a negative value that was greater than negative one. However, as explained by Schemider et al., (2010), when kurtosis is less than 3, it suggested that that data was approximately normal. This implied therefore that academic buoyancy scores were sufficiently normally distributed.

To allow for further interpretation of these findings, academic buoyancy scores were subdivided into high, moderate and low. The categorization followed these cut off scores; low = 4 to 12, moderate = 13 to 20 and high = 21 to 28. The results of the participants' distribution according to these levels were indicated in Table 4.7.

Table 4.7

*Levels of Academic Buoyancy*

Levels of Academic Buoyancy	Frequency	$M$	$SD$
Low	102 (21.7)	8.16	2.62
Moderate	185 (39.4)	17.76	2.56
High	182 (38.8)	24.80	1.90
Total	469 (100)	18.41	6.66

*Note.*  $N = 469$ ;  $M =$  Mean;  $SD =$ Standard deviation; ( ) = percentage of total

Table 4.7 shows the proportion of the participants in the various levels of academic buoyancy. Majority of the participants had moderate level (39.4%) of academic buoyancy with a mean of 17.76 ( $SD = 2.56$ ). A slightly smaller number had high academic buoyancy (38.8%) with a mean of 24.80 ( $SD = 1.90$ ). Only 21.7% of the participants had low academic buoyancy ( $M = 8.16$ ,  $SD = 2.62$ ). This category had the highest variability ( $SD = 2.62$ ).

To further understand the participants' endorsement of academic buoyancy, the means were compared across the various types of schools, category of the respondents in terms of whether day or boarding student and sex. The results were presented on Table 4.8.

Table 4.8

*Descriptive Statistic for Academic Buoyancy by School Type, Nature of Schooling and Sex*

Sex	Type of school	Nature of schooling	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>	
Boy	Boys only	BS	2.24	.70	-.37	-.91	
		DS	2.50	.73	-1.17	.14	
	Co-educ.	BS	1.88	.81	.22	-1.42	
		DS	2.09	.70	-.13	-.90	
Girl	Private	BS	2.14	.90	-.35	-1.81	
		DS	2.27	.78	-.50	-1.18	
	Girls only	BS	2.05	.85	-.10	-1.62	
		DS	1.97	.79	.05	-1.36	
	Private	BS	2.28	.55	.90	.62	
		DS	2.27	.78	-.50	-1.18	
	Boys only	Total	2.27	.71	-.44	-.91	
		Total	2.27	.78	-.50	-1.18	
	Co-educ.	BS	Total	1.97	.83	.05	-1.54
			Total	2.04	.74	-.07	-1.13
Total		2.01	.78	-.01	-1.33		
Private	Total	Total	2.06	.54	.07	1.21	
		Total	2.19	.76	-.33	-1.22	
	Total	2.11	.75	-.18	-1.18		
Total	Total	Total	2.17	.76	-.30	-1.22	

*Note.* *N* = 469; Co-educ. = Co- educational; *BS* = Boarding student; *DS* = Day student; *M* = Mean; *SD* = Standard deviation; *Sk.* = Skewness; *Kur* = Kurtosis

The findings on Table 4.8 showed that students in boys only day schools had a higher mean in academic buoyancy ( $M = 2.50$ ,  $SD = .73$ ) compared to those in boarding schools ( $M = 2.24$ ,  $SD = .70$ ). Similar results were obtained among boys in co-educational schools, where those who were day scholars had a higher mean 2.09 ( $SD = .70$ ) than their counterparts who were boarding students ( $M = 1.88$ ,  $SD = .81$ ).

On the other hand, students in girls only boarding schools had a higher mean in academic buoyancy ( $M = 2.27, SD = .78$ ) compared to the girls who were boarders ( $M = 2.05, SD = .85$ ) or the day scholars ( $M = 1.97, SD = .79$ ), in co-educational schools. It is significant to note that while the boys appear to have scored better in academic buoyancy as day students and girls better as boarding students, overall, as indicated by the summary totals at the bottom of Table 4.8, students who board had higher mean 2.19 ( $SD = .76$ ) in academic buoyancy than those who were day scholars ( $M = 2.11, SD = .75$ ).

### **4.3.3 Hypothesis Testing**

The first objective of this study was to establish the relationship that existed between Self-Efficacy and Academic Buoyancy. To test the relationship, the following null hypothesis was formulated:

$H_{01}$ : There is no significant relationship between Self-efficacy and Academic Buoyancy.

To test the aforementioned hypothesis, Pearson's Product Moment Correlation Coefficient ( $r$ ) was run. The results were shown on Table 4.9.

Table 4.9

*Correlation between Self-efficacy and Academic Buoyancy*

		ABGS
ABGS		1
SEGS	Pearson <i>r</i>	.76**
	Sig. (2-tailed)	.00

*Note.* *N* = 469; ABGS = Academic Buoyancy Global Score; SEGS = Self-efficacy Global Score

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

Figures on Table 4.9 indicate a strong positive and statistically significant correlation between academic buoyancy and self-efficacy ( $r(467) = .76, p < .05$ ). This implies, therefore, that an increase in self-efficacy led to an increase in Academic Buoyancy. The results failed to support the null hypothesis and a conclusion was drawn that Self-efficacy was significantly related to Academic Buoyancy.

#### **4.4 Qualitative Findings on the Relationship between Self-Efficacy and Academic Buoyancy**

Qualitative data were collected from academically buoyant students by use of focus group interviews. This was to enable the researcher to obtain further insight on the relationship between academic buoyancy and self-efficacy. A proportion (15.3 %) of the participants who were high in academic buoyancy were interrogated to establish if they

had self-efficacy trait and to further establish whether this trait helped to explain academic buoyancy.

Self-efficacy is conceptualized in this study to refer to one's belief in their ability to organize and act in a certain way in order to accomplish a task. Ahmad and Safaria (2013) reiterated that self-efficacy enables an individual to perform a given task. From the qualitative analysis, prominent themes emerged based on self-efficacy following the interrogation of academically buoyant participants. These included;

#### **4.4.1 Strong Self-Belief**

It emerged that students were confident in confronting the tasks they were assigned. One student said that “whenever am given work to do I just feel like it is something I should do because it motivates me to do it’ (Interviewee 7, March 11, 2019). Another student asserted that;

When I am given work in school, actually I work at it. I want to prove that am capable of doing these things and I have to prove to teachers that I have understood what is taught in class, and that am not just there like anybody else. So, I work hard and when I find it difficult and I only know it is difficult after trying harder. Then, that is the time I go to a teacher to explain further (Interviewee 6, March 11, 2019).

And more categorical, another student said that;

I think I have the capacity to cope with tasks and exercises that we are given. They form a good practice for us, and I think I can cope with them without pressure or stress. I can do well in those tasks and achieve my goals (Interviewee 1, March 13, 2019).

The foregoing implies that the students exuded confidence in themselves and their abilities. Fong (2014) postulates that this strong belief on one's capacity was capable of propelling an individual towards increased effort aimed at mastery of a task. Therefore, they would not shy off from assigned tasks and believed that they had what was needed to tackle the tasks. Consequently, they never gave up even on challenging tasks because they felt that they had the capacity to perform the tasks (Ahmad & Safaria, 2013).

According to Barringer (2009), self-efficacy is similar to self-confidence. Additionally, he observed that individuals generally avoid tasks where their self-efficacy was lowered and were drawn to tasks where their self-efficacy was raised. The feeling of self-confidence demonstrated by the students suggests that buoyant students who were interviewed had high self-efficacy. Rutter (1987) further reiterated that the belief in one's capability was a protection against challenges encountered in the academic environment. This was demonstrated in the responses which were an indication of a strong sense of self-efficacy. According to Kenda (2019), efficacious individuals view challenging problems as tasks to be mastered and subsequently, develop a deeper interest in the

activities they participate in. He further observed that these enable them to form a stronger sense of commitment which further assists them to recover quickly from setbacks and disappointments. The foregoing may imply that they possess characteristics of buoyancy.

#### **4.4.2 Goal Setting**

The other theme that emerged was the participants' ability to set goals. According to the interview, students reported that they set goals that guide their pursuit for excellent academic achievements.

Yes, I set goals. I have always done this since primary. I set goals per term and I try my best to achieve it. This helps me to go through each term, until I accomplish the final goal that I had set for final exams (Interviewee 4, March 15, 2019).

This is in agreement with Schunk (1990) who says that as learners work on tasks, they observe their own performances and evaluate their own goal progress. Schunk adds that self-efficacy and goal setting are affected by self-observation, self-judgment and self-reaction. Indeed, students admitted to setting realistic goals.

For me when I set my goal, I try to be realistic. For example, when say in a subject I decide to read and put a target of 90% it must be realistic. I put according to the range that I can score. I look at my potential then I set my target which is not too low (Interviewee 5, March 13, 2019).

Cheng and Chiou (2010) assert that students with high self-efficacy set higher goals for subsequent achievement tests and the students are in agreement;

If you set high goals it will prove to you that you are also capable of doing it. When the sky is the limit then you continue working hard so that you can achieve the goal. It will make you to have a positive attitude and concentration so that you can understand your capability of getting this (Interviewee 3, March 11, 2019)

According to Bandura (1994),

People with high assurance in their capabilities approach difficult tasks as challenges to be mastered rather than as threats to be avoided. Such an efficacious outlook fosters intrinsic interest and deep engrossment in activities. They set themselves challenging goals and maintain strong commitment to them. They heighten and sustain their efforts in the face of failure (p. 1).

And this also portrays the trait of buoyant individuals. Indeed, a student said that “I normally set goals that challenge me to achieve it. This is because I know I have the capability to do it” (Interviewee 1, March 13, 2019). Another student added that,

like people say that, ‘if your dreams don’t scare you then you are capable of achieving them’ so according to me I do set higher goals that make me strive higher and even struggle even if am being discouraged by other people (Interviewee 1, March 11, 2019).

From the excerpts, it is implicit that the students set realistic and high challenging goals. These according to David (2015) are traits of buoyant individuals. He postulates that the stronger an individual's belief in their perceived self-efficacy was, the more likely they were to set challenging goals for themselves which may in turn result in a stronger commitment to attaining those goals. The foregoing attest to resilience theory by Rutter (1987), thereby reaffirming the significance of positive feelings about self and ability possessed in protecting an individual against adversity.

#### **4.5 Discussion of the Results on the Relationship between Self-Efficacy and Academic Buoyancy**

The current objective was to determine the relationship between self-efficacy and academic buoyancy. Results obtained from the demographic analysis revealed that the participants scored highly in the two variables. The negative coefficient of skewness (-.65, -1.33 and -.44 respectively) in all the three levels of self-efficacy, was a further indication that majority of the participants rated themselves highly in this trait. This may further attest to the participants' belief in themselves.

According to the quantitative analysis, it was revealed that girls demonstrated higher levels of academic buoyancy while in girls boarding schools. This may imply that when they are in girls only boarding schools, then they found it easier to be more engaged and assertive. This in turn improved their ability to counter academic challenges. This is in line with the observation of Mburu (2013) that, girls were more assertive in girls' only

schools. This may probably be attributed to the amount of time that was available for studies in boarding schools. According to Rutter (1987), engagement results in a host of other future benefits and therefore results in a reciprocal role in energizing learners to carry on. This, in itself, protects students from academic risks such as failure probably because of the increased engagement with academic work which subsequently results in academic buoyancy.

It is significant to note further that both school type and participants' mode of schooling as either a day or boarding student revealed different levels of academic buoyancy. Overall, the study revealed that boarding students were higher in academic buoyancy. Majority of the day students scored low in academic buoyancy which may be because of divided attention between social roles expected of them from home and time for academic engagement, observed Mburu (2013). Such divisive attention may make students easily give up on difficult tasks that appear to take toll of their precious time and subsequently reducing their buoyancy. As postulated by Rutter (1987), such situations may increase their exposure to risks in the learning environment which was therefore detrimental to academic buoyancy.

Analysis using Pearson's  $r$  revealed a strong positive and statistically significant correlation between self-efficacy and academic buoyancy ( $r(469) = .76, p < .05$ ). This finding corroborates studies by Surland (2017) and Reisy et al. (2014). For example, Reisy et al. (2014) postulated that an increase in self-efficacy among learners had the

potential of evoking academic buoyancy. They explained that as the belief a person held about their ability increased, so did their ability to counter problems and subsequently their academic buoyancy. Invariably, when people put more belief in their personal abilities, they become more confident in traversing the challenging academic environments (Fong, 2014). This is in line with Rutter (1987) who postulated that belief in personal ability acted as a protection on an individual against adversities. Cassidy (2015) supported Rutter reiterating that, efficacious persons generally demonstrate higher levels of effort and were more insistent towards tasks (Fong, 2014). This, therefore, gives an edge over their less efficacious counterparts.

Martin and Marsh (2008) revealed in their study a significant relationship between academic buoyancy and self-efficacy. Similar findings were corroborated by Martin et al. (2010) while investigating the 5C's. They established that self-efficacy was a significant predictor of academic buoyancy. On further analysis, they established the significant role of self-efficacy in determining both prior and subsequent academic buoyancy. These results, therefore, aligned themselves with the resilience theory (Rutter, 1987), by revealing a significant relationship between self-efficacy and academic buoyancy. Insights from qualitative analysis further reaffirmed the assertion.

Academically buoyant students who were interviewed reported that, they were able to cope with challenges and other pressures in school and at the same time still performed to expectations. The participants reported experiences of stressful moments while studying

in school but they had developed mechanisms to address the problems. For example, participants were asked whether studies stressed them. Some of the respondents mentioned that though studies at times stressed them, they were psychologically prepared for them. This may imply that they had a personal attribute that buffers them from stress arising from the demands of their studies. When they were asked further whether a bad grade affected their confidence, one of the respondents confidently explained that after failing in examinations, the pressure that came from the teachers and parents only helped to motivate them further to work harder. This underscores the role of significant others in the protection process which according to Rutter (1987) safeguards a student from such vulnerability.

From the interview, it emerged that students under investigations faced difficulties in school. However, they had developed psychological mechanisms to enable them to address the challenges. This, according to the excerpts, is attributable to self-efficacy. Rutter (1987) postulated that protective mechanisms were capable of negating a chain reaction which may be caused by exposure to a risk, such as failure in examinations and subsequently reduce their effect. Some of the phrases captured during interviewees included “whenever I am given work, I feel I must do it,” “I want to prove to others that I am capable,” or “I only ask the teacher after I have tried and defeated.” These were a manifestation that the students under investigations had developed a belief in their capacity to perform a given task. This finding agrees with Martin et al. (2010) who reported that self-efficacy was a significant predictor of academic buoyancy and that it

further mediated the relationship between prior academic buoyancy and the subsequent academic buoyancy. Similarly, Cassidy (2015) revealed that academic self-efficacy had a correlation with and at the same time significantly predicted academic buoyancy.

Both qualitative and quantitative analysis revealed a relationship between self-efficacy and academic buoyancy. Majority of the interviewed participants kept repeating that they had the capacity and believed in themselves which was an indication that they were efficacious. The foregoing was demonstrated in the positivity and confidence in their ability to achieve school tasks which led to phrases like; “I set goals and challenging goals,” or “I set high goals because I know I have the capacity.” According to Fong (2014) such positive views enabled the students to put great effort in academics. Subsequently, were able to overcome challenges that they faced at school. Implicitly, the more positive the self-belief was, the more academically buoyant they became. Further, Fong (2014); Reisy et al. (2014) and Carrington (2016) observed that students who had positive beliefs about themselves set goals which make them remain focused on academic work and thus strive to accomplish tasks. This was affirmed by the resilience theory, Rutter (1987), which posits that a proactive decision when faced with a challenge had the potential of buffering a student against adversity.

The study findings further corroborated Moradi et al. (2018) who concluded that academic self-efficacy beliefs contributed to increased academic buoyancy of students along with improving the schoolwork engagement. This is in line with Maropamabi

(2014) observation that self-efficacy had the power to trigger learner's action. As postulated in the Resilience theory (Rutter, 1987), self-efficacy has the capacity to equip students with internal asserts necessary to protect them from academic adversities. This way, they are able to develop academic buoyancy that would enable them to successfully navigate the challenging academic environments.

#### **4.6 Relationship between Self-Control and Academic Buoyancy**

The second objective to this study was to investigate the relationship between self-control and academic buoyancy.

##### **4.6.1 Description of Participants Self-Control**

Self-control was operationalized using the analysis of each participant's score in the four related questions in the Motivation and Engagement Scale (MES-HS). Responses were selected from the 7- point likert scale that ranged from 1 = *strongly disagree* to 7 = *strongly agree*. Thereafter responses from each participant were tabulated and this endorsed their level of self-control. The totals on these items ranged from 4 as the least and 28 as the highest possible score. The participants' self-control scores from MES (HS) were totaled and analyzed to get the range, mean, standard deviation, skewness and Kurtosis as presented in Table 4.10.

Table 4.10

*Description Statistic of Self-control*

Range	Min	Max	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
24.00	4.00	28.00	14.04	6.80	.19	-1.23

*Note.* *N* = 469; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis

The results presented on Table 4.10 revealed a mean of 14.04 (*SD* = 6.80) on self-control. This was an indication that the participants mean in self-control was average, although the standard deviation indicated a large variability. The coefficient of skewness was .19 while Kurtosis was -1.23. Given that the two coefficients; skewness and kurtosis, were less than three, according to the guidelines by Schemider et al. (2010), it demonstrated that the data were sufficiently normally distribution.

To enable further analysis, the student's scores were ranked as high, moderate, or low. The categorization was done using the following cut off scores; High was 21 to 28, Moderate was 13 to 20 and low was 4 to 12. The results were presented on Table 4.11.

Table 4.11

Participants' Level of Self-control

Self-control	<i>f</i>	%	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
Low	223	47.5	7.83	2.53	.01	-1.20
Moderate	159	33.9	17.35	2.62	-.13	-1.24
High	87	18.6	23.93	1.66	.71	-.13

*Note.* *N* = 469; *f* = frequency; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis

The findings of the descriptive analysis shown on Table 4.11 revealed that majority (47.5%) of the students were low in self-control. This was further confirmed by the positive coefficient of skewness. Participants low in self-control had a mean of 7.83 ( $SD = 2.83$ ) followed by those with moderate (33.9%) who had a mean of 17.35 ( $SD = 2.62$ ). The remaining participants had high self-control (18.6%) with a mean of 23.93 ( $SD = 1.66$ ). Notably, the participants in the high level showed the least variability in scores among the sub-groups.

#### **4.6.2 Hypothesis Testing**

To establish the relationship between self-control and academic buoyancy, the following null hypothesis was tested:

H<sub>02</sub>: There is no significant relationship between self-control and academic buoyancy

To test this hypothesis, a Pearson's Product Moment Correlation Coefficient ( $r$ ) was conducted and the results were as presented on Table 4.12.

Table 4.12

*Correlation between Self-control and Academic Buoyancy*

		ABGS
ABGS		1
SCTS	Pearson <i>r</i>	.18**
	Sig. (2-tailed)	.00

*Note.*  $N = 469$ ; ABGS = Academic Buoyancy Total Score; SCTS = Self-control Total Score

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

The results on the relationship between self-control and academic buoyancy as presented on Table 4.12 revealed a positive and statistically significant relationship between the two variables ( $r(467) = .18, p < .05$ ). The result failed to support the null hypothesis and led to its rejection. It was, therefore, concluded that self-control was significantly related to academic buoyancy. This implied that an increase in self-control led to increase in academic buoyancy.

#### **4.7 Qualitative Analysis on the Relationship between Self-Control and Academic Buoyancy**

To gain further insight, focus group interviews were conducted using academically buoyant students. This was to establish whether students who were academically buoyant possessed self-control as a trait and whether this had an influence on their academic buoyancy. According to the current study, self-control has been conceptualized to refer to student's ability to control future occurrence. The findings revealed that self-controlled

students rely on lessons that they learnt from past experiences, practice perseverance, self-responsibility, plan and adhere to the plan. From the interview, the following themes emerged;

#### **4.7.1 Lessons Learnt from Past Experience**

From the interviews, some respondents attributed their success to past experience which according to Collie et al. (2014) was associated with personal success. They posited that control for the future may take either a negative or positive dimension and depended on one's personal attribution to success or failure. One of the interviewees had this to say;

For me I actually attribute my success to my past experiences. When I look at my past experiences, I realize that I have done a lot in terms of doing my studies. After resolving in my mind that failure would not happen again, I actually work hard and even work smart to achieve the next target (Interview 4, March 15, 2019).

