ACADEMIC IDENTITY STATUS AND ACHIEVEMENT GOAL ORIENTATION AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG FORM THREE STUDENTS IN EMBU COUNTY, KENYA

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DECLARATION

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

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ABBREVIATIONS AND ACRONYMS

AGO	Achievement Goal Orientation
AGQ	Achievement Goal Questionnaire
AIM	Academic Identity Measure
AIS	Academic Identity Status
ANOVA	Analysis of Variance
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
EOM EIS II	Extended Objective Measure of Ego-Identity Status II
ERC	Ethics Review Committee
GFI	Goodness of Fit Index
KCSE	Kenya Certificate of Secondary Education
KNEC	Kenya National Examinations Council
MDGs	Millennium Development Goals
NACOSTI	National Commission for Science, Technology and Innovation
NFI	Normed Fit Index
RMSEA	Root Mean Square Error of Approximation
USA	United States of America

ABSTRACT

Over the last three years (2012 to 2014), the candidature for Kenya Certificate of Secondary Education has been increasing but the national pass rate has consistently been low. Low pass rates limit the nation's progress towards attaining the universal goals of education. Although studies have associated low pass rates with risks presented by contextual and psychological factors, there is a dearth of local studies on how students' academic identity and achievement goals predict academic achievement. The purpose of this study was to determine whether academic identity status and achievement goal orientation predict academic achievement among secondary school students in Kenya. Specifically, the relationships among academic identity status, achievement goal orientation, and academic achievement were examined. Sex differences and the prediction equation were also established. Framed upon the identity status theory and the 3 x 2 model of achievement goal orientation, the study adopted an explanatory sequential mixed methods design. The study targeted all year 2015 form three students in Embu County. Purposive, stratified proportionate, and simple random sampling procedures were used. 390 students were selected from 10 public secondary schools in Mbeere South Sub County. Quantitative data were collected through adapted Academic Identity Measure and Achievement Goal Orientation Questionnaire. To crosscheck the quantitative data, interviews were conducted with 40 participants purposively selected from those who filled the questionnaire. Academic achievement was inferred from students' examination grades. A pilot study involving 40 students established and enhanced the psychometric properties of the study instruments. Quantitative data were analysed using Pearson's Product Moment Correlation Coefficient, multiple regression, and independent samples t-test. Qualitative data were analysed thematically. A major finding was that achieved academic identity status was the only academic identity status that correlated positively and significantly with academic achievement (r (383) =.38, $p < .05$). There was a significant positive correlation between approach achievement goal orientation and academic achievement (r (383) = .20, $p < .05$). A significant negative correlation was found between avoidance achievement goal orientation and academic achievement (r (383) = -.15, $p < .05$). Boys had significantly higher scores in foreclosed academic identity status (t (383) = 2.21, $p < .05$) while girls had significantly higher scores in approach achievement goal orientation (t (383) = -.56, $p < .05$). The equation for predicting academic achievement from academic identity status and achievement goal orientation was significant (F (3, 381) = 26.73, $p < .05$). Achieved academic identity status had the highest significant predictive value on academic achievement compared to avoidance and approach achievement goal orientation. In the exploratory analysis, age and school type had significant main effects in the prediction model. A path analysis established that achievement goal orientation mediated the relationship between academic identity status and academic achievement. The study recommended that parents and teachers should create conducive environments for the development of achieved academic identity status and approach goal orientations. Specifically, schools should have interventions to help students attain achieved academic identity status since it is the most facilitative identity in predicting academic achievement.

CHAPTER ONE

INTRODUCTION AND CONTEXT OF THE STUDY

1.1 Introduction

This chapter contextualizes the study. It contains the background to the study, statement of the problem, purpose of the study, and the objectives. The research hypotheses, assumptions, limitations, and delimitations as well as significance of the study are also given. It also outlines theoretical and conceptual frameworks and operational definition of terms.