The foregoing was an indication of self-control mounted by a student at the face of adversity. This enabled the participant to positively navigate his academic environment which was a sign of academic buoyancy.

#### **4.7.2 Self-Perseverance**

A second theme on self-perseverance emerged during the interrogations. This is in line with Duckworth, Taxer, Eskreis-Winkler, Galla and Gross (2019) who referred to self-control as the alignment of thoughts, feelings, and actions with enduringly valued goals

in the face of momentarily more alluring alternatives. This implies that individuals with high self-control may deny themselves attractive but insignificant activities (delayed gratification) and undertake significant ones. Associations with perseverance were derived from students' utterances such as; "I attribute my success to perseverance because it is through perseverance that I am where I am today" (Interviewee 7, March 11, 2019). "Both perseverance and hard work motivates you to achieve the goals" (Interviewee 6, March 11, 2019)". Perseverance as defined by Merriam-Webster, (1928) entails the ability to continue doing something even if doing it presents a lot of difficulties, failures or opposition. Herbert (2015) considers attention and perseverance key components of self-control in childhood. This therefore suggests that students who believed in perseverance had high self-control. Rutter (1987) links this kind of experience due to self-control as translating to a high self-efficacy which ends up protecting one against adversities.

#### **4.7.3 Self-Responsibility**

From the interview some students viewed their success as a personal responsibility attained either by working hard, maintaining self-discipline or by seeking for support from valuable peers and teachers. Some of the participants had these to say; "Success somehow depends on us. The work of the teacher is only to guide us implying only 25% of the work depends on a teacher. I must therefore work extra so that I may realize the goal at the end of it all" (Interviewee 3, March 15, 2019). Another posited; "According to me I attribute my success to discipline, hand work and the support that I get from peers

that I always play with (Interviewee 4, March 17 2019; Interviewee 5, March 17, 2019). These findings were in agreement with Dobson (2012) who observed that in a situation where a student believed that success depended on him, he would more likely feel in control of his success or failure. Subsequently, this may trigger both behavioural and emotional consequences towards adaptive outcomes which according to Rutter (1987), is viewed as a turning point. Consequently, this may more likely help a student develop academic buoyancy (Weiner, 2010).

This experience was unlike students who attribute their success to external factors, who Dobson (2012) observes, may not understand reasons for hard work therefore may not work hard. Such are the students who rely on other peoples support. For instance, “As for me, I attribute my success to my class mates, my hard work, and the people who supported me”, (Interviewee 2, March 17, 2019). The foregoing is in agreement with Galindo (2019) who suggested that if individual’s mind-set is that he or she is at least 85% responsible for his or her success then he or she may most likely be successful. And because responsibility is an obligation to do something, Garrison (1992) asserts that educational process can be conceptualized as learners assuming responsibility for learning while concurrently showing control of their learning. This implies that responsible students must also be self-controlled. Rutter (1987) further reiterated that having greater responsibility may play a reciprocal role in ensuring students’ protection at the face of a challenge.

#### **4.7.4 Planning and Adherence to the Plan**

The findings of this study revealed that students were unanimous on establishment and use of personal timetables. They however complained of interference on personal timetable by forces beyond their control. This could be an indication that students held mixed attributions as to what exactly was responsible for their success. They said for instance; “sometimes it becomes a challenge when a teacher comes to class to make up during free time, which makes one not to follow timetable” (Interviewee 5, March 15, 2019). “My main problem is interruption like may be the Head teacher comes when you want to follow the timetable. You will be forced to adjust but later extend so that you may recover that subject” (Interviewee 3, March 15, 2019). “It may not be possible to strictly follow the timetable and you find you have gone astray from what the timetable states. For that matter, i always created another time to enable me make up for what I lost” (Interviewee 2, March 15, 2019). From the excerpts it was established that despite challenges encountered in adhering to the timetable, the students made up for the lost time as was confirmed by the following;

I normally find it difficult following the timetable due to assignments. Though I set aside time for them, sometimes I find they are too much and exceed time limit that i set for reading. At times it is due to pressure from parents who want you to do this or that. These affect my personal timetable making it difficult to follow it accurately. Sometimes in a week you follow it strictly twice, all the same somehow I follow it (Interviewee 5, March 17, 2019).

This ability to assign extra time according to Dobson (2012) is possible only when students know that success must come from their effort. Creation of extra time according to Rutter (1987) is only possible when students view their learning and mastery of concepts, as opportunities that may be useful for their future advancement. This therefore results in behavioural adjustment which enables such a student to go beyond expectations such as putting in extra effort to cover what has been lost. Judistira and Wijara (2018) refer to the foregoing argument as protective since it enables the student to take action aimed at accomplishing a set goal and therefore a sign of self-control. The establishment and use of personal timetable revealed in this case, imply the ability to plan and abide by the plan. This finding is in line with results of a correlational study by Sjastada and Baumeister (2018) who found that people high in self-control trait planned more and intentionally did so than other people. Therefore, from the interview it is implicit that the participants had self-control traits.

#### **4.8 Discussion of the Results on the Relationship between Self-Control and Academic Buoyancy**

Descriptive analysis of students' self-control revealed that most of the participants were low in the construct. However from the interview it came out that participants had mixed attribution to what caused their failure or success which could help explain the low level of self-control established from the descriptive analysis. Inferential statistics done using Pearson's  $r$  revealed a positive statistically significant correlation between self-control and academic buoyancy which corroborated results of the studies by (Sadeghi &

Geshnigani, 2016; Collie, et al., 2015; and Martin et al., 2010). For instance, Martin et al. (2010) found a significant predictive role played by control in academic buoyancy. The study confirmed further that in both prior and subsequent academic buoyancy, control had a role to play. This probably may be in line with Weiner's (2010) attribution theory. In this theory, Weiner asserts that the kind of ascriptions students held towards their success or failure was important and had a role to play in their ability to counter challenges in the academic spheres. The foregoing is in line with resilience theory by Rutter (1987) which underscores the role of personal attributes in the protection model. This may imply that internal ascriptions such as ability to control future success may propel students to strive on even at difficult tasks thus making them buoyant.

To further elaborate the foregoing, analysis from the interview data indicated that buoyant students had elements of self-control. For instance, when asked questions such as; 'Are you able to accurately follow your personal reading timetable?' Their responses revealed that majority had personal reading timetables. However, most of them reported that they had difficulties in following personal timetables particularly due to external interferences. This was evidenced in responses such as "teachers interrupt when they come for lesson make ups," or " when examinations are near I read what is to be done the next day." These were confirmations of challenges in following personal timetables and therefore, affected their initial set goals.

Additionally, from the interview excerpts, the participants conveyed “low self-control” in aspect of self-management of the study time tables. However, while they may attribute their inability to follow the study time table accurately to low self-control, the fact that they were able to adopt other mechanisms made them academically buoyant. This is owed to the fact that once one realized that exams were nearing and yet felt inadequately prepared then they adjusted the timetable in order to find time for the disadvantaged subject. This finding is in line with Rutter (1987) who observed in his theory that taking responsibility is one way of accomplishing tasks and is an experience that leads to a high belief in self. Consequently, Martin (2006) postulated that if a student was able to connect success with effort and hard work, then they may be able to exert more control for their future success. Collie et al. (2014) reiterated that self-control is being in charge of future academic outcomes. In this case, when a student is able to readjust personal timetable for the sake of doing better, then they were self-controlled. This subsequently helped them to counter future failure (Weiner, 2010) which is also in line with the current theoretical framework by Rutter (1987). In agreement, Sadeghi and Geshnigani (2016) revealed a significant positive correlation between self-control and academic buoyancy and that self-control meaningfully predicted academic buoyancy.

It is worth noting that even though the relationship between self-control and academic buoyancy was small, it was statistically significant. The respondents, who were identified as academically buoyant, were able to overcome pressures and subsequently did well in their academic work which they attributed to role modeling from their older siblings.

They observed that they were able to compare their achievements with those of their siblings. The comparison acted as a motivator and encouraged them to put more effort in the schoolwork. Subsequently, this helped them to develop academic buoyancy. It may be concluded therefore that self-control was positively related with academic buoyancy among students.

The finding is corroborating Rutter (1987) who argued that when one's perception was modified owing to the existence of a significant person in their life, then most likely important changes may equally be realized. This may therefore protect an individual against challenges as observed in the interview excerpts. In agreement, Morrison and Pidgeon (2017) prediction that the willpower strengthening group will report significantly higher levels of self-control and resilience, and significantly lower levels of psychological distress compared to the control group at post-intervention was supported. Therefore, as demonstrated by the excerpt, buoyant students controlled themselves even when they faced failure in exams and instead used internal assets to bounce back. The finding further agreed with Mwangi, Ileri and Mwaniki (2017) who reported a significantly strong positive relationship between the external and internal protective factors. Additionally, they established that internal protective factors had a higher positive and significant predictive value on academic resilience.

## 4.9 Relationship between Academic Anxiety and Academic Buoyancy

Determination of the relationship between academic anxiety and academic buoyancy was the third objective of this study. To enable a clear understanding of the variable, demographic analysis was done.

### 4.9.1 Description of Participants Academic Anxiety

Operationalization of academic anxiety was done through analyzing every participant's score in the four questions that were related to academic anxiety in the Motivation and Engagement Scale (MES-HS). Participants endorsed the academic anxiety by indicating their scores in the MES-HS questionnaire, that ranged between 1 = *strongly disagree* to 7 = *strongly agree*. Scores on academic anxiety were then summed and the results presented on Table 4.13.

Table 4.13

#### *Descriptive Statistics of Academic Anxiety*

	Range	Min	Max	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
AAGS	24.00	4.00	28.00	13.75	6.37	.28	-.98

*Note.* *N* = 469. AAGS = Academic Anxiety Global Score; Min = Minimum; Max = Maximum; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis

Table 4.13 shows results of the analyses of the total scores on academic anxiety. This was done in order to get the range, mean, standard deviation, skewness and kurtosis. As shown on Table 4.13, the obtained range was 24 while the mean was 13.75 (*SD* = 6.37).

Generally, the mean was low with a largely dispersed data. On the other hand, coefficient of skewness revealed a coefficient of .28 and the kurtosis of -.98. The positive coefficient of skewness was an indication that the students rated themselves low on anxiety. The results implied generally that the data represented a sufficiently normal distribution since both the value of skewness and kurtosis was less than three (schemider et al., 2010)

Academic anxiety was further categorized into three sub-divisions, in order to facilitate further analysis. Categorization cut offs were as follows; 4 to 12 for low; 13 to 20 for moderate and 21 to 28, high was used. The results of the categorization were presented on Table 4.14.

Table 4.14

*Participants' Level of Academic Anxiety*

Level	<i>F</i>	%	<i>M</i>	<i>SD.</i>	<i>Sk.</i>	<i>Kur.</i>
Low	216	46.1	7.89	2.39	-.03	-1.16
Moderate	181	38.6	16.67	2.34	.47	-.73
High	72	15.4	24.01	1.67	.53	-.56

*Note.* *N* = 469; *f* = frequency; *M* = mean; *SD* = Standard deviation; *Sk* = Skewedness; *Kur* = Kurtosis

Table 4.14 revealed that majority of the participants endorsed themselves as having low (46.1%) academic anxiety, followed by those with moderate (38.6%) while the high category had the lowest participants (15.4%). The calculated means for these levels, low, moderate and high were; (*M* = 7.89, *SD* = 2.39), (*M* = 16.67, *SD* = 2.34) and (*M* = 24.01,

$SD = 1, 67$ ) respectively. The foregoing thus indicated that those who rated themselves low had the highest variability of scores while the high level had the least.

#### 4.9.2 Hypothesis Testing

The following null hypothesis was advanced to enable the researcher determine the relationship between academic anxiety and academic buoyancy. This was the third objective of the current study;

H<sub>03</sub>: There is no significant relationship between academic anxiety and academic buoyancy

Pearson's product moment correlation coefficient was conducted so as to test the null hypothesis. The results of the analysis was reported on Table 4.15

Table 4.15

*Correlation between Academic Anxiety and Academic Buoyancy*

		ABGS
ABGS		1
AAGS	Pearson $r$	.04
	Sig. (2-tailed)	.43

*Note.*  $N = 469$ ; ABGS = Academic Buoyancy Global Score; AAGS = Academic Anxiety Global Score

The results presented on Table 4.15 demonstrated a non-significant positive correlation coefficient ( $r$ ) between academic anxiety and academic buoyancy ( $r(467) = .04, p > .05$ ).

The results of the correlation supported the null hypothesis which therefore implied that there was no statistically significant relationship between academic anxiety and academic buoyancy. The null hypothesis was thus retained.

#### **4.10 Qualitative Findings on Academic Anxiety in Relation to Academic Buoyancy**

Qualitative findings revealed that the participants admitted to getting demoralized by poor examination results. This finding is in line with Hooda and Saini (2017) who posited that when students' academic performance goes down, then there is a high likelihood that anxiety will go up. This they attributed to students' feeling apprehensive about academic tasks which subsequently raises their academic anxiety. Hooda and Saini further observed that a high level of academic anxiety had an effect on students' cognition thereby interfering with their memory. Therefore, while academic anxiety may be normal in an academic environment, a high level may be harmful to a student's academic outcomes and may cause further failure. However in this study, the buoyant students were unanimous that they did not allow such poor results to weigh them down, instead they got encouraged to work harder for the next examination which is an indication that anxiety propelled them to action.

The following themes were therefore identified from the interview;

##### **4.10.1 Anxiety as a Demotivator**

The feeling of demotivation after failure in examinations was reported by the interviewees. Some of the participants had this to say; "To me when results are released

and i find that i have failed or gone down, i normally get stressed, but use that to discover areas to put more effort in” (Interviewee 4, March 11, 2019)”.

When exams are released and you find that you did not do what you expected sometimes I get demoralized and spend most of the time revising. Sometimes you are annoyed and just come to solve it maybe by sharing it with friends, they urge you to work hard for next coming exam (Interviewee 3, March 15 2019).

The reported disappointment and demoralization illustrated in the excerpts after an exam failure, was an indication of the level of academic anxiety in the students. According to Hooda and Saina (2012) a high level of anxiety may push one into act. In the foregoing, interviewees demonstrated that anxiety made them take a proactive decision of either working harder or consulting friends who in turn encouraged them to put more effort to avoid failure in subsequent tests. In the long run, these actions lead to reduction in anxiety levels in the participants which may be associated with their springing back from the distress and seeking alternative ways of addressing the failure. Therefore as postulated by Martin and Marsh (2008), anxiety may not always be negative. The findings of this study may imply that anxiety played a pivotal role in learners response to the negative stimuli brought about by poor results. This is probably because of the pain or apprehension that comes with it which therefore was capable of pushing one to look for alternatives of avoiding a repeat. This finding may be in line with Rutter (1987) who observed that inoculation may not always be sweet. This may imply that when an individual goes through a painful experience the decision reached after it may thus

remain protective. This therefore may have resulted in better organization and preparedness towards subsequent examinations in order to avoid further anxiety brought by failure among the participants.

#### **4.10.2 Anxiety as a Positive Drive**

The interview revealed that the students did not remain in their low state which was induced by poor exam results. Instead they were able to spring back and re-strategize for better performance. This was confirmed from statements such as; “with me it just pains me for the first few days then after that I go back and look at what caused that to me so that I do rectify it and wait for another task to show my effort” (Interviewee 2, March 15, 2019). “For me I learn that am supposed to put more effort on what I did not do previously, so you get motivation to continue with what you are doing” (Interviewee 5, March 11, 2019). To some students, exam failure was a drive to work harder;

What I want to say failure is not an obstacle but just a stepping stone. If you fail you need to go back and analyze what may have made you to fail and this gives you a starting point on how to succeed (Interviewee 3, March 17, 2019).

Basically, me when I fail in exam, I get to my lowest level but after that I do look at my strategies and set them right because exam is there to tell you whether you are doing right or wrong. After realizing what I am doing wrong, I rectify them (Interviewee 5, March 15, 2019).

The fore stated may imply that academic anxiety was capable of inducing the ‘fight’ rather than ‘flight’ response which would be an indication of academic buoyancy. This assertion contradicts Martin and Marsh (2006) who postulated that low levels of anxiety were important for one to be academically buoyant. This may imply that both low and high levels of anxiety could have an effect on academic buoyancy. The fore going assertion is in line with Putwain, Daly, Chabernain and Sadreddini (2015) who observed that whichever response mode a learner adopted depended on the learners’ characteristics. In line with this, some students may view examinations as threatening while others may evaluate them as less threatening and is a normal occurrence in a school setup. From the study, the participants demonstrated that while the examination failure brought in anxiety, they were able eventually to view them as less threatening. This reaffirms protection mechanism as postulated by Rutter (1987) which points to the fact that these students could be academically buoyant. Given that the students were already identified as academically buoyant, it is possible that buoyancy protected them from threatening appraisals of results.

#### **4.11 Discussion of Academic Anxiety in Relation to Academic Buoyancy**

Descriptive results obtained from the current study revealed that majority of the participants were low in academic anxiety. This may have been due to the sample choice of the present study which was form three, a pre-candidate class, whose level of anxiety was assumed to still be low. Pearson’s *r* analysis revealed a positive but non-statistically significant correlation between academic buoyancy and academic anxiety. This does not

confirm the demographic results even though Putwain et al. (2015) indicate that other researches have established mixed results. The foregoing may therefore point to the assertion that academic anxiety may have the potential of evoking both adaptive and maladaptive responses from learners.

Both demographic and qualitative findings revealed that participants experienced low levels of academic anxiety. It emerged from the participants that although there were expectations of excelling or failure in tests, their level of preparedness to handle any of the outcomes may have increased their buoyancy in managing experiences. When participants were asked their response to failure in examinations, they demonstrated ability to overcome. This was echoed by quotes such as: "...for me , I learnt that I needed to put more effort," "failure pains me for a few days then I look for what caused it," "poor results make me get to my lowest level then I relook my strategy," or "failure is not an obstacle but a stepping stone.

The findings from qualitative analysis revealed that the students with low levels of anxiety developed in-built mechanisms of handling poor performance in exams. This mechanism therefore enabled the respondent to accept the challenge and move on which is a characteristic of a buoyant student. This finding agreed with Collie et al. (2017) who revealed a positive association between anxiety and learning strategies after the mediation effect of academic buoyancy. Earlier, similar findings were reported by Putwain et al. (2016) who established that academic buoyancy moderated the indirect

relationship, such that the indirect negative relationship from worry to examination performance was stronger when academic buoyancy was lower. This concurs with Symes, Putwain and Remedios (2015) assertion that although threat appraisal was less likely when academic buoyancy was higher, the protective influence diminished when fear appeals were used more frequently. In the present study, given that form three students still had a lot of time away from the final examinations, the threat appraisals from most corners were expected to be low. Therefore, this may imply a higher level of academic buoyancy. (Symes et al., 2015) observed that at individual level, the appraisal of fear as threatening was more likely when academic buoyancy was lower. This may result in a state of academic dormancy where very little goes on in the students because of low anxiety.

The established positive but non-significant correlation between academic buoyancy and anxiety following Pearson's  $r$  according to Rutter (1987) may have been due to the inability of the variables to evoke a certain response that would qualify them as protective factor. This could imply that, although the results may reveal some relationship, the magnitude may not have been adequate to trigger any response in the participants. According to Rutter, this may probably explain the obtained low but positive results. Owing to the foregoing, there was need therefore for further investigations of academic anxiety.

## 4.12 Relationship between Academic Engagement and Academic Buoyancy

The fourth objective in this study sought to investigate the relationship between academic engagement and academic buoyancy.