1.2 Background to the Study

Worldwide, going to school is equated to laying a foundation for contributing to self and society. The typical consideration is that, schooling outcomes, especially examination grades, serve as indicators of students' intellectual ability and academic achievement. Guided by this reasoning, families, teachers, and stakeholders often expect learners to attain good grades from across the school years. The society seems to legitimize competition for good grades by granting students with high grades top priority in training and employment positions. In contrast, students who attain low examination grades enjoy limited training and employment opportunities. The significance of academic grades prompts educational researchers and other stakeholders to take interest in examination performance trends as well as in factors influencing students' academic achievement.

In Kenya, the last five years registered increased candidature in the Kenya Certificate of Secondary Education (KCSE) from 354,341 in 2010 to 482,133 in 2014. The number of male candidates increased from 196,208 to 258,896 while females increased from 158,133 to 223,237. The percentage of candidates scoring C+ increased from 27.4 % to 31.1% over the same period. In addition, the proportion of female candidates scoring C+ and above improved from 38% to 41% relative to their male counterparts. Worryingly, the above pass rates are still low. Apparently, majority of the KCSE candidates posted lower grades. Over 68 % of the candidates scored between C and D, the qualification for middle level colleges (Ministry of Education Science and Technology, 2014).

The KCSE pass rates for years 2012 to 2014 further revealed consistent county-specific disparities (Kenya National Examinations Council, KNEC, 2014; 2015). Embu County is among the counties that had outstanding contrasts in KCSE performance for the years 2012 to 2014. Over the three years, the county had an average pass rate of approximately 38 per cent. The county also maintained a top 10 position out of the 47 counties in Kenya. Relative to the national pass rate over the same period, which averaged at 28 per cent, the county maintained a good performance. However, the pass rates of the sub counties in Embu County had sharp contrasts. For example, although the mean pass rate for the other four sub counties were above 30 percent, Mbeere South Sub County over that period was approximately 27 per cent (See Appendix J, Table J.1).

The relatively low pass rates in some parts of Embu County have been linked to the risks presented by home and school contexts like: low parental involvement, drug abuse, and students' involvement in Miraa business (Gatumu, Njue, & Chandi, 2012; Kabangi, 2008; Ngeranwa, 2013). Kabangi (2008) reported that students involved in Miraa trade were quite popular among their peers and that such students held a relatively low value for education. Although Kabangi's study suggested that the identified risks may be linked to distinct student characteristics, studies in Embu County have not focused on how identity processes relate to students' academic achievement. Despite the many contextual risks identified as influencing academic achievement in the county, low pass rates in national examinations persist. This implies the need to focus on other factors that may explain academic achievement.

In attempts to understand the causes of the persistent disparities and low pass rates in Embu County, this study was based on the conviction that personal processes influence students' lives in and out of school. The study envisaged that students' sense of who they are in school and their aims for pursuing school tasks predicted their academic achievement. In addition, the focus of the study was persuaded by the assertion by Kaplan and Flum (2010) that data on personal processes constitutes the sort of evidence required by stakeholders when guiding students to attain higher scores in public examinations. Such evidence may be what educators and stakeholders in Embu County need to focus on in the implementation of its policy on education (Republic of Kenya, 2013).

Locally, studies on factors that influence secondary school students' academic achievement have adapted three paradigms. One group of studies views academic achievement as an outcome of contextual factors at home and school (Gatumu et al. 2012; Nyagosia, 2011). A second group of studies examines how academic achievement is influenced by personal factors like self-handicapping, academic motivation, and self-esteem (Mutweleli, 2014; Okoko, 2012; Wawire, 2010). A third set of studies reports how academic achievement is determined by an interaction of contextual and personal factors (Kwena, 2007; Ongowo & Hungi, 2014). Evidence from these approaches indicates that various factors influence academic achievement and efforts to improve students' performance should be informed by such factors.