### 4.12.1 Description of Participants Academic Engagement

To operationalize academic engagement, Motivation and Engagement Scale (MES-HS) was used. Out of the 36 items in the scale, 20 items were measuring academic engagement. Students rated themselves by selecting the most appropriate choice from a range of scores between 1 = *strongly disagree* to 7= *strongly agree*. The highest possible score in this sub-section was 140 which implied a very high endorsement of academic engagement. The lowest possible score was 20 which indicated a low endorsement of the construct. Therefore, students' scores on the twenty items were summed up in order to measure their ratification of academic engagement. A descriptive analysis was done using the scores obtained by the students' on academic engagement. The findings were presented on table 4.16.

Table 4.16

#### *Participants' Description of Academic Engagement*

Levels	<i>f</i>	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>	%
Low	74	40.85	10.16	.07	-.97	15.8
Moderate	43	75.58	11.67	.47	-.90	9.2
High	352	126.05	9.09	-.64	-.35	75.1
Total	469	107.98	33.83	-1.24	.08	100

*Note.* *N* = 469. *f* = frequency; *M* = mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis; % = Percentage

Descriptive analysis on Table 4.16 revealed a mean of 107.98 ( $SD = 33.83$ ) on students' academic engagement. This was an indication that students had high endorsement on academic engagement though the variations in the scores too were high. The range of score was 20 to 140.

Further analysis done to find out the shape of the distribution as indicated on Table 4.16, revealed a skewness of -1.24 while kurtosis had an index of .08. Put together the two values were below three which according to Schemider et al. (2010) was an indication that the distribution was near normal. Sub-division of scores were done into three different levels using cut off scores as follows; high was 101 to 140, moderate was 61 to 100 and low was 20 to 60. As illustrated on Table 4.16, majority of the participants scored very highly (74.8%) on academic engagement. The remaining two levels, low and moderate, had 16.4% and 8.7% respectively.

#### **4.12.2 Hypothesis Testing**

To investigate the relationship between academic engagement and academic buoyancy which was the fourth objective of this study, the following null hypothesis was advanced;

H<sub>04</sub>: There is no significant relationship between academic engagement and academic buoyancy

To establish whether a relationship existed between academic engagement and academic buoyancy, Pearson  $r$  was conducted. The outcome was presented in Table 4.17.

Table 4.17

*Correlation between Academic Engagement and Academic Buoyancy*

		ABGS
ABGS		1
AEGS	Pearson <i>r</i>	.22**
	Sig. (2-tailed)	.00

*Note.* *N* = 469; ABGS = Academic Buoyancy Global Score; AEGS = Academic Engagement Global Score.

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

The results of Pearson *r* shown on Table 4.17 illustrates a positive statistically significant correlation ( $r(467) = .22, p < .05$ ) between Academic engagement and academic buoyancy. The null hypothesis was thus rejected and a conclusion drawn that there was a positive linear relationship between academic engagement and academic buoyancy. An increase in engagement led to an increase in academic buoyancy.

#### **4.13 Qualitative Findings on Academic Engagement in Relation to Academic Buoyancy**

Following the in-depth interview conducted to explore further the existence of academic engagement attribute among buoyant participants, three themes were established. The revealed themes were that the participants were willing to go an extra-mile in academic work, engaged fully in classroom activities and that they were able to work with minimal supervision. In the present study, academic engagement was used to refer to students'

dedication of their time to academic activities. The themes therefore were in line with the definition of the academic engaged portrayed in the interview as follows;

#### **4.13.1 Willingness to Make Special Effort for Better Performance**

Findings of the interview revealed that the participants were willing to make extra effort in order to improve their academic achievement. Some of the students confirmed this by saying; “What I can say is that after the teacher has taught a concept for example mathematics, I have to go extra mile so that I find out whether I understood that concept. I do more questions and go ahead of the teacher to familiarize myself with topics. (Interviewee 2, March 11, 2019)”.

“Sometimes when we are given work and I go extra mile and when a teacher asks a question that nobody knows and I am the only one who knows it, you find that you are rewarded....” (Interviewee 7, March 11, 2019).

If you follow the timetable it will help you and it will guide you to do more extra work. This is because if you follow the timetable for example it’s time for mathematics you decide to do more extra work in mathematics the topic that the teacher has taught you will get to know the problem and more content that the teacher did not explain further (Interviewee 3, March 11, 2019).

The foregoing was an indication of academic engagement which according to Dodge (2015) entails investments made by students towards learning; understanding and mastery

of academic concepts. In agreement with Skinner and Belmont (1993) as cited in Sbrocco (2009) making effort or showing persistence were signs of behavioural engagement. The participants showed persistence and effort by doing more than what the teachers gave. This engagement that was revealed may help students achieve better academic outcomes which subsequently protect them against failure. This is in line with Rutter (1987) who asserts that an attribute that was capable of altering the course of action in an individual may be associated with a protective mechanism. This may therefore imply that revealed students' engagement could protect them from academic adversities such as low performance by ensuring they do better in tests which subsequently reduce fear of tests.

The in-depth interview further revealed that academically buoyant participants had some levels of academic engagement as they demonstrated flexibility in their academic environment. The foregoing findings corroborates Sbrocco (2009) who posited that engagement requires receptiveness to environmental variations in terms of the three forms; behavioural, cognitive and affective dimensions. Some of the respondent had these to say;

Sometimes when the teacher says that you have a lesson may be at a time that he is free. I can say that sometimes am comfortable because you find that the teacher teaches you things that others have not learned for example you have some joints [exams] with different schools you can be able to do the questions that can come from the joint (Interviewee 6, March 11, 2019).

This willingness to allow teachers to teach during their free time was a sign of emotional engagement in the learning process. This corroborates Rutter's assertion that being able to alter certain decisions may be protective. As illustrated in the excerpts students accepted teachers at will presumably because increased involvement with teachers may yield more benefit.

#### **4.13.2 Classroom Engagement**

The students interviewed expressed high level of engagement in classroom activities. These findings agree with Skinner, Kindermann and Furrer (2009) who referred to engagement as the quality of student's connection or involvement with endeavors of schooling. To demonstrate the foregoing, some said; "when in class I am active and especially when the teacher is giving examples, I try to relate it to today's life and after the lesson I ensure that I do the research ..." (Interviewee 6, March 15, 2019).

For me when in class I pay 100% attention and I am active, but when it comes to the point of asking question, I prefer learning more than teaching others so I learn when others are asking questions that is the time am learning well (Interviewee 5, March 15, 2019).

The foregoing was an indication of participants' active involvement which according to Skinner, Kindermann and Furrer (2009) was a prerequisite of their achievement in, and completion of school since it portrayed fervent effortful participation in learning

activities in the classroom. Dodge (2015) up held similar opinion and in agreement with the observation reiterated that active, intentional or an interested involvement in the learning environment suggested academic engagement. This further implies that when students are involved, then they were able to accomplish tasks and this according to Rutter (1987) is one of the significant experiences that lead to high sense of self-efficacy which to him is a major protective factor. Corroborating the fore going, some participants had these to add; “when in class I am active, especially when the teacher is giving examples,” “For me when am in class I pay 100% attention ...I learn when others are asking questions, that is the time I am learning well.”

These qualitative findings were evidence of the participants’ intentional connection with the learning activities. This assertion agrees with Dodge (2015) observation that conscious and meaningful involvements of learners in academic activities are essential elements of academic engagement.

It is significant to note further that the interviewees alluded to active participation as the teacher elaborated points while at the same time accepted that they learnt more as the peers asked questions. This interrelationship was in agreement with Rutter’s (1987) argument on protecting a learner. Nora (1993) as cited in Dodge (2015) reiterates active interaction with both staff and peers was a critical aspect of engagement. She therefore postulated that academic engagement does not only imply interactive involvement but also non-interactive. This supports the idea of participants engaging in personal studies or

reading that also informs academic engagement. From the excerpts, it is evident that the participants involved in both interactive and non-interactive forms of academic engagement. This may imply therefore that academically buoyant students were academically engaged.

#### **4.13.3 Work with Minimal Supervision**

Findings from this study revealed that some students were able to work alone. This assertion accounted for individual differences in the pattern of engagement. This agrees with Clayton (2014) who observed that instructional approaches may fail if they do not take into account how people learn, understand and remember things. To back the findings, some of the participants had these to say;

According to me I normally find it better to study when there are no teachers coming in class... and I find it easier to follow my personal timetable. That time, I will revise and revise until, I get the concept that I had not understood before (Interviewee 1, March 17, 2019). And his colleague added;

I think I can study without teachers' supervision. Once i understand the concept I find it easy to study alone... I find it easy to identify the place of difficulties and put more stress so I find it is easier to revise and do other things without any supervision by the teachers (Interviewee 5, March 17 2019).

Such responses would imply that academically buoyant students had the ability to do work without supervision. This finding was consistent with Sbrocco (2009) who posits that behaviours that go beyond the prescribed limits are shown only by students who are cognitively engaged. He further observes that such a capacity was associated with learners confronting any prominent challenge in the academic environment. This may imply that the engagement was to buffer them from the academic adversities.

#### **4.14 Discussion of Academic Engagement in Relation to Academic Buoyancy**

Qualitative findings in this study corroborated quantitative results. Descriptive analysis revealed generally that students were high on academic engagement. The null hypothesis tested using Pearson's  $r$  established a weak positive correlation that was statistically significant between academic engagement and academic buoyancy. The in-depth interview carried out among academically buoyant students established that buoyant students were academically engaged. From the interview participants were asked to describe their level of involvement both in and outside class. Most respondents acknowledged active involvement in and outside class. During lessons they not only answered questions but also listened as their peers asked questions. The foregoing was an indication of a coherent relationship which according to Rutter (1987) may play a protective role to an individual. This was further corroborated by Dodge (2015) who qualified this kind of relationship as both cognitive and emotional engagement. Some of the respondents explained that their participation depended on their attitude towards the lesson. This is in line with Skinner, Kinderman and Furrer (2009) who perceived

engagement as a gauge of the quality of interaction with everything in the learning environment. In this case therefore, the rejoinders provided evidence that the respondents made efforts to engage teachers and their colleagues in the learning process.

The positive statistically significant correlation established in the current study is corroborating findings of previous studies (Piia et al., 2018; Farhadi, 2016; Martin, 2012; and Martin & Marsh, 2008). Additionally, Martin (2012) while investigating among Attention Deficit Hyperactivity Disorder (ADHD) in an integrated school environment found that academic buoyancy predicted academic engagement. He further noted existing differences between ADHD and the non-ADHD learners, which was in favour of the ADHD students. In contrast, Rabiei (2015) while carrying out investigation on unstable academic engagement revealed in his study a correlation between academic buoyancy and unstable academic engagement which was negative. The foregoing signified that an increase in unstable academic engagement may result in a decrease in academic buoyancy.

The significant Positive relationship established from the current study further agreed with Collie et al. (2016) who proposed a cyclical relationship between increased academic buoyancy, positive variables and outcomes, and improved engagement with school environment and classroom activities. This may mean that the more students increased their interaction in academic environment, the more they improved their academic buoyancy and subsequently enhanced their engagement. Farhadi (2016)

reiterated that there was a significant relationship between cognitive engagement and academic vigor where it had the ability to predict academic strength among students. The findings are further affirmed by Piia et al. (2018) who established that academic buoyancy and school engagement were positively correlated. Therefore, the results may suggest that academically buoyant students involved themselves actively in the academic environment. Further, the more involved students were, the more they were likely to overcome adversities in the academic environment and thereby enhanced academic buoyancy which was in line with resilience theory (Rutter, 1987).

#### **4.15 Relationship between Teacher-Student Relationship and Academic Buoyancy**

The fifth objective of this study was to investigate the relationship between teacher-student relationship and academic buoyancy.

##### **4.15.1 Description of Participants' Teacher-Student Relationship**

Teacher-student relationship (TSR) was operationalized by totalling all the scores obtained by the respondents in the 4 items that represented teacher-student relationship on the Motivation and Engagement Scale (HS) version. The participants were expected to score on a scale that ranged from 1= *strongly disagree* to 7 = *strongly agree*, to indicate their endorsement level of their relationship with teachers. The score range was 4-28. A score of 28 implied a high endorsement of the teacher-student relationship while that of 4 indicated a low endorsement of the variable.

Analysis of the students' total score on teacher-student relationship was used to work out the range, mean, standard deviation, skewness and kurtosis. The results are tabulated in Table 4.18.

Table 4.18

*Participants' Level of Teacher-Student Relationship*

Levels	<i>f</i>	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>	%
Low	23	10.87	2.16	-.68	-.66	4.9
Moderate	159	18.23	2.33	-.38	-1.10	33.9
High	287	24.75	1.89	.14	-1.12	61.2
Total	469	21.86	4.44	-.87	.38	100

*Note*  $N = 469$ . *f* = Frequency; *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis

As indicated on Table 4.18, the overall mean range for teacher-student relationship was 21.86 ( $SD = 4.44$ ). This was indicative of a high endorsement of the variable. The dispersion of the scores was also moderately high. Further, the coefficient of skewness of  $-.87$  and kurtosis of  $.38$ , were revealed. The coefficients obtained according to Schemider et al. (2010) ascribed to a distribution which was normal. The negative coefficient of skewness implied that the students rated themselves highly on the variable.

To reveal the nature of the participants' endorsement, categorization was done to allow for further interpretation. Results outlined on Table 4. 18 show that majority of the

students scored highly (61.2%) on teacher-student relationship ( $M = 24.75$ ,  $SD = 1.89$ ) followed by those in the moderate (33.9%) sub-division and lastly the low (4.9%) group.

#### 4.15.2 Hypothesis Testing

In an effort to test the correlation that exists between teacher-student relationship and academic buoyancy, the following null hypothesis was advanced;

H<sub>05</sub>: There is no significant correlation between teacher-student relationship and academic buoyancy.

A Pearson's product moment correlation coefficient ( $r$ ) was calculated to establish the correlation between teacher-student relationship and academic buoyancy. The results were presented in Table 4.19.

Table 4.19

*Correlation between Teacher-Student Relationship and Academic Buoyancy*

		ABGS
ABGS		1
TSRGS	Pearson $r$	.19**
	Sig. (2-tailed)	.00

**Note.**  $N = 469$ ; ABGS = Academic Buoyancy Global Score; TSRGS = Teacher Student Relationship Global Score

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

The results of the correlation presented on Table 4.19 revealed a positive and statistically significant correlation between teacher-student relationship and academic buoyancy ( $r(467) = .19, p < .05$ ). This implied that there existed a relationship between the two variables and therefore the null hypothesis was rejected and a conclusion reached that an increase in teacher-student relationship led to an increase in academic buoyancy.

#### **4.16 Qualitative Findings on Teacher-Student Relationship in Relation to Academic Buoyancy**

From the narratives, it was clear that a supportive relationship existed between teachers and students. This was evident in the participants' perception of teachers' remarks as encouraging. The interviewees noted that even when they declined in performance, they enjoyed valuable consultations with their teachers. They further acknowledged not being happy when teachers took over their free time although they appreciated the significance of teachers in their learning lives. This was an indication of enjoyment of both secure and harmonious relationship which according to Rutter (1987) had the protective potential. The following themes emerged from the interview; Teachers' encouraging remarks, valuable teacher consultations, invasions on students' free time by teachers and teachers' significance.

##### **4.16.1 Teachers' Encouraging Remarks**

The remarks that teachers gave to students encouraged them. This came out when participants said; "I think teachers encouraging remarks are better because they act like

our parents whenever our parents are not around, even if they beat us, they only show they are more concerned on whatever we are doing” (Interviewee 1, March 11, 2019).

Teachers give remarks that encourage us. For example, you can find that you are weak in Mathematics, you are getting E while you get grade A in geography. They will ask you whether those two grades will really help you. So, they encourage us to change our attitude and do more practice (Interviewee 4, March 11, 2019).

I can also say that teachers encourage you to work harder because maybe for example he has taught you for 3 years. So, they know your ability and therefore will tell you what to do and what to stop doing so that you make it (Interviewee 7, March 11, 2019).

Additionally, the interviews captured positive statements by the students such as; “teachers encourage you to work hard,” “teachers give remarks that encourage you,” “they encourage you and push you to work hard.” The foregoing was indicative of constructive teacher-student relationship which was likely to yield positive results from the learners. The finding is in line with, Varga (2017) who observed that when students experience their teachers’ emotional involvement in their work, then they feel supported and cared for. It is also consistent with Rutter (1987) who added that such kind of relationship protected students from academic risks. This is probably because a positive

relationship with teachers propels students towards greater engagement with their academic work and subsequently makes them counter any existing adversities.

Affective teacher-student relationship has an effect on the students' level of engagement with academic work. This was demonstrated by the students' level of trust on their teachers;

Our teachers know our capabilities. They know where you are supposed to be and where you are not supposed to be, so when you get the grade you are not supposed to get, they know well where you were supposed to be. So sometimes they encourage you and tell you this is not your performance which then encourages you and pushes you to work hard (Interviewee 3, March 11, 2019).

This is consistent with Roorda, Koomen, Spilt and Oort (2011) study which postulated that a correlation existed between person-centred teacher variables, student's participation and improved motivation among learners. This may imply that students' perception of their teachers' support played a significant role in the relationship. This in turn affects their interpretation of the comments from the teacher. In this study, participants viewed teachers' comments positively which was an indication that the relationship was cordial and therefore, important in the protective mechanism which seems to affirm Rutter (1987) theory.

#### **4.16.2 Valuable Teacher Consultation**

Students admitted to consulting teachers. In the current qualitative finding, the fact that the participants mentioned that they consulted their teachers was evidence that they perceived their teachers positively. Participants' comments supported the assertion;

When you go for consultation to the teacher, the teacher will always encourage you because teachers like those who go to consult them to get more knowledge. They like those who are able to improve so when you go to them, they are able to give you what you want and they will help you to overcome the issue (Interviewee 6, March 11, 2019).

The consultations ended up solving both the student's emotional pains and academic challenges. For instance, a student said;

Let's say there is something that is hurting, and as the saying goes; a problem stated is half solved. So, you go to a teacher whom you are free with and explain the issue... he/she will help you to overcome the problem or give you some hint to overcome the problem (Interviewee 6, March 15, 2019).

The foregoing showed that the participants consult teachers due to their belief that teachers were capable of offering them solutions. At the same time, teachers too believed that when they were consulted then students improved. This is in line with Varga (2017) who observed that both teachers and students influence one another. Therefore, the views that teachers and students held about each other was significant for the relationship. This

may imply that both teachers' and learners' belief, raised students' self-efficacy and was in line with Rutter's (1987) theory.

#### **4.16.3 Teacher Invasions into Student Free Time**

It emerged from the interview that students crave for academic space in order to find time for personal studies. This therefore resulted in them getting inconvenienced when teachers interrupt their free time to bring on lessons. This was witnessed as some of the participants had these to say;

When a teacher comes at the free time and says that there is a lesson and that time finds when you are picking a very good concept, and in that subject, I may not be performing well. I feel like am bored and am like I should not attend that class but I forced myself because it is a condition I have to bear with because the teacher is above us (Interviewee 2, March 17 2019).

This foregoing narrative may imply that the student was trying to exercise some control which affirms Varga (2017) observation that perceived control on the part of the student was a powerful predictor of motivation. This may imply that once the students realize that attending class was important, they were able to control their behaviour positively. Therefore, in as much as they would be disrupted, but still sacrificed to go on and attend class for the sake of learning or gaining from the teacher as put by this student;

According to me sometimes I feel bored but I just try to fit and try to remove negative attitude towards the teacher because even if I have to do my personal things I could not do because the relation has been ignored. So, we have the lesson and I therefore comply so that I gain from that lesson (Interviewee 5, March 17 2019).

In line with this finding, therefore, the participants were able to refrain from displaying negative behavior that could jeopardize the learning environment. This finding is consistent with Varga (2017) who posits that as learners' ages increased, they were able to realize the effect of strayed relationship in their learning environment. Further, the creation of extra classes by teachers was a sign of supporting the learners in the mastery goal orientation which is yet another important aspect of teacher-student relationship. This finding corroborates Young (2014) observation that the relationship between teachers and students may not only mean affective but also academic support. For that matter, when a teacher creates extra time to attend to students' academic needs, then even if students felt troubled, it was significant for their academic progress and this, in itself prepares them to counter academic adversities like inability to perform academic tasks as postulated by Rutter (1987). This may imply that the more the students related to the teacher on academic matters the more they gained. This in turn therefore had the capacity to bolster their confidence and self-efficacy and, subsequently academic buoyancy.

#### **4.16.4 The Significance of Teachers**

The participants felt that teachers were important to their learning. Statements like “they are like our parents,” “they are above us,” “they know our capabilities.” These were revealed as the participants responded to the fact that teachers interrupted their private study time while making up for lessons. However, they did not react negatively to the interferences but instead persevered, which was an indication of a supportive relationship which according to Rutter (1987) was capable of playing a protective role. This assertion was further corroborated by Varga (2017) who postulated that maintenance and building of a positive teacher-student relationship was crucial for the relationship. Owing to the fore going, students therefore found ways of justifying why they had to stay on in the makeup classes. Varga further noted that since teachers and students spent a lot of time together, it was important that their relationship remained cordial because this impacted students’ academic achievement.

#### **4.17 Discussion of Teacher-Student Relationship in Relation to Academic Buoyancy**

Results of the descriptive analysis revealed that most of the participants scored highly in their relationship with the teachers. At the same time, Pearson’s  $r$  revealed that there was a statistically significant positive correlation between teacher-student relationship and academic buoyancy. This implied that an increase in teacher-student relationship may result in an increase in academic buoyancy. Qualitative findings corroborated the quantitative results. These findings agree with Pitzer (2010) studies which postulated that supportive teacher-student relationship was significant in students’ ability to bounce

when faced with a difficulty within academic environments. This may imply that when a student enjoyed a cordial relationship with the teachers then their level of engagement and persistence with difficult tasks may also increase. The finding supports Martin (2008) who established that teacher support predicted the level of student engagement and subsequently may increase students' academic buoyancy. This, he observed was directly related to the students' perception about teacher support which had the potential to instigate re-engagement of students. Therefore, borrowing from general attachment, a supportive relationship with a teacher in this case would mean that the student enjoys a secure base from which to explore the academic environment. This may stimulate their involvement in learning tasks and encourage them to positively deal with difficulties in academics subsequently increasing their buoyancy.

From the interview, it was revealed that most students had good teacher-student relationship and this may have assisted them in addressing challenges that they faced in school. The respondents were of the opinion that good interpersonal relationship with teachers may help in assisting them overcome academic challenges. Viewed from the motivational perspective, Davis (2003) as cited in Young (2014) posits that, supportive teacher-student relationship is one where the teacher provides the structure and the learning support that his students need. From the themes, it is clear that students perceived the teachers as encouraging, significant and could consult them whenever in need. This may imply the kind of relationship which Rutter (1987) postulates may provide a secure base from which students could explore the academic environment.

Both qualitative and quantitative results concur that good teacher-student relationship may improve students' academic buoyancy. This may enable them address the challenges that they experience in the course of learning. According to Rutter (1987), this kind of relationship was external, and it shielded students from adversity through re-energizing and encouraging learners to carry on despite challenges on the way. This finding agrees with Pitzer (2010) who established that students' ability to bounce back, may be dependent on teacher-student relationship. This reaffirms Martin and Marsh (2008) assertion that teacher-student relationship predicted academic buoyancy. Therefore, as postulated by Rutter (1987) teacher-student relationship, just like parental involvement, was important in protecting students from the risks in the academic endeavors.

#### **4.18 Prediction of Academic Buoyancy from the Study Variables**

The sixth objective of this study was to establish the predictive weight of the predictor variables; self-efficacy, self-control, academic anxiety, teacher student relationship and academic engagement on academic buoyancy. As revealed in the first five objectives, academic buoyancy has a relationship with the predictor variables, although, the contributive weight of each variable to the prediction of academic buoyancy was not ascertained. This, therefore, required investigation of the prediction model.

##### **4.18.1 Hypothesis Testing**

In line therefore, with the sixth objective of this study, a null hypothesis was advanced;

H<sub>08</sub> There is no significant prediction equation of academic buoyancy from its predictors.

To carry out regression analysis, tests to check for any violations of the assumptions were done. Linearity assumption was tested through the construction of linearity P-P plots (Appendix G). The outcome revealed a linear plot and therefore, non-violation of linearity assumption as illustrated in the P-P diagram. Additionally, the homoscedasticity assumption was checked using the standardized residual plots (Appendix G) which revealed a normal distribution. A confirmatory test using variance inflation values (VIF), brought up values lower than 10 (Table 4.22) and was a sign of non-significance therefore no multi-collinearity problem. Bivariate analysis was conducted to further check for multi-collinearity assumption. The results are shown on Table 4.20.

Table 4.20

*Inter-correlations among the Study Variables*

		1	2	3	4	5	6
1	AB	-					
2	SE	.75**	-				
3	AA	.04	.01	-			
4	SC	.18**	.14**	.18**	-		
5	TSR	.19**	.12**	-.14**	-.08	-	
6	AE	.22**	.25**	.01	.10*	.35**	-

*Note.* N = 469; AB = Academic Buoyancy; SE = Self-efficacy; AA = Academic anxiety; SC = Self-control; TSR = Teacher Student Relationship; AE = Academic Engagement  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).  
 \*. Correlation is significant at the 0.05 level (2-tailed).

As shown on Table 4.20, the correlations computed among the study variables indicated that the correlations were low. This implies that there is no multi-collinearity between the independent variables since the correlations were all less than .80, meaning a regression analysis could be used. To establish the predictive weight of each of the predictors on academic buoyancy, the following supplementary hypotheses were formulated;

H<sub>08.1</sub> There is no significant prediction equation of academic buoyancy from self-efficacy.

H<sub>08.2</sub> There is no significant prediction equation of academic buoyancy from academic anxiety.

H<sub>08.3</sub> There is no significant prediction equation of academic buoyancy from self-control.

H<sub>08.4</sub> There is no significant prediction equation of academic buoyancy from teacher-student relationship.

H<sub>08.5</sub> There is no significant prediction equation of academic buoyancy from academic engagement.

These supplementary hypotheses were tested using multiple regression analysis, through enter method. The contribution of each variable is as presented in Table 4.21.

Table 4.21

*Summary Model of the Predictors' on Academic Buoyancy*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	<i>SEE</i>	<i>df</i>	<i>F</i>	<i>Sig</i>
1	.76 <sup>a</sup>	.57	.57	4.37	1,467	621.22	.00
2	.76 <sup>b</sup>	.57	.57	4.37	2,466	310.91	.00
3	.76 <sup>c</sup>	.58	.57	4.35	3,465	210.55	.00
4	.77 <sup>d</sup>	.59	.58	4.30	4,464	165.50	.00
5	.77 <sup>e</sup>	.59	.58	4.30	4,463	132.13	.00

Note. *N* = 469; SEE = Standard Error of the estimate

Dependent Variable: Academic Buoyancy Global Score

a. Predictors: (Constant), Self Efficacy Global Score

b. Predictors: (Constant), Self Efficacy Global Score, Academic Anxiety Global Score

c. Predictors: (Constant), Self Efficacy Global Score, Academic Anxiety Global Score, Self Control Global Score

d. Predictors: (Constant), Self Efficacy Global Score, Academic Anxiety Global Score, Self Control Global Score, Teacher Student Relationship Global Score

e. Predictors: (Constant), Self Efficacy Global Score, Academic Anxiety Global Score, Self Control Global Score, Teacher Student Relationship Global Score, Academic Engagement Global Score

The illustration on Table 4.21 show that at stage one, self-efficacy was entered and it significantly predicted academic buoyancy ( $F(1,467) = 621.22, p < .05$ ). The coefficient of determination,  $R^2 = .57$ , was an indication that approximately 57% of the variance could be explained by self-efficacy. At stage two, academic anxiety was entered into the regression model. The linear combination of the variables was significant ( $F(2,466) = 310.91, p < .05, R^2 = .57$ ), although the addition of academic anxiety to the model did not contribute any change in academic buoyancy. Self-control was added at step three and the linear combination was significant ( $F(3,465) = 210.55, p < .05, R^2 = .58$ ). This implied that its addition to the model contributed approximately 1% to the variance in academic buoyancy.

Additionally, at step four, teacher-student relationship was added and the coefficient of determination went up ( $F(4,464) = 165.50, p < .05, R^2 = .59$ ). This signified that the variability of 59% could be explained by the four variables. Although the entry of the last variable, academic engagement, was statistically significant, it did not affect the contributive weight that was already made by the earlier variables since the coefficient of determination remained at  $R^2 = .59$ . Overall, the joint regression equation for academic buoyancy was significant ( $F(4,463) = 132.13, p < .05, R^2 = .59$ ). This result led to the rejection of the null hypothesis and conclusion drawn that academic buoyancy was predicted by the proximal predictors; self-efficacy, academic anxiety, self-control, teacher-student relationship and academic engagement.

To establish the contributive weight of each variable to the model, a beta coefficient was run. The results are indicated on Table 4.22.

Table 4.22

*Beta Coefficient for the Prediction of Academic Buoyancy*

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	$\beta$	SEE	$\beta$	$t$	Sig.	Tolerance	VIF
(Constant)	-3.08	1.31		-2.34	.02		
SES	.77	.03	.73	23.57	.00	.92	1.08
AAS	.03	.03	.03	.97	.33	.95	1.05
SCS	.08	.03	.08	2.47	.01	.93	1.07
TSRS	.17	.05	.11	3.50	.00	.85	1.18
AES	-.00	.01	-.01	-.19	.85	.82	1.22

*Note.*  $N = 469$ ; SEE = Standard Error; SES = Self-efficacy Score; AAS = Academic anxiety; SCS = Self-control Score; TSRS = Teacher student relationship Score; AES = Academic engagement Score.

Dependent Variable: Academic Buoyancy

As illustrated in Table 4.22, the resultant effect of the predictor variables on academic buoyancy indicated that, two of the predictors did not reach a statistically significant level in predicting academic buoyancy. These were academic anxiety ( $\beta = .03, p > .05$ ) and academic engagement ( $\beta = -.01, p > .05$ ). The remaining three predictor variables, self-efficacy, self-control and teacher-student relationship, significantly predicted academic buoyancy. The predictive weight of the variables was therefore as follows; self-efficacy ( $\beta = .73, p < .05, R^2 = .57$ ) which had the highest predictive value, followed by teacher-student relationship ( $\beta = .11, p < .05, R^2 = .59$ ) and the least was self-control ( $\beta = .08, p < .05, R^2 = .58$ ). From Table 4.22, the best fitting model for prediction of academic among the study variables was;

$$\hat{y} = -3.08 + .77(\text{SE}) + .17 (\text{TSR}) + .08 (\text{SC}) \quad (1)$$

Where  $\hat{y}$  = predicted academic buoyancy; SE = Self-efficacy; TSR = Teacher student relationship; SC = Self-control.

In summary, the results of the multiple regressions established through standardized  $\beta$  coefficients therefore that;

For every standard unit change in self-efficacy, there was a resultant .73 change in academic buoyancy. Further, that for every standard unit change in teacher-student relationship, a resultant .11 change in academic buoyancy was noticed. Subsequently, for every standard unit change in self-control, a resultant change in academic buoyancy of .08 was experienced in academic buoyancy. The foregoing imply that the three predictors were salient in predicting academic buoyancy although in different weights as illustrated in the prediction model.

#### **4.19 Discussion on the Prediction of Academic Buoyancy from the Predictor Variables**

The sixth objective to this study was to establish the predictive weight of the variables, self-efficacy, academic anxiety, self-control, teacher-student relationship and academic engagement on academic buoyancy. Results of the regression analysis revealed that self-efficacy, teacher-student relationship and self-control were significant predictors of academic buoyancy. This may imply that when a student possessed any of these attributes, then, subsequently may have higher chances of being buoyant at the face of adversity. The foregoing may probably be because the attributes trigger some responses in the students that enable them to persist when faced with a challenge. This is in line with the resilience theory by Rutter (1987), which postulated that mechanisms capable of buffering people against psychological risks should either reduce the impact or the negative chain reaction brought about by the risk.

Regression analysis in this study revealed that self-efficacy contributed the highest value to the prediction of academic buoyancy, and at the same time was a significant predictor of academic buoyancy. Earlier studies carried out elsewhere, revealed a relationship between self-efficacy and academic buoyancy (Carrington, 2016; Fong, 2014 & Moradi et al., 2018). Fong (2014) for instance, postulated that the perceived belief in-self, increased one's confidence in performing tasks. This subsequently leads to better achievement which further results in more engagement and plays a cyclical role. Rutter (1987) in his theory observed that believing in oneself was protective. This, he attributed

to the fact that when one raised their self-worth then, they developed the feeling that they could confidently face any challenge and succeed. According to Martin and Marsh (2008), this ability to counter adversities is associated to academic buoyancy. Rutter further postulated that self-efficacy equipped one with the capacity to handle setbacks in an individual's life and at the same time, be in a position to control what happens later. This therefore attests to the revealed results in this study, on the predictive role of self-efficacy on academic buoyancy.

The results further revealed that teacher-student relationship was a significant predictor of academic buoyancy. These results corroborate those by Carreno and Dizal (2011), Pitzer (2010) and Roorda et al. (2011). For example, Pitzer observed that learners' re-engagement was dependent on the quality of relationship with the teachers. This is probably because high quality relationships may act as a security when a student is faced with a challenge. According to the Rutter (1987) supportive relationship with a significant other, may act as a protection against anticipated risk. He explained that this kind of relationship may aid in reducing the impact of the risk that the student is exposed to. Implicitly, when a student finds himself in difficulty, the strength to persevere and carry on may be derived from the positive relationship with a teacher. Such students may dissociate themselves from disappointing the supportive teacher, and instead, may persist when faced with an adversity.

Findings of this study agrees with Rutter (1987) who opined that if an attribute possessed the potential to reduce the negative chain reaction, then it could be classified as a protective mechanism. He further reiterated that a protective mechanism involves a process which enables the affected person to make a decision that becomes a turn-around from adversity. In this study, it was revealed that students made decisions such as consulting teachers simply because teachers too believed that such would enable students to do well in their academics. This further affirms Rutter's contention that a turning point may be brought about by the anticipated expectations. Therefore, as explained by resilience theory, a supportive teacher-student relationship may propel a student to counter adversity and become buoyant.

Additionally, it was revealed that self-control was a predictor of academic buoyancy. This result corroborates studies carried out by Collie et al. (2013); Martin and Marsh (2008). In agreement, Weiner (2010) observes that when individuals believed that they were in charge of their prospect, this made them exercise full responsibility for their future. As a result, this may necessitate increased effort towards achievement of a goal which additionally leads to increased engagement. With such increased engagement, there is need for more self-control in order to sustain the engagement. Increased self-control according to Morrison and Pidgeon (2017) enhanced resilience. This may therefore mean that self-control predicts academic buoyancy which according to Collie et al. (2010) is an everyday resilience. In the current study, self-control enabled the students to stay on in a make-up class, even though were affected by interruption of their valuable

study time. In this case therefore, self-control acted as a buffer against the challenge. This successful coping strategy is viewed by Rutter (1987), as a protective mechanism, since it helps a student alter the decision to probably walk out of the class which subsequently may lead to increased negative effects.

Although academic anxiety and engagement did not significantly predict academic buoyancy, they had a relationship with it. Regression analysis conducted to establish the contributive weight of academic anxiety on academic buoyancy, revealed a positive but non-significant contributive value. Preliminary descriptive analysis equally showed that the participants were generally low in academic anxiety. This was in line with Putwain et al. (2015), who postulated that academic anxiety was associated more with tests and examinations in the learning environment. This may imply that when anxiety levels were low, then they offer no threats to individuals. Therefore, the low anxiety established in the present study, may be due to the sample that was drawn from pre-candidates. These were not yet exposed to examination anxiety which resulted to a non-significant contribution to the variance in academic buoyancy.

According to Putwain and Daly (2013), a low academic anxiety leads to low academic buoyancy. This may explain the present results which is consistent with Rutter (1987). According to Rutter, the influence of an attribute takes effect after exposure to a risk. This may then allow the attribute to play its inoculative role in the protection process. To assess an individual's ability to protect self, there was need for some elements of

exposure to the risk. In this study, the form three students may lack exposure to examination threat, thus the low exhibition of academic anxiety. This may explain the insignificant role played by anxiety in predicting academic buoyancy. These established results, hold some significance, on the sample selection for studies involving academic anxiety. Martin and Marsh (2008) proposed that anxiety was better examined under threat situations where it was anticipated to trigger fear of failure which subsequently may trigger some action on the learner which Rutter (1987) explains was sufficient for protecting an individual.

The insignificant predictive role revealed in this study contradicts (Farhadi, 2016; Martin, 2012; Najafzadeh, 2018; Piia et al., 2018) who established that academic engagement had a significant predictive role on academic buoyancy. However, Rutter (1987) opined that in the protective mechanism, what was most important was the process not the attribute. He postulated that while an attribute may be positive in itself, it may not protect an individual from adversity but rather what it instigates. This may imply that while academic engagement may be viewed as a construct that is positive in the learning environment, alone, it may not buffer students from challenges. Noteworthy, Martin and Marsh (2008) observed that a generalized measure of academic engagement may ignore domain specificity of the construct and reveal contradicting results. In the present study, engagement was studied across all subjects taught in the Kenyan curriculum. This may neutralize the effect of each subject when studied generally. There was need for future researches on academic engagement that were domain specific.

#### **4.20 Tests for Sex Differences among the Predictors of Academic Buoyancy**

The seventh objective sought to find out whether there existed any significant sex differences among the predictors of academic buoyancy.

##### **4.20.1 Description of the Predictors of Academic Buoyancy Based on Sex**

Analyses of the scores obtained by both boys and girls in the predictor variables; self-efficacy, self-control, academic anxiety, teacher-student relationship and academic engagement were done to establish whether any mean differences existed among the study variables. Therefore, descriptive analysis to establish the range, mean, standard deviation, skewness, and kurtosis, was done for both sexes in all the predictor variables. The summary of the findings are tabulated on Table 4.23.

Table 4.23

*Description of Predictors of Academic Buoyancy Based on Sex*

Variable	Range	Males				Females				
		<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>	Range	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
SE	5-28	21.32	6.15	-.96	-.05	4-28	21.28	6.50	-1.02	-1.03
AA	4-28	13.28	6.39	.38	-.96	4-27	14.16	6.33	.19	-.97
SC	4-28	14.47	6.85	.12	-1.28	4-28	13.67	6.74	.24	-1.18
TSR	6-28	21.75	4.53	-.92	.80	6-28	21.96	4.37	-.82	-.03
AE	20-140	106.17	34.92	-1.20	-.03	20-140	106.61	32.86	-1.28	.17

*Note.*  $N = 469$ ;  $M$  = Mean;  $SD$  = Standard deviation;  $Sk$  = Skewness;  $Kur$  = Kurtosis; SE = Self-efficacy; AA= Academic anxiety; SC = Self-control; TSR = Teacher-student relationship; AE= Academic engagement.

Results on Table 4.23 show that among the academic buoyancy predictor variables, teacher-student relationship had the highest mean, both for boys ( $M = 21.75$ ,  $SD = 4.53$ ) and for girls ( $M = 21.96$ ,  $SD = 4.37$ ). At the same time teacher-student relationship had the lowest dispersion. Comparatively, the means for academic anxiety and self-control were low for both male and female participants, and at the same time had the greatest variability. Overall, the male participants had higher means in self-efficacy ( $M = 21.32$ ,  $SD = 6.15$ ) and self-control ( $M = 14.47$ ,  $SD = 6.85$ ) while the female participants had higher means in academic anxiety, teacher student relationship and academic engagement. Findings on Table 4.23 further revealed that the coefficient of skewness and

kurtosis values were below 3. This implied therefore that the scores were within the normal distributions as proposed by Schemider et al. (2010) in their guidelines.

To enable further interpretations, participants' scores in all the predictors of academic buoyancy were used to compare the endorsement of the participants at every level based on sex. The results were presented on Table 4.24.