Aligned with the view that personal factors interact to influence academic achievement, this study viewed academic identity status and achievement goal orientation as predictors of academic achievement. Was and Isaacson (2008) define academic identity status as one's view of oneself in school. Based on Marcia's (1993) identity status paradigm, Was and Isaacson (2008) explained four academic identity statuses: diffused, foreclosed, moratorium, and achieved identity statuses. The statuses are inferred from students' academic behaviour, choices, value for academic work, and source of direction. Studies done among students in America, Europe, and Asia indicate that academic identity status predicts academic achievement (Fearon, 2012; Hejazi, Lavasani, Amani, & Was, 2012; Jelenic, 2013). Unfortunately, there is a dearth of studies on academic identity status among secondary school students in Africa.

Elliot, Murayama, and Pekrun, (2011) define achievement goal orientations as the aims that students have for engaging in academic tasks and for their performance. The goals motivate students to either seek competence or avoid incompetence. Seeking competence in school tasks constitutes an approach achievement goal orientation while avoiding incompetence constitutes an avoidance achievement goal orientation. Some studies reveal that students' goals explain their academic achievement, behaviours, and sex differences in school (Dekker et al., 2013; Hejazi et al., 2012). In addition, competitive societies are suspected to push students to pursue some goals more than others (Chen & Wong, 2014; Tran, 2014). However, non-college students especially in non-developed countries are underrepresented in available studies on how achievement goal orientations work with academic identity status to predict academic achievement.

The available studies on how academic identity status and achievement goal orientation influence academic achievement have largely ignored two things: First, students from non-developed countries may have educational experiences that contrast those of their counterparts in developed countries. For example, the highly competitive nature of most educational systems in Africa may present conditions of uncertainty about future opportunities. Such a crisis may influence students' views of their ability to succeed and their reasons for being in school. Second, high school students' identity processes may differ from those of college students. This study addressed these gaps by investigating how academic identity status and achievement goal orientation predict academic achievement among form three students in Embu County, Kenya.

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1.3 Statement of the Problem

Between 2012 and 2014, KCSE candidature consistently increased but the national pass rate was consistently low. The same pattern existed in the counties. In Embu County, although the overall KCSE pass rate over that period was above the national average, Mbeere South Sub County's pass rate was below the county and national averages. Studies within the county link contextual factors to these disparities with little focus on personal factors. Lack of evidence of how personal factors influence academic achievement may imply that interventions to address disparities and low pass rates in the county may not be learner-centred. If not effectively addressed, consistent low KCSE pass rates within the county will continue to limit students' opportunities for higher education and employment. In addition, persistent low pass rates may lead to dissatisfaction with school, low value for education, and a cycle of poor educational attainment. This may eventually lead to poor socioeconomic development in the county and the nation. Such negative outcomes call for efforts to understand more variables that influence academic achievement.

Studies reported in the foregoing background outline various psychological constructs that should be considered when helping students to attain higher grades in national examinations. However, poor performance in KCSE persists. This implies the need to find out other variables that may explain student's academic achievement. There is evidence that academic identity status and achievement goal orientation are significant predictors of academic achievement (Fearon, 2012; Hejazi et al., 2012; Was, Al-

harthy, Stack-oden, & Isaacson, 2009). However, the evidence is from studies that mainly involved students in developed countries. The studies have also not established which of the two constructs predicts academic achievement better. In addition, there is little focus on how the two constructs predict academic achievement among secondary school students in African educational contexts. Lack of local data on these variables presents the risk of not fostering the most adaptive academic identity status and achievement goal orientation in efforts aimed at improving students' performance. The central problem of this study was to establish how academic identity status and achievement goal orientation predict academic achievement among form three students in Embu County, Kenya.

1.4 Purpose of the Study

The purpose of this study was to establish whether academic identity status and achievement goal orientation predicted the academic achievement of form three students in Embu County, Kenya. The obtained information may guide efforts geared at helping students to adopt the most adaptive academic identity status and achievement goal orientation. The study also tested if there were significant sex differences in students' academic identity status and achievement goal orientation. This may inform interventions aimed at reducing disparities in the academic achievement of boys and girls.