Table 4.24

*Levels of Predictors of Academic Buoyancy Grouped by Sex*

PAB	Males			Females		
	L	M	H	L	M	H
Self-efficacy	32 (14.7)	59 (27.2)	126 (58.1)	43 (17.1)	58 (23.0)	151 (59.9)
Academic anxiety	112 (51.6)	74 (34.1)	31 (14.3)	104 (41.3)	107 (42.5)	41 (16.3)
Self-control	99 (45.6)	71 (32.7)	47 (21.7)	124 (49.2)	88 (34.9)	40 (15.9)
Teacher/student relationship	12 (5.5)	77 (35.5)	128 (59.0)	11 (4.4)	82 (32.5)	159 (63.1)
Academic engagement	38 (17.5)	19 (8.8)	160 (73.7)	39 (15.5)	22 (8.7)	191 (75.8)

*Note.* N = 469. PAB = Predictors of Academic Buoyancy; L = Low; M = Moderate; H = High; ( ) = percentage within each sex

The results on Table 4.24 indicate that there were more participants in the high level of self-efficacy, academic engagement and teacher student relationship. Notably, among the three mentioned variables, the girls were a little more than the boys (Self-efficacy: Boys = 58.1, Girls = 59.9; Academic engagement: Boys = 73.7, Girls = 75.8; Teacher-student

relationship: Boys = 59.0, Girls = 63.1). On the contrary, the lower level category of self-control and academic anxiety had more participants and at the same time there were more boys than girls. (Self-control; Boys = 45.6, Girls = 49.2; Academic anxiety; Boys = 51.6, Girls = 41.3).

#### **4.20.2 Hypothesis Testing**

In the seventh objective, the study sought to investigate sex differences among the predictor variables of academic buoyancy.

The following null hypothesis was used;

H<sub>06</sub>: There are no significant sex differences among the predictors of academic buoyancy.

To make the above stated hypothesis testable, the following sub-null hypotheses were constructed:

H<sub>06.1</sub>: There are no significant sex differences in students' self-efficacy.

H<sub>06.2</sub>: There are no significant sex differences in students' academic anxiety.

H<sub>06.3</sub>: There are no significant sex differences in students' self-control.

H<sub>06.4</sub>: There are no significant sex differences in students' teacher student relationship.

H<sub>06.5</sub>: There are no significant sex differences in students' academic engagement.

To test the foregoing supplementary null hypotheses, data concerning the predictors (self-efficacy, academic anxiety, self-control, teacher student relationship and academic engagement) were analyzed using independent samples t-test to establish whether there were significant mean differences in the variables.

Prior to the analysis, assumptions of normality and homogeneity were checked. In the earlier descriptive analysis presented on Table 4.20, coefficient of skewness and kurtosis results revealed a distribution that ascribed to a normal distribution according to Schemider et al. (2010) since both values were below 3. Thereafter, mean differences among the boys and girls were investigated using an independent samples t- test. These were done at 95% confidence levels. The findings were presented on Table 4 .25.

Table 4.25

*Independent Sample t-test for Sex Differences in Academic Buoyancy Predictor Variables*

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	F	Sig.	<i>t</i>	<i>df</i>	Sig. (2-tailed)	95% CI	
						<i>LL</i>	<i>UL</i>
SE	.69	.41	.08	467	.94	-1.11	1.20
AA	.35	.55	-1.5	467	.14	-2.03	.28
SC	.23	.63	1.28	467	.20	-.43	2.04
TSR	.02	.89	-.52	467	.60	-1.02	.60
AE	1.21	.27	-1.13	467	.26	-9.70	2.61

*Note.* *N* = 469; SE = Self-efficacy; AA = Academic anxiety; SC = Self-control; TSR = Teacher-student relationship; AE = Academic engagement; *LL* = Lower limit; *UL* = Upper limit; CI = Confidence interval

As presented on Table 4.25, the independent samples t-test revealed none significant result for sex differences in all the predictor variables. Given the results, conclusions for the supplementary null hypotheses were arrived at as follows;

The independent samples t-test done to compare the mean score for male and female students in self-efficacy revealed statistically non-significant difference ( $t(467) = .08, p$

> .05). The mean for males 21.32 ( $SD = 6.15$ ) was not significantly different from the mean for females 21.28, ( $SD = 6.50$ ) even though the male students had a slightly higher mean compared to the females. The null hypothesis was thus accepted and a conclusion drawn that there is no statistically significant gender difference in self-efficacy among students. Therefore, the mean difference could have been due to chance.

The investigations further indicate that the independent sample t-test on mean differences in self-control, was not statistically significant ( $t(467) = -1.50, p > .05$ ). The mean for males was 13.28 ( $SD = 6.39$ ) was not significantly different from females ( $M = 14.16, SD = 6.33$ ). Therefore, the null hypothesis was retained. In conclusion therefore, there were no significant sex differences in academic anxiety. The mean differences between males and females may not be due to variations of the independent variables but may be due to chance.

According to the independent sample t-test results presented on Table 4.25, there was no significant differences in students' self-control ( $t(467) = 1.28, p > .05$ ). Even though the mean for males was higher ( $M = 14.47, SD = 6.85$ ) than for females ( $M = 13.67, SD = 6.74$ ), these could have been due to chance. The null hypothesis was thus accepted. Additionally, the result further showed that there were no significant differences between males and females in teacher-student relationship ( $t(467) = -.52, p > .05$ ). Although the mean for girls ( $M = 21.96, SD = 4.37$ ) was slightly higher than for boys ( $M = 21.75, SD =$

4.53), it was insignificant and may not be as a result of the independent variable manipulation, thus the null hypothesis was retained.

The results of the last null hypothesis showed that there were no significant sex differences ( $t(467) = -1.13, p > .05$ ) regarding students' academic engagement. While the female students had higher means, ( $M = 109.62, SD = 32.56$ ) the male students had slightly lower means ( $M = 106.07, SD = 34.92$ ), the differences could have been due to chance. The null hypothesis was thus retained.

#### **4.20.3 Discussion of Results on Sex Differences**

The investigations concerning sex differences among predictors of academic buoyancy revealed non-statistically significant differences for all the study variables (self-efficacy, self-control, anxiety, teacher-student relationship and academic engagement). For instance similar findings were obtained by Stevens, Wang, Olivarez and Hamman (2007), who studied gender differences and sources of self-efficacy, and found no statistically significant differences. This may imply that self-efficacy being an individual factor and built by personal appraisal, may not be affected by one's sex.

The present study contradicted results obtained by (Abegunrin & Animasaun, 2017; Arslan, 2013; Aslam & Ali, 2017; Bala et al., 2017; Nissen, 2019). For instance, Nissen (2019) investigated self-efficacy in physics, mathematics and other sciences among high school students. The study revealed significant sex differences between male and female

students in Physics. While the study under review was subject specific, the results may imply that boys believed in themselves more in physics compared to girls. This argument is in line with Arslan (2013) and Huang (2013) who opined that the observed difference in self-efficacy may be domain specific. Huang observed further, that self-efficacy may also vary as a function of age. This may imply that older students had more belief in their ability to perform tasks than the younger ones. On the other hand, Fong (2014) noted that variations in the sources of self-efficacy in the learning environment may favour males and females differently. In agreement with Fong, Mburu (2013) observed that male students were more assertive in co-educational environment which may further help in explaining the differences. Most of the encountered studies have carried out investigations using specific subjects unlike the present study that used a wide range of subjects. This may therefore help explain the contradictions revealed by the reviewed studies.

In the second sub-hypothesis, no statistically significant gender difference was established among participants in academic anxiety. The foregoing results are consistent with earlier studies (Chukwuorji & Nwonyi, 2015; Owolabi & Etuk-iren, 2014). For instance Owolabi and Etuk-iren established in their study that there was no significant sex difference in mathematics anxiety. Other studies, (Aydin, 2019; Lowe, 2019 and Nunez-Pena & Bono 2016), established significant sex differences among students in test-anxiety. Aydin (2019) for example, established small but significant differences in the strength of test anxiety in cognitive, behavioural and physiological dimensions, where

take-off behaviours were in favour of boys. The rest of the dimensional differences favoured girls.

Results obtained from the third sub null hypothesis established that there was no significant sex difference in self-control. From the reviewed literature there were inconsistencies in results. Some studies Wang, et al. (2017) revealed that boys had better self-control than girls. Other studies (Gibson et al., 2010; Johnson, 2017; Sadeghi & Geshnigani, 2016; Shoenberger & Rocheleau, 2017), revealed that girls had better self-control than boys. However, studies by Jo and Bouffard (2014) established that gender difference persisted only in the short run although in the long run, both sexes experienced similar growth patterns in self-control.

Analysis on gender differences in teacher-student relationship showed that no sex differences existed. This is probably because both sexes in the current study viewed teacher-student relationship positively. They both felt free to visit the teachers for consultation and experienced no discriminations. The foregoing results corroborate studies by (Moses et al., 2016; Pitzer, 2010; Quaglia et al., 2013) who established no gender differences, although majority of these studies were mainly done among young children. At the lower levels, an individual's sex was not seen to play a very significant role in the children since they were still in pre-operational stage of Cognitive development.

The last sub-hypothesis sought to establish sex difference in academic engagement. The analysis revealed no statistically significant sex difference among the students. This is probably because academic engagement depended on individual's perception of their environment and therefore may not affect boys or girls differently. Reviewed studies have mostly contradicted the present finding revealing gender differences in academic engagement (Ahmad et al., 2017; Lietaert et al., 2015; Nifhloinn et al., 2016). Although, Amir et al. (2014) established a gender difference in favour of girls, they postulated that the gender difference was mainly due to the perceived school environment.

Additionally, although not part of this study's objective, it was revealed that there was no significant gender difference in students' level of academic buoyancy. This result corroborated earlier studies by Sadeghi and Geshnigani (2016). However studies by Puolakanaho et al. (2019) revealed contradicting results on gender differences in academic buoyancy. Earlier, Martin and Marsh (2006) revealed higher academic buoyancy for boys than girls. While it was significant to note that gender differences among students in academic buoyancy had revealed mixed results, Jahedizadeh et al. (2019) observed that this difference could be due to contextual or methodological variances. Martin and Marsh (2008) further postulated that given the fact that academic buoyancy focused on individual's response to day to day challenges, it may vary from one person to another depending on other underlying factors.

Overall, from the foregoing analyses, it was revealed that there were no statistically significant gender differences in the predictor variables. Although girls had higher means

in academic anxiety, teacher-student relationship and academic engagement, and the boys had higher means in self-efficacy and self-control than girls, these differences may be attributed to chance. This results are consistent with Rutter (1987) who postulated that in the protection process, of significance, was the response of an individual to a challenge not so much the sex or the kind of attribute that one possessed. Therefore, while investigating the predictors of academic buoyancy, emphasis according to the resilience theory was in the decision that results in the turning point. This means that the decision reached when subjected to an adversity may alter the entire life trajectory and result either in protecting or subjecting the individual to future ever aching challenges. .

#### **4.21 Relationship between Academic Buoyancy and Academic Achievement**

This was the eighth objective in this study. To establish the relationship between academic buoyancy and academic achievement, a descriptive analysis of students' academic achievement was carried out.

##### **4.21.1 Description of Students' Academic Achievement**

The raw score totals obtained by the participants in seven subjects in mid and end term one, 2019 examinations were used. These raw scores were transformed to z-scores then to t-scores for standardization and to allow for comparability across the schools. The transformed t-scores were then used to compute the descriptive statistics outlined in Table 4.26.

Table 4.26

*Description of Participants' Academic Achievement*

Range	Min	Max	<i>M</i>	<i>SD</i>	<i>Sk</i>	<i>Kur</i>
54	23	77	50	10	.25	-.15

*Note.* *N* = 469; Min = Minimum, Max = Maximum, *M* = Mean; *SD* = Standard deviation; *Sk* = Skewness; *Kur* = Kurtosis

The descriptive analysis of the participants t-scores' results shown on Table 4.26 indicated a range of 54 with a minimum score of 23 and maximum of 77. The mean and standard deviation of 50 and 10 respectively was evidence for students' transformed z-scores to t-scores. Further, results revealed skewness and kurtosis that were generally less than three which symbolized a distribution that was adequately normal ( Schemider et al., 2010).

To allow for further understanding of academic achievement, descriptive analysis to determine sex difference was done. The outcome was presented on Table 4.27.

Table 4.27

*Sex Differences in Academic Achievement*

Sex	<i>f</i>	<i>M</i>	<i>SD</i>
Boys	217	50.69	11.15
Girls	252	49.41	8.87

*Note.* *N* = 469; *f* = frequency; *M* = Mean; *SD* = Standard deviation

Table 4.26 indicates that the mean score for boys ( $M = 50.69$ ,  $SD = 11.15$ ) was a little higher than for girls ( $M = 49.41$ ,  $SD = 8.87$ ) though the variability in the scores for girls was lower than for boys.

To allow for further interpretation of the participants scores in academic achievement, subdivision was done using the t-scores. The scores cut-offs were as follows; 23 to 41 represented the below average category, 42 to 59 the average while 60 to 77 represented the above average. Cut-off scores were thereafter used to analyze the frequency of participants' involvement at each level of performance. These results are shown on Table 4.28.

Table 4.28

*Levels of Academic Achievement Based on Sex*

Category	Sex		Total
	Boys	Girls	
AA	47 (21.7)	37 (14.7)	84 (17.9)
A	128 (59.0)	168 (66.7)	296 (63.1)
BA	42 (19.4)	47 (18.7)	89 (19.0)

*Note.*  $N = 469$ ; AA = Above Average; A = Average; BA = Below Average  
( ) percentage in the category

The results presented on Table 4.28 show the categorization of participants according to level of academic achievement. These findings reveal that majority of the participants were average (63.1) in academic achievement and in that category, there were more girls

(66.7) than boys (59.0). A close look at the number of participants who were above average in academic achievement, results showed that there were more boys (21.7) than girls (14.7). At the same time, among those who scored below average, there were more boys (19.4) than girls (18.7). The results may imply that extreme top achievers and bottom achievers were boys while girls were mainly in the middle of the performance. Similar findings were revealed by the Kenya Certificate of Secondary Examinations (KCSE) 2018 results, where among the top scorers there were more boys than girls.

#### 4.21.2 Hypothesis Testing

To establish whether there was a relationship between academic buoyancy and academic achievement, a null hypothesis was advanced:

H<sub>07</sub> There is no significant relationship between academic buoyancy and academic achievement.

To test the null hypothesis, analysis was conducted using Pearson *r*. The outcome of this analysis was presented on Table 4.29.

Table 4.29

#### *Correlation between Academic Buoyancy and Academic Achievement*

		ABGS
ABGS		1
t-scores	Pearson <i>r</i>	.51**
	Sig. (2-tailed)	.00

*Note.* *N* = 469; ABGS = Academic Buoyancy Global Score; t-scores = Standardized Students' Academic Scores

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

The results shown on Table 4.29 indicate a statistically significant positive correlation between academic buoyancy and academic achievement ( $r(467) = .51, p < .05$ ). This implies that an increase in academic buoyancy may result to an increase in academic achievement. The null hypothesis was thus rejected and a conclusion drawn that there is a statistically significant correlation between academic buoyancy and academic achievement.

The researcher was prompted further by the results of the bivariate analysis to establish the predictive weight of academic buoyancy on academic achievement. To test this and in line with the eighth objective of this study, a null hypothesis was advanced;

H<sub>07</sub> There is no significant prediction equation of academic achievement from academic buoyancy.

Before this, a check on any missing data or violations to the assumptions was carried out. Linearity assumption was tested through the construction of linearity P-P plots (Appendix H). The findings revealed non-violation of linearity; homoscedasticity and normality. Therefore, to test for the prediction of academic achievement from academic buoyancy, simple linear regression was conducted. The outcome is indicated on Table 4.30.

Table 4.30

*Model Summary of Students' Academic Buoyancy and Academic Achievement*

Model	<i>R</i>	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	SEE	<i>df</i>	<i>F</i>	Sig
1	.51 <sup>a</sup>	.26	.26	8.60	1,467	165.68	.00

a. Predictors: (Constant), Academic buoyancy global score

Results presented on Table 4.30 reveal a significant regression analysis ( $F(1,467) = 165.68, p < .05, R^2 = .26$ ). The results indicated that academic buoyancy contributed approximately 26% of the variance in academic achievement.

To ascertain the predictive weight of academic buoyancy on academic achievement, beta coefficient was established. The results are on Table 4.31.

Table 4.31

*Beta Coefficient for Academic Buoyancy on Academic Achievement*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.	95.0% CI	
	<i>B</i>	S. E	Beta			<i>L.L</i>	<i>U.L</i>
(Constant)	35.87	1.17		30.72	.00	33.57	38.16
ABGS	.77	.06	.51	12.87	.00	.65	.89

Dependent Variable: t-scores

Table 4.31 presents the outcome of the regression analysis whose model was found to be significant ( $F(1,467) = 165.68, p < .05$ ). The regression analysis calculated to predict academic achievement from academic buoyancy resulted in the following equation;

$$\hat{y} = 35.87 + .77 (AB) \quad (2)$$

Where  $\hat{y}$  = predicted value of academic achievement; AB = Academic buoyancy

The regression equation revealed that academic buoyancy significantly predicted academic achievement ( $\beta = .51, p < .05$ ) which meant that for every standard unit change in academic buoyancy, there would be .51 resultant change in academic achievement.

Further analysis was done to determine the effect of sex, type of school and status on the role of academic buoyancy in predicting academic achievement. The covariates were entered in the model in stages with academic buoyancy coming last. The outcome is presented on Table 4.32.

Table 4.32

*Model Summary for Academic Buoyancy on Academic Achievement*

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	SEE	df	F	Sig.
1	.06 <sup>a</sup>	.00	.00	9.99	1,467	1.93	.17
2	.22 <sup>b</sup>	.04	.04	9.78	1,466	11.61	.00
3	.23 <sup>c</sup>	.05	.05	9.76	1,465	8.88	.00
4	.54 <sup>d</sup>	.29	.29	8.46	1,464	47.60	.00

*Note.* N = 469; SEE = Standard Error of Estimate

Predictors: (Constant), Sex

Predictors: (Constant), Sex, Type of school

Predictors: (Constant), Sex, Type of school, Status

Predictors: (Constant), Sex, Type of School, Status, Academic buoyancy

Results on Table 4.32 illustrated that the model was not wholly significant. Sex which was added at the first stage, did not have a significant effect on the model ( $F(1,467) = 1.93, p > .05, R^2 = .00$ ). Although it had a positive relationship with academic achievement ( $r = .06$ ). The type of school and schooling status were entered at stage two and three respectively and significantly had an effect in the model. Key to note was that both types of school that a student attended ( $F(1,466) = 11.61, p < .05, R^2 = .04$ ) and whether a student was a day or boarding student (status) ( $F(1,465) = 8.88, p < .05, R^2 = .05$ ), had significant effect to the Model. Their contribution to the model was; type of school 4% and Status 1%. In the last stage where academic buoyancy was added to the model, a significant change in effect was realized. This change was significant, ( $F(1,464) = 47.60, p < .05, R^2 = .29$ ) and implied that academic buoyancy contributed a variance of 24% in academic achievement. Overall, the three variables; Type of school, status and academic buoyancy contributed a total of 29% variance in academic achievement with academic buoyancy explaining the most variance. These hold some significance for future researches which ought to pay attention to type of school attended and whether a student was a day scholar or boarder.

To establish the contributive value of each of the covariate on academic achievement, regression analysis was run and beta coefficients established as indicated in Table 4.33.

Table 4.33

*Beta Coefficient for Academic Buoyancy on Academic Achievement*

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	$\beta$	<i>SEE</i>	$\beta$	<i>t</i>	
(Constant)	43.24	2.26		19.18	.00
Sex	-.93	.86	-.05	-1.07	.29
Type of school	-1.22	.53	-.10	-2.30	.02
Status	-2.23	1.05	-.09	-2.13	.03
Academic buoyancy global score	.74	.06	.49	12.45	.00

Note.  $N=469$ . *SEE* = Standard error of estimate

The results shown on table 4.33 revealed that sex remained non-significant in the prediction of academic achievement. However, type of school, status of student and academic buoyancy had a significant predictive value in predicting academic achievement. The predictive weights were as follows; type of school, ( $\beta = -.10, p < .05, R^2 = .04$ ); Status of student (whether day or boarding), ( $\beta = -.09, p < .05, R^2 = .05$ ) and lastly academic buoyancy, ( $\beta = .49, p < .05, R^2 = .29$ ). The null hypothesis was therefore rejected and a conclusion drawn that academic buoyancy predicted academic achievement.

In conclusion therefore, the best fitting equation from variable on academic buoyancy was;

$$\hat{y} = 43.24 + 74(AB) - 2.23(S) - 1.22(TS) \quad (3)$$

Where  $\hat{y}$  = predicted academic achievement; AB = Academic Buoyancy; S = Status; TS = Type of School.

### **4.21.3 Discussion on the Prediction of Academic Achievement from Academic Buoyancy**

In the eighth objective the researcher sought to investigate the predictive role of academic buoyancy on academic achievement. Academic buoyancy was conceptualized in this study to refer to the ability of students to deal with everyday academic setbacks. These setbacks may include low scores in assignments, tests and pressure that follow examinations release, meeting deadlines set by the teachers and every day demands in academic environment. Academic achievement in this study referred to the scores obtained in tests.

The results from the descriptive analysis of this study indicated that majority of the students were average in both academic achievement and academic buoyancy. Further analysis, using Pearson's  $r$ , revealed that the correlation between academic buoyancy and academic achievement was positive and statistically significant. The results corroborated studies by Martin, (2014) who revealed a statistically significant correlation between academic achievement and academic buoyancy. Although Martin's study was among Attention Deficit Hyperactive Disorder students, he affirmed that academic buoyancy explained a significant variance in its relationship with academic achievement for both Attention Deficit Hyperactive Disorder and non-ADHD students in an integrated academic environment. The fore going findings was corroborated by Adeela et al. (2018); Kim (2017); Strickland (2015) who established a link between academic achievement and academic buoyancy. This may imply that successful coping with the challenges in

academic environment may lead to academic achievement. In line with this, Rutter (1987) postulates that challenges within academic environments may pose psychological risk to students. To deal with this he proposes a capacity that would lower the risk for one to succeed. This may imply that the capacity ought to be present in students, in order to help them counter everyday minor academic setbacks which Martin and Marsh (2008), associate with academic buoyancy. Rutter observed further that this capacity should protect an individual by reducing the impact of the risk or its negative chain reaction for students to succeed. The findings of this study which established a positive significant correlation between academic achievement and academic buoyancy, therefore is in line with the theoretical framework.

Contrary to the present findings, researches reveal existence of a mediator variable in the correlation between academic achievement and academic buoyancy. Although Collie et al. (2015) established a similar correlation between academic buoyancy and academic achievement they postulated that this relationship was mediated by students' control and not directly via academic buoyancy. This they attributed to the inadequacy of prior success in impacting on the essential adaptive behaviours that were obligatory for future success. They opined that academic buoyancy helped in invigorating personal attributes that were more closely related to academic achievement such as control. This according to Rutter (1987) aligns to the protective mechanism which proposes that for an attribute to buffer one against risk, it must trigger pro-action from the individual. This may imply

that academic buoyancy activates internal attributes within a person to produce the action required for protection.

Further analysis revealed that academic buoyancy predicted academic achievement. This was consistent with the results obtained by Martin et al. (2013) who established prediction of academic achievement from academic buoyancy. Martin et al. however asserted that the contributive weight of academic buoyancy was dependent on other factors that link it to academic achievement. In line with the foregoing assertion, Collie et al. (2015) postulated that successful navigation of challenges or subsequent experience that follows attainment of high scores in tests had a relationship to sense of control for the future success. This may imply according to Rutter (1987) that this feeling of control may help in the arriving at a decision when one was confronted with an adversity. This means that the more control students had over their future success, the more they were able to negotiate academic adversities and attain higher scores in their academics. Overall therefore, academic buoyancy may predict academic achievement.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

Chapter five is presented in three parts; part one gives the presentations in summary of the key findings and their implications. Part two outlines the conclusions drawn from the findings. The last part suggests the recommendations for policy and future researches.

#### 5.2 Summary

This study explored the proximal predictors and outcome of academic buoyancy among form three students of Migori County. Proximal predictors of academic buoyancy included self-efficacy, self-control, academic anxiety, academic engagement and teacher-student relationship. Further, the study investigated if there were any sex differences among the proximal predictors of academic buoyancy. Additionally, the study investigated predictive role of academic buoyancy on academic achievement. A sample of 469 form three students, were proportionately sampled from the eight sub-counties that constitute Migori County. Data that were eligible for analysis consisted of males (46.3%) and females (52.7%). Qualitative and quantitative data were then integrated at discussion level for each of the objectives that had the in-depth interview component.

The first objective sought to establish the relationship between self-efficacy and academic buoyancy. Analysis conducted using Pearson's  $r$  (see Table 4.9) revealed a

statistically significant positive relationship between self-efficacy and academic buoyancy ( $r(467) = .76, p < .05$ ). Findings from qualitative data supported the correlation and established that the participants had a strong belief in self and set goals that guided their academic endeavors. This implied that an increase in self-efficacy led to an increase in academic buoyancy.

The second objective investigated the relationship between self-control and academic buoyancy. From the analysis using Pearson's  $r$  (see Table 4.12), it was established that the two variables had a positive statistically significant correlation ( $r(467) = .18, p < .05$ ). This result was corroborated by the findings from the interview which brought out four eminent themes; lessons were learnt from past experiences, self-perseverance, self-responsibility and, planning and adherence to the plan. These supported the assertion that an increase in self-control led to increase in academic buoyancy as revealed from the quantitative results.

Investigating the relationship between academic anxiety and academic buoyancy was the third objective to this study. Results of Pearson's  $r$  (see Table 4.15), established a non-statistically significant correlation between the two variables ( $r(467) = .04, p > .05$ ) which therefore supported the null hypothesis. The results were contradicted by the qualitative findings which established academic anxiety as both demotivating and a positive drive. However it was noted that the participants response to academic anxiety

depended on an individuals' level of academic buoyancy implying therefore that a relationship may exist between the two constructs.

The fourth objective to this study aimed at establishing the relationship between academic engagement and academic buoyancy. Analysis done using Pearson's  $r$  (see Table 4.17) established that there was a statistically significant correlation between the two variables ( $r(467) = .22, p < .05$ ). This signifies that an increase in academic engagement led to an increase in academic buoyancy. Similar findings were established in the qualitative analysis which revealed three distinct themes; willingness to make special effort for better performance, class engagement and ability to work with minimal supervision. These were an indication that the participants are academically engaged and in that way were able to counter any challenges within their academic environment.

The fifth objective sought to establish the relationship between teacher-student relationship and academic buoyancy. Results obtained from the analysis (see Table 4.19) revealed a statistically significant positive correlation between the two constructs ( $r(467) = .19, p < .05$ ). From the interview the following themes affirmed support of the quantitative results; remarks from teachers were encouraging, learners valued consultations with teachers and that learners allowed teachers to eat into their personal study time. These were an indication that the students viewed their relationship with teachers as significant in the learning environment. In agreement therefore, both qualitative and quantitative results reveal a correlation between the two constructs. This

may signify that an increase in teacher-student relationship may lead to an increase in academic buoyancy.

The sixth objective used multiple regression analysis to establish the predictive weight of the proximal predictors in predicting academic buoyancy. It was revealed (see Table 4.21) that the five predictor variables jointly and significantly predicted academic buoyancy ( $F(4,463) = 132.23, p < .05, R^2 = .59$ ). This implies that the variables together contributed up to 59% of the variance in academic buoyancy. The best fitting model from  $\beta$  weights (see Table 4.22) was therefore  $\hat{y} = -3.08 + .77(SE) + .17(TSR) + .08(SC)$ . This implied that only three of these predictors had significant predictive weight; Self-efficacy, self-control and teacher-student relationship on academic buoyancy.

In the seventh objective, independent samples t-test was carried out to ascertain whether there were any sex differences among the proximal predictors. The results revealed (see Table 4.25) non-statistically significant sex differences among the predictors. Though descriptive analyses showed some slight differences, these could have been as a result of chance. This may imply that these predictors being personal attributes may not be affected by sex.

The last objective aimed at establishing the relationship between academic buoyancy and academic achievement using Pearson's  $r$ . The results (see Table 4.29) revealed a statistically significant positive correlation between academic buoyancy and academic

achievement ( $r(467) = .51, p < .05$ ). This result implies that an increase in academic buoyancy resulted in an increase in academic achievement. Further analysis using simple linear regression (see Table 4.30) established the predictive weight of academic buoyancy on academic achievement of students ( $F(1,467) = 165.68, p < .05, R^2 = .26$ ). This suggested that academic buoyancy contributed about 26% of the variance in academic achievement. From the  $\beta$  coefficient (see Table 4.31), the best fitting model was established:  $\hat{y} = 35.87 + .77(AB)$ . This implied that for every unit change in academic buoyancy there was a resultant change in academic achievement of .51

### **5.3 Conclusion**

Challenges and setbacks within academic environments are inevitable. These may include negative feedbacks from both teachers and parents, failure in examinations, pressure to meet set deadline or to perform in tests. To succeed therefore requires learners to have the ability to bounce back and recovery which is attributable to academic buoyancy. This study investigated proximal predictors of academic buoyancy which included self-efficacy, self-control, academic anxiety, academic engagement and teacher-student relationship.

The study results offer empirical evidence on the hypothesized existence of a relationship between the proximal predictors and academic buoyancy, therefore supporting existing literature. Firstly, the results revealed a statistically significant positive relationship between self-efficacy and academic buoyancy. This implies that strong belief in self and

ability to set and work towards ones set goals may buffer a learner from adversities within academic environments making them academically buoyant.

Secondly, the established significant positive relationship between self-control and academic buoyancy may imply that being in charge of impending academic outcomes would suggest that one was able to be more responsible, persevere at difficult tasks or learn from previous experiences. These may help a student to overcome setbacks within academic environment and succeed.

Thirdly, the revealed low levels of academic anxiety established from descriptive statistics may point to the academic atmosphere prevailing at form three. These students feel far from the final examination thereby experiencing lower anxiety levels. This may have resulted in the established non-significant positive relationship between academic anxiety and academic buoyancy. However, given that anxiety has the potential of evoking action from individuals, this study may conclude that a little anxiety was essential for buffering learners from adversities.

Fourthly, the revealed significant positive relationship between academic engagement and academic buoyancy may be an indication that students' increased involvement with their academic activities was significant in protecting them from academic contests. Therefore an increase in learners' involvement in school tasks, their ability to work with diminutive supervision and their willingness to go an extra mile with school tasks was

important in ensuring academic engagement which subsequently augments academic buoyancy.

Fifthly, teacher-student relationship was established to significantly correlate with academic buoyancy. In academic environments therefore, an increase in supportive teacher-student relationship may signify an increase in academic buoyancy. Students should therefore be encouraged to positively view and value the time they spent with teachers which had the potential of bolstering academic buoyancy.

Sixth, this study revealed the predictive role played by each of the proximal predictors of academic buoyancy. Of these, self-efficacy, teacher-student relationship and self-control had the highest predictive role on academic buoyancy. The foregoing suggests that students with a high self-belief had better chances of navigating academic challenges. At the same time, helpful teacher-student relationship provide students with a secure base for facing adversities while self-control enables students' attribute failure or success to self. In this way, such students' may find it easier to face academic challenges. It may therefore be helpful for schools to inculcate these attributes in students so as to raise their levels of academic buoyancy.

Seventh, these results may offer empirical evidence that sex may not play a significant role in the prediction of academic buoyancy by the proximal predictors. Intervention programmes may thus be designed without sex biases. Both boys and girls should without

prejudice be encouraged to develop a high sense of self-efficacy, self-control and teacher-student relationship which may be significant in bolstering academic buoyancy.

Eighth, the study established that academic buoyancy significantly predicted academic achievement. This may imply that an increase in academic buoyancy was important in increasing students' level of academic achievement. This means therefore that efforts aimed at improving academic achievement must address academic buoyancy which enables students to successfully navigate challenging academic environments.

#### **5.4 Recommendations**

This study therefore wishes to offer the following recommendations for policy and further researchers:

##### **5.4.1 Policy Recommendations**

- i. This study established that students who set challenging goals to guide them in their studies and have a strong self-belief were capable of overcoming setbacks encountered in academic environments. It is therefore a recommendation of this study that emphasis be laid on training students to believe in self and guide them on how to set and remain committed to such goals. This would build their self-efficacy which subsequently develops their ability to navigate challenging environments in order to succeed. Further, given that self-efficacy is already one of the core values in the Kenya Competency based Curriculum, teachers be encouraged to make its content

more practical during learning. This can be enhanced through role plays or drama on aspects of self-efficacy.

- ii. Results of this study reveal that students who positively use past academic experience do better within academic environments. This enables them to strive on even when faced with more challenges and subsequently remain responsible for their future academic outcomes. Such behaviours result in students' planning and adhering to the plans and subsequently leading to self-control. This study recommends therefore that students be given more academic responsibility that would enable them practice self-control. School administrators, teachers and parents need to engage students in activities that allow them to lead others such as subject leaders, societies and club officials or school counselors. Such would make them responsible and help them to acquire self-control skills which are essential in building students' academic buoyancy.
- iii. This study found out further that academic engagement was significant in ensuring that students remain committed to their academic work. In this study students who were willing to work with minimal supervision or go an extra mile with their academic work were also able to counter challenges within academic environments. This study recommends that school administrators, parents and teachers establish motivation systems that would recognize students who are exemplary and vicariously encourage others to work with minimal supervision that would promote academic engagement and therein

academic buoyancy. It is further recommended that teachers and parents restructure home and school environments in a way that encourages academic engagement. This could be done by providing necessary facilities like textbooks, assignments, internet services, electricity and other physical infrastructure that enhance engagement.

- iv. Supportive teacher-student relationship has been established by this study as significantly related to academic buoyancy. Bolstering this relationship is crucial in providing a secure base for students to achieve academic success. This study recommends that Ministry of Education [MoE] organize in-service training for teachers on pedagogies and interventions directed towards helping students to acquire positive outlook of the reciprocal relationship. When teachers are informed and incorporated in the process, then through the various core and co-curriculum activities in schools, this skill may be enhance in both teachers and students. This is founded on the premise that increased interaction between teachers and students may open a favourable platform where academic needs are better met thereby increasing academic buoyancy.
- v. Further, it was established that self-efficacy, self-control and teacher-student relationship were the most salient predictors of academic buoyancy. Given that these predictors are responsive to change and may play a significant role in development of academic buoyancy, it is recommended that Kenya Institute of Curriculum Development incorporates virtues that would enhance these constructs into the curriculum. This recommendation is anchored on the fact

that a strong belief in oneself enables a student to persist at difficult tasks and at the same time because of self-control, one was able to attribute failure to self. Therefore, inclusion into the curriculum and constant mentioning of these constructs during the learning process may equip students' with skills that would enable them face and overcome academic challenges and subsequently protect them from academic adversities.

- vi. Additionally this study established the non-significant sex differences in the proximal predictors of academic buoyancy. This study recommends that while training students on how to develop these significant traits, equal emphasis be laid while dealing with students of both sexes. This is because any bias towards a specific sex may reduce inculcation of academic buoyancy in a given category of learners.
- vii. Further, the results of this study revealed that academic buoyancy predicts academic achievement. Academic buoyancy as a resource, equips learners with skills that help them counter academic adversities which have a potential of lowering students' persistence towards tasks. In the absence of academic buoyancy, students may not successfully navigate the academic environment. This study further recommends that Kenya Institute of Curriculum Development [KICD] design a curriculum that lays emphasis on bolstering students' academic buoyancy through enhancement of salient predictors. Since these predictors are amenable to interventions, they could be enhanced

in students through integration into the curriculum in order to boost students' academic buoyancy.

#### **5.4.2 Recommendation for Further Research**

- i. The results of this study revealed the predictive role of self-efficacy, self-control and teacher-student relationship on academic buoyancy among form three students'. Similarly, it established the predictive role of academic buoyancy on academic achievement. However, it did not investigate these variables in other classes such as form one, form two and form four. This study therefore recommends that further researches be done using samples drawn from other classes in order to widen the scope of generalizability of the results.
- ii. The study singled out proximal predictors in its investigations, leaving out other predictors such as peer, parental and school related factors. These may also play a significant role in predicting academic buoyancy. There may be need to carried out further researches to establish the predictive weight of these other proximal and distal predictors of academic buoyancy that were not included in this study.
- iii. The statistical analysis used in this study could not establish the interrelationship among the study variables. This study further recommends that higher statistics could be used in future researches that may aid in establishing the interrelationship among these study variables such as path analysis and structural model equation. These may establish the path that each of these predictor variables follow in predicting academic buoyancy or academic achievement.

- iv. This study relied on students' self-report questionnaire and focus group discussions which enabled the researcher gain insight into the variables of study. However, data from teachers and other stakeholders could have been necessary for verification of findings. This study recommends therefore, that future studies could include data collected from other stakeholders such teachers, parents and school administrators to increase reliability.
- v. The findings of the current study have made significant contributions in understanding the factors underpinning academic buoyancy in the Migori County. It was therefore important to explore further the study variables in other geographical settings in order to widen their generalization to the Kenyan context.
- vi. The explanatory sequential mixed method design used in this study could not establish causal effect. The results were therefore cautiously interpreted. This study therefore recommends research designs like experimental designs that would establish causal effects.

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## **APPENDICES**

### **Appendix A**

#### **Consent to Participate in the Study**

Dear Student,

The purpose of this study is to investigate the factors that would enable students to overcome setbacks that they meet in their course of studies and achieve academically using form three students in Migori County. The results of this study will be beneficial since it will help stakeholders develop interventions, programmes and counselling practices focused on creating and enhancing the student's personal attributes that promote academic achievement.

I therefore request that you give your consent to participate in this noble course by filling in the questionnaire that will take approximately 30 minutes. The information given will be treated with utmost confidentiality. Participation in the study is voluntary and one has a right to withdraw from the study at any time without penalty. No payments are expected at the end of the exercise.

If you agree to take part in this study, kindly sign in the space provided below

Signature \_\_\_\_\_ (I agree to this study)

Thank you for your co-operation

Rosemary Olendo,

E83/27400/2014

PhD student, (Educational Psychology) Kenyatta University

## Appendix B

### Student's Questionnaire

#### Part One: Instructions

This questionnaire carries questions that will help me carry out the research and at the same time assist the school in ensuring better provision of services to you and your colleagues.

Kindly go through the questions carefully and give your honest answers. Please respond according to the guidelines provided in each sub-section. Ensure you respond to each question and for each question, provide only one answer. Keep your answers to yourself please.

In case you change your mind on a particular response, kindly cross neatly and provide an appropriate answer that you prefer in the correct space. You are free to ask any questions in terms of what you do not find clear or in case you need extra time to complete the work. When you complete filling in the questionnaire, hand in the work to me.