1.5 Objectives of the Study

The study was guided by the following objectives:

i. To establish the relationship between academic identity status and academic achievement.

ii. To find out the relationship between achievement goal orientation and academic achievement.

iii. To find out sex differences in students' academic identity status and achievement goal orientation.

iv. To establish the predictive value of academic identity status and achievement goal orientation in determining students' academic achievement.

1.6 Research Hypotheses

The study explored following hypotheses:

H_{a1}: There is a significant relationship between academic identity status and academic achievement.

H_{a2}: There is a significant relationship between achievement goal orientation and academic achievement.

H_{a3}: There are significant sex differences among students' academic identity status and achievement goal orientation.

H_{a4}: Academic identity status and achievement goal orientation have a significant predictive value in determining students' academic achievement.

1.7 Assumptions of the Study

In this study, it was assumed that the participants had already developed different academic identities and had specific achievement goal orientations. It was also assumed that the learners gave honest responses on the questionnaire items and during the interview. The final assumption was that the schools selected for the study provided the same context for the development of academic identity status and achievement goal orientation. This assumption was based on the fact that the selected schools followed the Kenyan national curriculum for secondary schools, were within the same sub county and were all public secondary schools.

1.8 Limitations of the Study

A key limitation of the present study was that it only involved form three students in public secondary schools in one sub county within Embu County. This may limit the generalizability of the findings owing to regional differences within the Kenyan society. Students' academic identity status and achievement goal orientations may vary with contextual and economic factors across geographical areas.

Another limitation was that data collection mainly relied on students' self-reports making it difficult to rule out a degree of subjectivity in the findings. In addition, the data in the present study were correlational; therefore, causal inferences about academic identity status, achievement goal orientations, and students' academic

achievement could not be made regardless of the conceptual framework and the effects implied by the path analysis.

A final limitation of the study was that students' scores in termly exams were used as indicators of outcome variable, academic achievement. Although validated in studies among secondary school students in Kenya as a representative indicator of academic achievement (Mutweleli, 2014; Wawire, 2010), scores in school-based examinations may still yield an unstandardized measurement of students' academic achievement due to variability in tests' content and scoring procedures across schools.

1.9 Delimitations of the Study

Interpretation of the results was only based on data collected among form three students in 10 public secondary schools in Mbeere South Sub County of Embu County. In addition, out of the many predictors of academic achievement, the study only investigated academic identity status and achievement goal orientation. The study investigated neither the determinants nor the development of academic identity status and achievement goal orientation over time. In addition, academic achievement scores were converted to standard scores to enhance comparability across schools. In the interview phase of the study, only those participants who had attained high scores in the questionnaire sub scales were involved.

1.10 Significance of the Study

The study adds to literature on how academic identity status and achievement goal orientation predict academic achievement among students in Kenya. Prior to the present study, many studies on achievement goal orientations had been conducted with participants in America. The few available studies on students in other regions largely concentrated on Asian samples. Very few of the previous studies had involved secondary school students. Studies on the academic identity status of secondary school students in African educational set ups were not readily available.

The findings may inform educational stakeholders on how academic identity status and achievement goal orientation relate to academic achievement. The results may inform interventions aimed at helping students to adopt the most facilitative academic identity status and achievement goal orientation. In addition, the study findings may inform trainers of teachers on how school experiences can be structured to address sex differences in the two constructs among secondary school students. Teachers and parents may use the findings as they structure home and school environments to influence the most adaptive academic identity status and achievement goal orientation. It is hoped that educators and researchers may capitalize on the study results to develop instructional methods that are effective in improving students' acquisition of achieved academic identity status and approach achievement goal orientation.

The study findings may also provide new empirical evidence that may refine the theoretical underpinning of academic identity and achievement goal orientation research. The findings suggest that academic identity status and achievement goal orientation can serve as a shared base for predicting students' academic achievement. The results may enrich the academic identity statuses and achievement goal orientation models by offering new empirical data from a different cultural context. In addition, these results showed that the academic achievement of form three students in Embu County may be sensitive to differences in achievement goal orientations along the approach versus avoidance dimension. This offers evidence on the relevance of operationalizing achievement goal orientations along these dimensions. The findings further imply that it is empirically reasonable to bifurcate the 3 x 2 achievement goal orientation model into the two trajectories. This may inform future cross-cultural operationalization of approach and avoidance achievement goal orientations.