#### Part Two:

##### Sub-section I; Demographic Data

Please fill in the following blank spaces, or put a tick (✓) as may be appropriate

Code number \_\_\_\_\_

Sex (please put a tick) Boy ( ) Girl ( )

Type of school (tick (✓) appropriately) Public: Boys only ( ), Girls only ( ), Mixed ( ), or Private ( Day/ Boarding)

Are you a day or boarding student? (Please put a tick) Day ( ) Boarding ( )

##### Sub-section II: Academic Buoyancy Scale (Martin & Marsh, 2008)

The statements given below represent how you may or may not be feeling as a student of form three. For every statement, put just one tick in the right box to represent how you feel about the statement. Answer by putting a tick (✓) the appropriate number. The items are rated on a **1-7** scale where **1- strongly disagree, 2- disagree, 3-somehow disagree, 4- neither agree nor disagree, 5-somehow agree, 6-agree, 7-strongly agree**

		1	2	3	4	5	6	7
1	I do not let stress from studies put me down							
2	I think am good at dealing with pressures that come due to schoolwork							
3	I do not let a bad mark affect my confidence							
4	I am good at dealing with setbacks at school (e.g. negative feedback on my work, poor results )							

**Sub-Section III: Motivation and Engagement Scale (High School) (Martin, 2007)**

This section contains more statements. The statements do not have a right or wrong answer. However they require you to respond to them as truthfully as you can. Mark the correct answer by circling your choice of response. In case you feel the circled response is not appropriate then cross and circle the one you prefer. In case you don't feel sure with an answer to give just circle the one closest to your answer. Have only one answer for every question. Kindly do not leave any questions unanswered. Some of the statements appear very closely related; ensure your answer is the best that you can give. The answers range from 1-7 as guided by the table. Circle only one answer. Please circle one number for each statement

Disagree strongly	Disagree	Disagree somehow	Neither agree nor disagree	Agree somehow	Agree	Agree strongly
1	2	3	4	5	6	7

	Statement	Circle one number each						
1	I believe that if I work hard I can do my school work well	1	2	3	4	5	6	7
2	When I don't do so well at school, I usually do not know how to avoid not doing well another time	1	2	3	4	5	6	7
3	I enjoy being a student in the present school	1	2	3	4	5	6	7
4	I worry a lot when exams and assignments are announced.	1	2	3	4	5	6	7
5	I participate in class discussions	1	2	3	4	5	6	7
6	I generally get along well with my teachers.	1	2	3	4	5	6	7
7	I intend to carry on with my studies and complete school.	1	2	3	4	5	6	7
8	I never give up on difficult school work because I believe I am capable of tackling them.	1	2	3	4	5	6	7
9	I worry about failing exams and assignments.	1	2	3	4	5	6	7

10	Whenever I get good marks, I usually do not know how to get the good mark again.	1	2	3	4	5	6	7
11	I like my school.	1	2	3	4	5	6	7
12	My teachers are generally interested in my school work.	1	2	3	4	5	6	7
13	I normally get involved in group work	1	2	3	4	5	6	7
14	I am looking forward to continuing with all the compulsory and elective subjects until I sit for KCSE.	1	2	3	4	5	6	7
15	If I am given enough time, I believe I can do well in my schoolwork.	1	2	3	4	5	6	7
16	I don't feel very happy when I do tests or exams.	1	2	3	4	5	6	7
17	Whenever I obtain low marks in a test I am usually not sure how am going to avoid getting that bad marks again.	1	2	3	4	5	6	7
18	After my KCSE, I would like to proceed and train therefore I would like to complete my schooling.	1	2	3	4	5	6	7
19	I like being a student in my present school.	1	2	3	4	5	6	7
20	I normally participate in the activities in my class.	1	2	3	4	5	6	7

21	My teachers generally listen to what I have to say	1	2	3	4	5	6	7
22	Generally, my teachers give me the help and support that i need from them.	1	2	3	4	5	6	7
23	Whenever I am at school I feel very happy.	1	2	3	4	5	6	7
24	I participate in class activities.	1	2	3	4	5	6	7
25	I intend to complete school.	1	2	3	4	5	6	7
26	I believe I can be ahead of my teacher if I work hard enough.	1	2	3	4	5	6	7
27	I worry a lot about my schoolwork	1	2	3	4	5	6	7
28	I am usually not sure how I can avoid doing poorly at school.	1	2	3	4	5	6	7
29	It is always important for me to understand what I am taught at school.	1	2	3	4	5	6	7
30	If I can't understand my school work, I keep doing it again and again until I am able to do it.	1	2	3	4	5	6	7
31	Some of the things I learn at school I am able to use in other areas of my life. .	1	2	3	4	5	6	7

32	When am taught something that I don't understand, I spend time to try to understand it.	1	2	3	4	5	6	7
33	I normally keep on working at school work that I find difficult until I have known how to do it.	1	2	3	4	5	6	7
34	Learning at school is important.	1	2	3	4	5	6	7
35	If my homework is difficult I keep working at it until I understand it.	1	2	3	4	5	6	7
36	What I learn at school will be useful in the future.	1	2	3	4	5	6	7

## THANK YOU FOR COOPERATING

### MES (HS) – 36 Domains Measured

Items	Domains
1,8,15,26	Self-efficacy
4,9,16,27	Academic Anxiety
2,10,17,28	Self-control
3,5,7,11,13,14,18,19,20,23,24	Academic Engagement
25,29,30,31,32,33,34,35,36	

## Appendix C

### Invoice from Longlife Group



#### INVOICE

Date: 17/03/2018

To Rosemary Akinyi (PhD Student of Kenyatta University, Kenya)

\*\*\*\* INVOICE NUMBER is: MAR 17 18 a \*\*\*\*  
\*\*\*\* AMOUNT TO PAY is: \$99.00 \*\*\*\*

Being for:

1 x Motivation and Engagement Scale Pack (HS): Research Student Version (@ Aus\$99.00)

For CREDIT CARD payment, here is the secure URL and information needed to make your credit card payment via SecurePay for the requested products:

<https://payment.securepay.com.au/bill/1100/payment.sbx>

(If necessary, copy and paste the URL into your Internet browser)

For DIRECT BANK DEPOSIT payment, please quote your Invoice Number (above) and deposit to:

- Account Name: Lifelong Achievement Group
- Bank: Commonwealth Bank of Australia
- BSB: 062 257
- Account #: 10086766

If you have any questions about this invoice, please do not hesitate to contact us.

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**THANKS FOR YOUR BUSINESS**

### Lifelong Achievement Group Pty Ltd

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ACN 088 991 146 ABN 58 088 991 146

**Andrew Martin** <andrew.martin@unsw.edu.au>  
to me

Hi Rosemary

Thanks for getting in touch.

Here are the items for the Academic Buoyancy Scale - which you can use with appropriate attribution (eg. Martin, A.J., & Marsh, H.W. (2008). Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, 46, 53-83.)

The items are rated on a 1 (Strongly Disagree) to 7 (Strongly Agree) scale:

1. I don't let study stress get on top of me
2. I think I'm good at dealing with schoolwork pressures
3. I don't let a bad mark affect my confidence
4. I'm good at dealing with setbacks at school (eg. negative feedback on my work, poor results)

The following scales you can attribute to Martin, A.J. (2007). Examining a multidimensional model of student motivation and engagement using a construct validation approach. *British Journal of Educational Psychology*, 77, 413-440

You can all items provided full attribution is made to our articles and us as the authors.

All the best with your research.

Regards

## Appendix D

### Code Book

<b>CODE BOOK FOR QUALITATIVE ANALYSIS OF SELF-EFFICACY OF STUDENTS</b>				
<b>CODE</b>	<b>INCLUSION CRITERIA</b>	<b>EXCLUSION CRITERIA</b>	<b>DESCRIPTION</b>	<b>EXAMPLES</b>
Self-belief	Confidence in ability	Lack of confidence in ability	Learner responses suggest that they were confident and they believed that they had the abilities to perform the assigned tasks	“I think I have the capacity to cope with tasks and exercises that we are given. They form a good practice for us, and I think I can cope with them without pressure or stress. I can do well in those tasks and achieve my goals”
Goal-setting	Set and adhere to goals	Inability to adhere to set goals	Learner responses allude to them setting high realistic and challenging goals	“I normally set goals that challenge me to achieve it. This is because I know I have the capability to do it” “if your dreams don’t scare you then you are capable of achieving them’ so according to me I do set higher goals that make me strive higher and even struggle even if am being discouraged by other people”

<b>CODE BOOK FOR QUALITATIVE ANALYSIS OF STUDENTS SELF-CONTROL</b>				
<b>CODE</b>	<b>INCLUSION CRITERIA</b>	<b>EXCLUSION CRITERIA</b>	<b>DESCRIPTION</b>	<b>EXAMPLES</b>
Lessons learnt from the past experiences	Valuable past experience	Lack of valuable past experience	students attributed their success to past experience which they associate with personal success	“For me I actually attribute my success to my past experiences. When I look at my past experiences, I realize that I have done a lot in terms of doing my studies. After resolving in my mind that failure would not happen again, I actually work hard and even working smart to achieve the next target”
Self-perseverance	Ability to persevere	Easily give up	Learners believe that success in their academic work depends on their ability to persevere -	“I attribute my success to perseverance because it is through perseverance that I am where am
			ability to continue doing something even if doing it presents a lot of difficulties, failures or opposition	today”. “both perseverance and hard work motivates you to achieve the goals”
Success as a product of one’s own responsibility	Take responsibility for success	Blame other factors or people for failure	students saw their success as their responsibility either by working hard, maintaining self-discipline and by seeking for support from valuable peers and teachers.	“Success somehow depends on us. The work of the teacher is only to guide us, for example, only 25% depends on teacher. I must therefore work extra so that i may realize the goal at the end of it all”

				<p>“According to me I attribute my success to discipline, handwork and support that I get from peers I always play with”</p> <p>“As for me I attribute my success</p>
				<p>to my class mates, my handwork and the people who supported me”</p>
<p>Ability to plan and adhere to the plans</p>	<p>Ability to draw and adhere to timetable</p>	<p>Failure to make-up on lost planned time</p>	<p>students were unanimous on establishment and use of personal timetables although they complained of interference on that timetable by forces beyond their control</p>	<p>“Sometimes it becomes a challenge when a teacher comes to class to make up during free time, that make’s one not to follow timetable. “My main problem is interruption like may be Head-teacher comes when you want to follow the timetable. You will be forced to adjust but later extend so that you may recover that subject”. “It may not be possible to strictly follow the time table and you find you have gone astray from what timetable states. I always create other times to make up what I lost during that”</p>

<b>CODE BOOK FOR QUALITATIVE ANALYSIS OF STUDENTS ANXIETY</b>				
<b>CODE</b>	<b>INCLUSION CRITERIA</b>	<b>EXCLUSION CRITERIA</b>	<b>DESCRIPTION</b>	<b>EXAMPLES</b>
Anxiety as a demotivator Anxiety as a positive drive	Feeling of depression as a result of poor performance Overcome low feeling due to failure	Lack of bad feeling in failure Give in to depression	Students suggested that they got demoralized when they failed in examinations students suggested that they did not remain in their low state which was induced by poor exam results. Instead they were able to spring back and re-strategize for better performance	<p>“To me when results are released and you find I have failed or gone down I normally get stressed, but I use that to know areas to put more effort in areas of weakness”</p> <p>“when exam are released and you find that you did not do what you expected sometimes I get demoralized and spend most of the time revising. Sometimes you are annoyed and just come to solve it maybe by sharing it with friends, they urge you to work hard for next coming exam”</p> <p>“with me it just pains me for the first few days then after that I go back and look at what caused me so that I do rectify it and wait for another task to show my effort”</p> <p>“For me I learn that am supposed to put more effort on what I did not do previously. So, you get motivation to continue on what you are doing”</p> <p>“what I want to say failure is not an obstacle it just a stepping stone if you</p>

				fail you need to go back and see that what have made me to fail this and this so that it gives you a starting point on how to succeed”
<b>CODE BOOK FOR QUALITATIVE ANALYSIS OF STUDENTS ACADEMIC ENGAGEMENT</b>				
<b>CODE</b>	<b>INCLUSION CRITERIA</b>	<b>EXCLUSION CRITERIA</b>	<b>DESCRIPTION</b>	<b>EXAMPLES</b>
The willingness to make special effort to ensure better performance	Go extra-mile for better performance	Contentment with results	Students were ready to go an extra-mile to realize better results	<p>“What I can say is that after the teacher has taught a concept for example mathematics, I have to go extra mile so that I find out whether I understood that concept. I do more questions and go ahead of teacher to familiarize myself with topics”</p> <p>“Sometimes when we are given work and I go extra mile and when a teacher asks a question that nobody knows and I am the only one who knows it, you find that you are rewarded....”</p>
Classroom engagement	Classroom engagement	Lack of classroom engagements	Students presented impression of high level of engagement in classroom activities	“For me when in class I pay 100% attention and I am active, but when it comes to the point of asking question, I prefer learning more than teaching others so I learn when others are asking questions that is the time am learning well”

<p>Work with minimal supervision</p>	<p>Minimal supervision</p>	<p>Maximum supervision</p>	<p>Some students prefer to study alone</p>	<p>“According to me I normally find it better to study when there are no teachers coming in class... and I find it easier to follow my personal timetable. That time I will revise and revise until I get the concept that I had not understood before”          “I think I can study without teachers’ supervision. Once I understand the concept, I find it easy to study alone... “          “I find it easy to identify the place of difficulties and put more stress so I find it is easier to revise and do other things without any supervision by the teachers”</p>
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<b>CODE BOOK FOR QUALITATIVE ANALYSIS OF TEACHER- STUDENT RELATIONSHIP</b>				
<b>CODE</b>	<b>INCLUSION CRITERIA</b>	<b>EXCLUSION CRITERIA</b>	<b>DESCRIPTION</b>	<b>EXAMPLES</b>
Encouraging remarks	Teachers encouraging remarks	Teachers discouraging remarks	Remarks that teachers gave to students encouraged them	<p>“I think teachers encouraging remarks are better because they act like our parents whenever our parents are not around, even if they beat us, they only show they are more concern on whatever we are doing”</p> <p>“Teachers give remarks that encourage you. For example, you can find that you are weak in Mathematics, you are getting E and you get A in geography. They will ask you whether those two grades will really help you. So, they encourage us to change our attitude and do more practice”</p>
Valuable teacher consultation Teacher invasions into student free time	Teacher consultation Respect for teacher’s role	No teacher consultation No respect for role of teachers	Students admitted to consulting teachers some got bored when teachers interrupt their free time to bring on lessons	<p>“When you go for consultation to the teacher, the teacher will always encourage you because teachers like those who goes to consult them to get more knowledge. They like those who are able to improve so when you go to them, they are able to give you what you want and they will help you</p>

				<p>to overcome the issue”</p> <p>“When a teacher comes at the free time and says that there is a lesson and that time finds when you are picking a very good concept, and in that subject, I may not be performing well. I feel like am bored and am like I should not attend that class but I forced myself because it a condition I have to bear with because the teacher is above us”</p> <p>“According to me sometimes I feel bored but I just try to fit and try to remove negative attitude towards the teacher because even if I have to do my personal things I could not do because the relation has been ignored. So, we have the lesson and I therefore comply so that I gain from that lesson”</p>
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## Appendix E

### Pro Forma Summary of Students' Examination Results

Participants Institutional code number.....

#### Student's Academic Achievement in Form Three Term One Examinations 2019

Identity of the Participant	Mid-term one score	End-term one score	Average Score

## Appendix F

### Interview Schedule

#### Part I Interview Consent Form

I hereby consent to participate voluntarily in this interview by Rosemary Olendo, who is carrying out a PHD research in Education at Kenyatta University. I am informed that this is for gathering data on the form three students' academic work. I am aware that there are no monetary gains involved and am also free to withdraw my participation at will without victimization. The interview will last 30-40 minutes. During which time notes will be taken. I am further informed that audio recording will be done for the proceedings and pseudonyms used instead of our own names. I am informed that this will conceal our identity but allow the researches to report the findings. I am assured of confidentiality of the findings which will only be accessible to the researcher.

Code number.....Signature.....Date.....

#### Part II Semi Structured Interview Schedule

##### General Questions

1. How many subjects are you taking in total?
2. Which of these are electives?
3. What made you choose these elective subjects?

##### Academic Buoyancy

1. Do studies stress you? Yes/No, Explain why?

2. Do you ever feel school work pressures? Yes/No, How do you handle such pressures?
3. How good are you at dealing with setbacks at school? What do you attribute this to?
4. Does a bad mark affect your confidence? Yes/No, How do you handle this?

### **Self-Efficacy**

1. Do you think you have the capacity to perform the tasks given in class? Yes/No, why?
2. Do you ever set goals that are either too low or too high for you? Explain your answer.
3. Whenever you encounter a difficult task, do you think if given more time you may be in a position to tackle it? Explain your answer.
4. Whenever you fail in the class work, do you give up or you strive on until you succeed?

### **Anxiety**

1. Do you have a study time table that helps you with class revision?
2. Whenever examinations are approaching do you become worried?
3. Do you feel restless when the teachers delay to bring examinations? What do you attribute this to?
4. How do you normally feel during the exams period? Does the feeling disappear after examinations are over?

### **Self-control**

1. Do you ever understand the reason for your failure or success?
2. What do you attribute your failure or success to?
3. Do you ever feel you have control over your failure or success in academic tasks?
4. Whenever a teacher gives a feedback from an evaluation exercise, do you normally want to learn more, work harder or give up particularly when the feedback is negative?

### **Academic Engagement**

1. Do you take part in many activities in school? Both academic and co-curricular?
2. Do you actively participate in classroom learning by asking or answering questions or maintaining concentration?
3. Do you observe school rules most of the times?
4. Do you ever get bored, anxious or sad when you see things happening within the school environment? Explain your reaction and why.
5. Do you do your studies without any one supervising you?
6. Do you ever engage in extra classwork outside what the subject teacher gives?

### **Teacher- Student relationship**

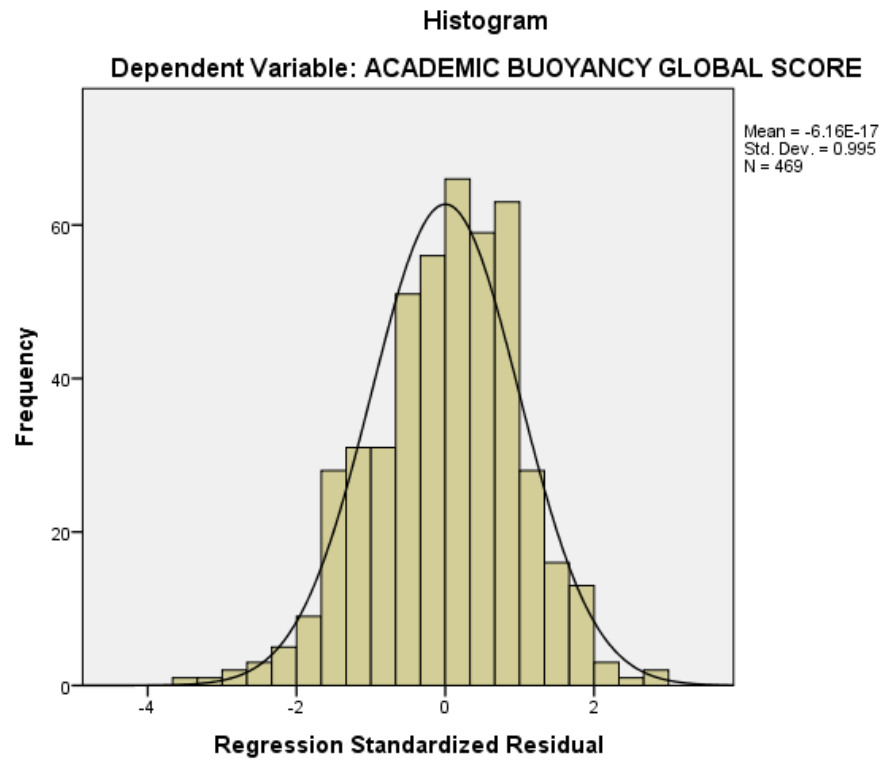
1. Are you comfortable attending lessons organized by all your teachers?  
Explain your answer.

2. Do you like consulting your teachers whenever you meet academic challenges? Which teachers do you prefer to consult?
3. Do most teachers give you encouraging remarks whenever you have difficulties with their subject?
4. Do you like sharing your experiences with your teachers? Do you like the help they give you? Explain.

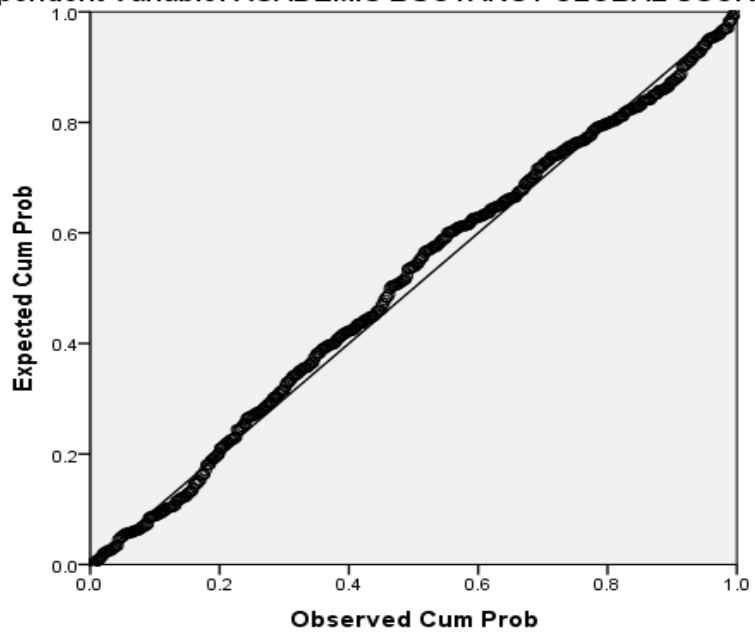
**THANK YOU FOR YOUR PARTICIPATION**

# Appendix G

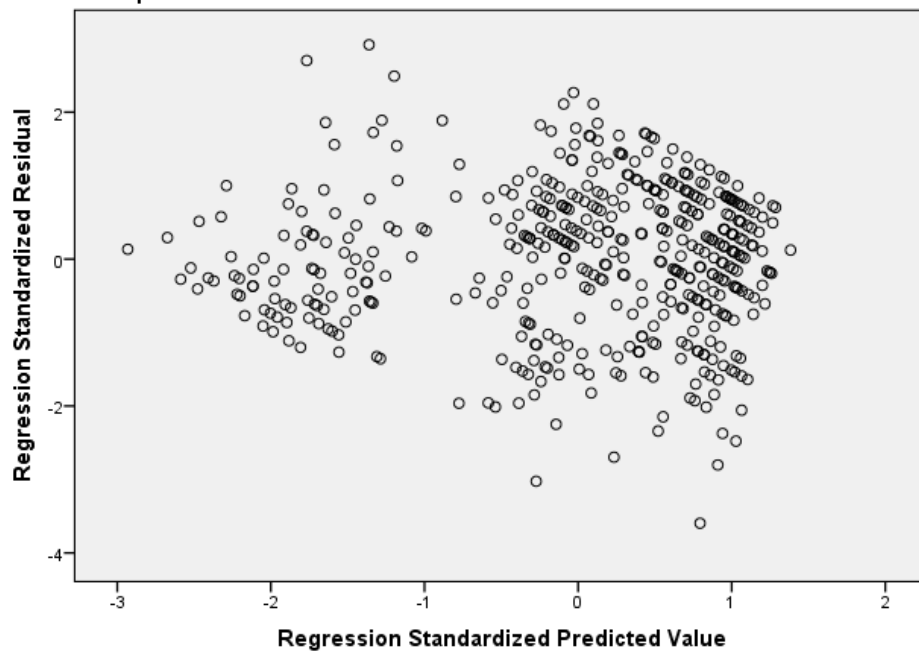
## Scatter Plot



Normal P-P Plot of Regression Standardized Residual  
Dependent Variable: ACADEMIC BUOYANCY GLOBAL SCORE



Scatterplot  
Dependent Variable: ACADEMIC BUOYANCY GLOBAL SCORE



## Appendix H

### Scatter Plot

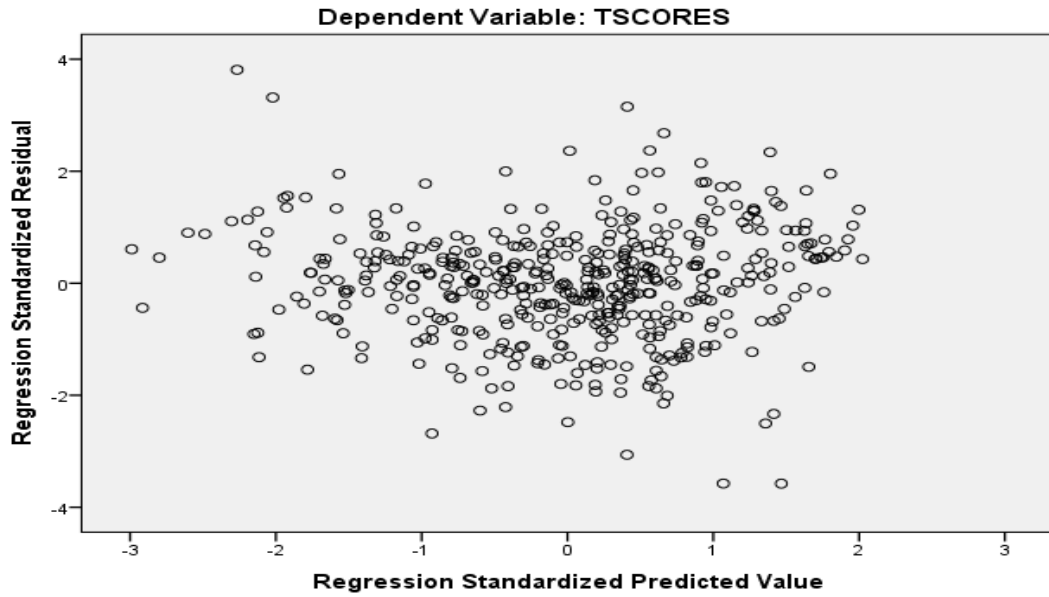


Figure F.1. Scatterplot for predictors of academic buoyancy prediction model

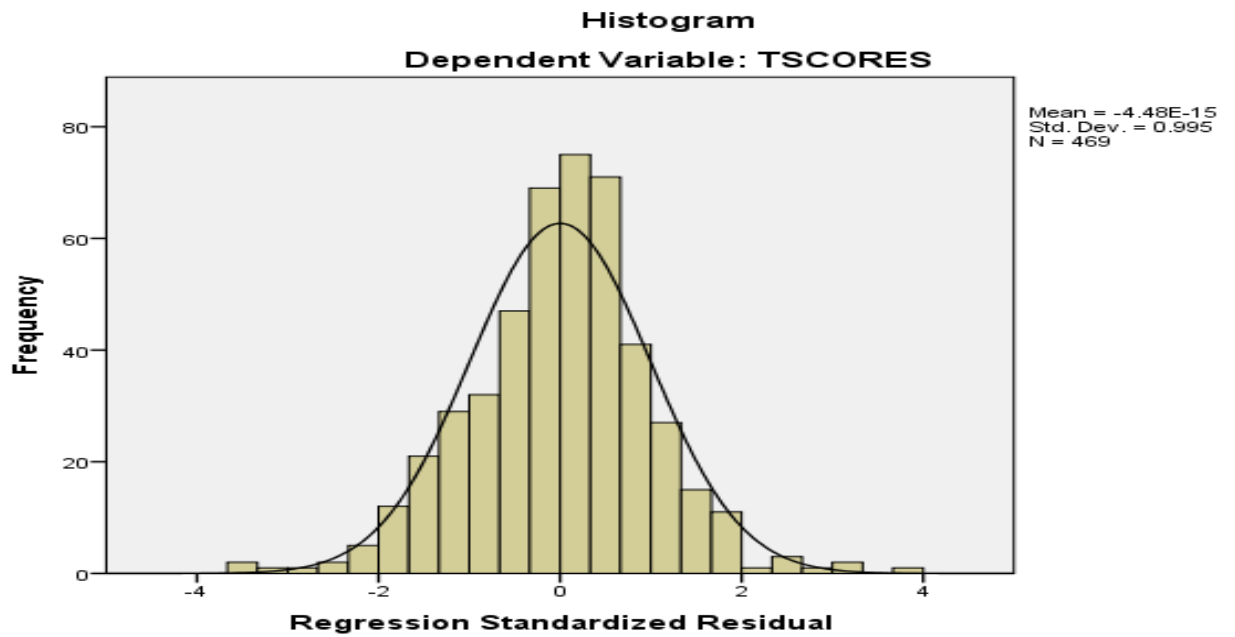
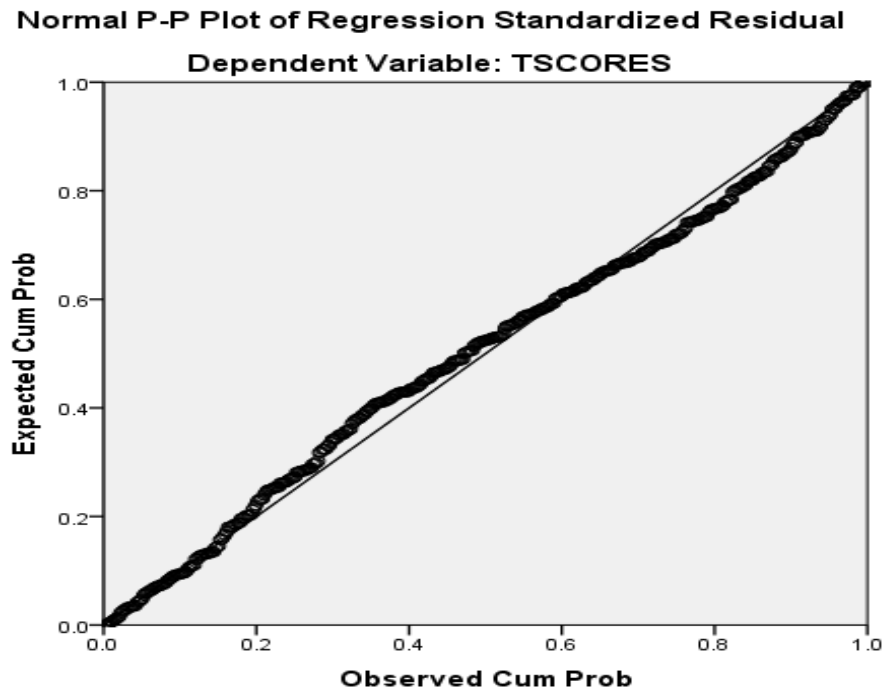


Figure F.2. Histogram for predictors of academic buoyancy model residuals.



*Figure F.3.* Normal P-P plot of regression standardized residual for the predictors of academic buoyancy model

## Appendix I

### Comparison of Migori County with the Neighbouring Counties in KCSE

County	<u>Mean Score</u>				
	2014	2015	2016	2017	2018
Kisumu	4.81	6.00	3.60	3.87	3.95
Kisii	5.38	5.56	3.95	3.42	3.33
Nyamira	4.36	4.78	3.28	3.22	3.32
Homabay	5.60	8.53	6.61	5.20	3.68
Siaya	5.56	5.10	3.34	3.29	3.64
<b>Migori</b>	<b>3.10</b>	<b>4.24</b>	<b>2.10</b>	<b>2.96</b>	<b>3.46</b>

Source Ministry of Education (2019a)

## Appendix J

### Research Permit from NACOSTI

**THIS IS TO CERTIFY THAT:** **Permit No : NACOSTI/P/18/5148/26386**  
**MS. ROSEMARY AKINYI OLENDO** **Date Of Issue : 3rd November, 2018**  
**of KENYATTA UNIVERSITY, 0-40400** **Fee Recieved :Ksh 2000**  
**SUNA, has been permitted to conduct**

**research in Migori County**  
**on the topic: PREDICTORS AND**  
**OUTCOME OF ACADEMIC BUOYANCY**  
**AMONG FORM THREE STUDENTS IN**  
**MIGORI COUNTY, KENYA**

**for the period ending:**  
**30th October, 2019**



.....  
**Applicant's**  
**Signature**

.....  
**Director General**  
**National Commission for Science,**  
**Technology & Innovation**

#### **THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013**

The Grant of Research Licenses is guided by the Science,  
Technology and Innovation (Research Licensing) Regulations, 2014.

#### **CONDITIONS**

- 1. The License is valid for the proposed research, location and specified period.**
- 2. The License and any rights thereunder are non-transferable.**
- 3. The Licensee shall inform the County Governor before commencement of the research.**
- 4. Excavation, filming and collection of specimens are subject to further necessary clearance from relevant Government Agencies.**
- 5. The License does not give authority to transfer research materials.**
- 6. NACOSTI may monitor and evaluate the licensed research project.**
- 7. The Licensee shall submit one hard copy and upload a soft copy of their final report within one year of completion of the research.**
- 8. NACOSTI reserves the right to modify the conditions of the License including cancellation without prior notice.**

**REPUBLIC OF KENYA**



**National Commission for Science,**  
**Technology and Innovation**

**RESEARCH LICENSE**

**National Commission for Science, Technology and Innovation**

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**TEL: 020 400 7000, 0713 788787, 0735 404245**

**Email: dg@nacosti.go.ke, registry@nacosti.go.ke**

**Website: www.nacosti.go.ke**

**Serial No.A 21684**

**CONDITIONS: see back page**

## Appendix K

### Research Authorization from NACOSTI



#### NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,  
2241349.3310571.2219420  
Fax: +254-20-318245.318249  
Email: dg@nacosti.go.ke  
Website : www.nacosti.go.ke  
When replying please quote

NACOSTI, Upper Kabete  
Off Waiyaki Way  
P.O. Box 30623-00100  
NAIROBI-KENYA

Ref. No. **NACOSTI/P/18/5148/26386**

Date: **3<sup>rd</sup> November, 2018**

Rosemary Akinyi Olendo  
Kenyatta University  
P.O Box 43844-00100  
**NAIROBI**

#### **RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Predictors and outcome of academic buoyancy among form three students in Migori County, Kenya”* I am pleased to inform you that you have been authorized to undertake research in **Migori County** for the period ending **30<sup>th</sup> October, 2019**.

You are advised to report to **the County Commissioner and the County Director of Education, Migori County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

  
**BONIFACE WANYAMA**  
**FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Migori County.

The County Director of Education  
Migori County.

## Appendix L

### Research Authorization from Graduate School



KENYATTA UNIVERSITY  
GRADUATE SCHOOL

E-mail: [kubps@yahoo.com](mailto:kubps@yahoo.com)  
[dean-graduate@ku.ac.ke](mailto:dean-graduate@ku.ac.ke)  
Website: [www.ku.ac.ke](http://www.ku.ac.ke)

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

---

Our Ref: E83/27400/14

Date: 16<sup>th</sup> October, 2018

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

Dear Sir/Madam,

**RE: RESEARCH AUTHORIZATION FOR MS.AKINYI R. OLENDU - REG. NO. E83/27400/14**

I write to introduce Ms. Olendo who is a Postgraduate Student of this University. She is registered for a Ph.D. degree programme in the Department of Educational Psychology in the School of Education.

Ms. Olendo intends to conduct research for Ph.D. thesis entitled, “Predictors and Outcomes of Academic Buoyancy among Form Three Students in Migori County, Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Paul Okemo', written over a blue horizontal line.

**PROF. PAUL OKEMO**  
**DEAN, GRADUATE SCHOOL**

RM/cao

## Appendix M

### Research Authorization from CDE Migori



## MINISTRY OF EDUCATION State Department of Early Learning and Basic Education

Telephone: (059) 20420  
Fax: 05920420  
When replying please  
quote

COUNTY DIRECTOR OF EDUCATION  
MIGORI COUNTY  
P.O. Box 466-40400  
SUNA – MIGORI

REF: MIG/CDE/ADMN./73/VOL.I/54

DATE: 12<sup>th</sup> February, 2019

Rosemary Akinyi Olendo  
Kenyatta University  
P.O. Box  
Nairobi

#### RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Predictors and outcome of academic buoyancy among form three students of Migori County” and subsequent approval by NACOSTI vide letter Ref: NACOSTI/P/18/5148/26386. I am pleased to inform you that you have been authorized to undertake research in Migori County for a period ending 30<sup>th</sup> October, 2019.

During the research, you are expected to exercise high levels of research integrity.

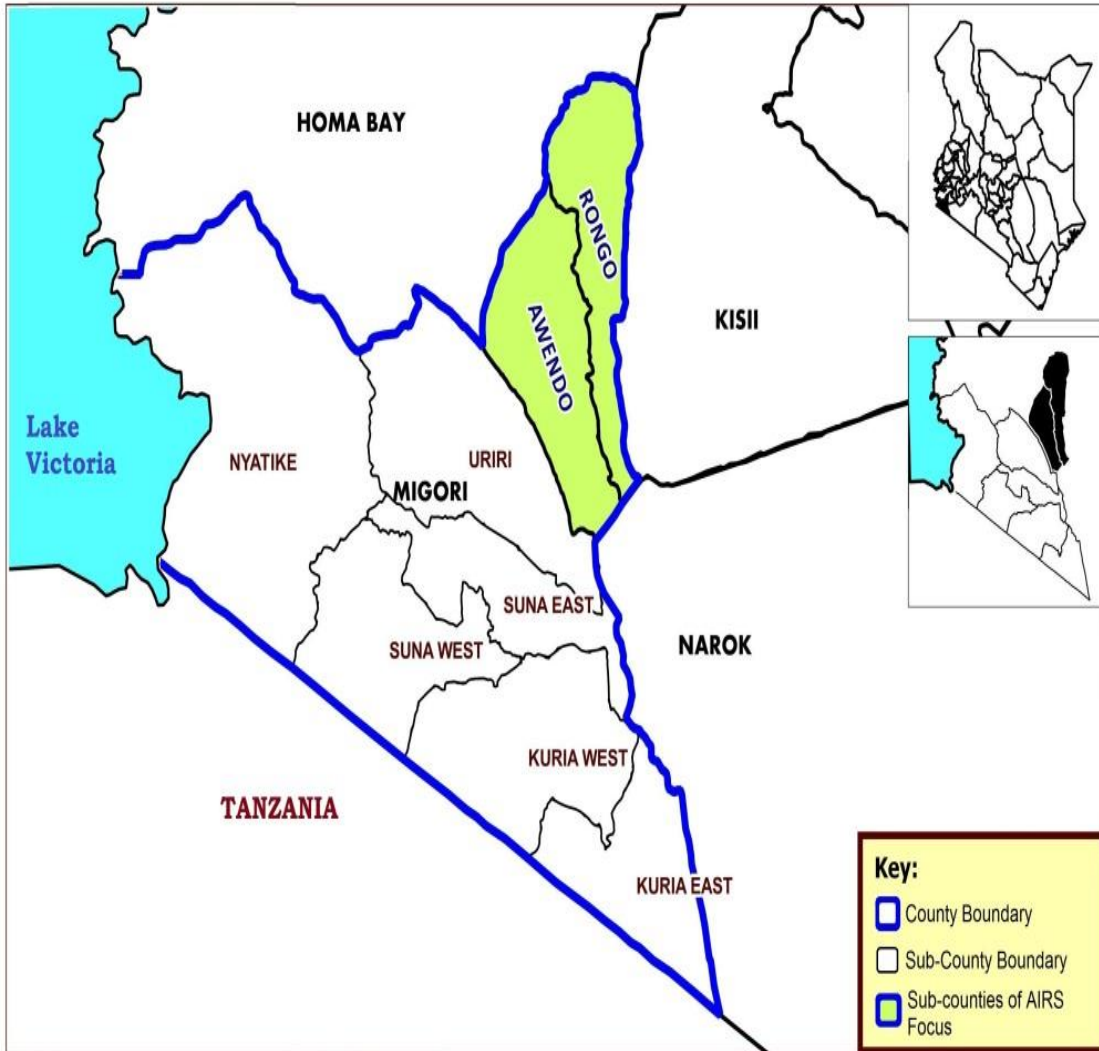
COUNTY DIRECTOR OF EDUCATION  
MIGORI  
P. O. Box 466,  
SUNA - MIGORI.

Elizabeth Otieno (Mrs.)  
County Director of Education  
MIGORI COUNTY

# Appendix N

## Map of Migori County

### PMI AIRS Kenya Project - Areas of Focus in 2016 COUNTY OF MIGORI: Sub-Counties of Awendo & Rongo



SOURCE: [www.ehealth.go.ke](http://www.ehealth.go.ke) (Master Facility List - MFL)

USAID AyaInfo Project (c) 2016