1.11 Theoretical Framework

The study was grounded on two theoretical models: Identity Status Theory (Marcia, 1966) and the 3 x 2 Model of achievement goal orientation (Elliot et al., 2011) .

1.11.1 Identity Status Theory (Marcia, 1966)

Research on how identity processes affect academic achievement is framed upon different traditions that stem from Erikson's' work on ego identity (Erikson, 1959). Of these, James Marcia's (1966, 1993) identity status theory is quite popular. Marcia views identity as a self-constructed, active coordination of motivations, aptitudes, and

convictions attached to a specific personal history. The theory explains identity development in terms of the dual processes of self-exploration and commitment.

According to Marcia (1993) exploration is a problem-solving behavior that involves considering information about oneself or environment so as to facilitate important life-choice decisions among alternatives. On the other hand, commitment represents the adoption of identifiable goals, values, and beliefs (Marcia, 1993) and following through on one's decision. According to Marcia, when one adopts specific goals, one gradually develops a sense of purpose and permanence. This is what essentially assigns one an identity.

Marcia identified four identity statuses or styles by means of which adolescents navigate through identity-defining roles and values. The identity statuses are determined by the extent to which one has explored and committed to an identity. These are diffused, foreclosed, moratorium, and achieved identity statuses. Diffused status is characterised low exploration and low commitment. Diffused individuals are unmotivated, rarely make decisions and are highly affected by situational variances (Kroger, Martinussen, & Marcia, 2010). Foreclosed status is characterized by low exploration and high commitment. Foreclosed individuals commit to a set of goals or values prescribed by other people without questioning. Moratorium status is characterized by high exploration with low commitment. Individuals in this status critically assess alternatives related to significant life choices. This status is stressful to individuals. Achieved status is characterized by high exploration and high

commitment. In this status, identity development has been accomplished (Marcia, 2001). The status is associated with unbiased thinking, effective decision-making and interpersonal relationships (Kroger et al., 2010).

The theory has been used to explain different aspects of identity development. In applying the identity status theory in academic contexts, Was and Isaacson (2008) developed the academic identity status model. The model explains academic identity status as one's view of oneself determined by choices and commitment regarding one's roles, values, or goals in academic settings. The model operationalizes four academic identity statuses measured through Academic Identity Measure (AIM). The four academic identity statuses are prototypes of Marcia's identity statuses. These are: diffused, foreclosed, moratorium, and achieved academic identity statuses. These statuses offer a categorical approach to the study of adolescents' identity in school.

Diffused academic identity is characterised by a failure to make academic values-related decisions. Students in this status demonstrate little educational involvement, disorganization, low self-esteem and low autonomy. Such a student has apathy, disinterest, weak commitment to school tasks and is least prepared to achieve academically (Was & Isaacson, 2008). Students in foreclosed status unquestioningly adapt academic values and goals prescribed by significant others. Such students seek approval from parents, teachers, and friends. In school, they have a rigid and inflexible commitment driven by the need to demonstrate ability to fulfil the prescribed tasks. Such students have difficulties solving problems under stress (Hejazi et al., 2012).

Moratorium academic identity is defined as a time of indecision and exploration when a student experiences academic uncertainty and is yet to commit to values and goals (Was & Isaacson, 2008). Such students have weak commitment to school tasks, are anxious, and unsatisfied with school. They are also likely to temporarily reject parental and school values. On the other hand, achieved academic identity is the healthy conclusion to the academic identity crisis. Students reach this status after exploring the options and making a strong self-chosen commitment to a set of academic values and goals. This status is the peak of identity development (Kroger et al., 2010). Students in this status have high self-esteem. They are more introspective, planful, and logical in decision-making. Such students also work effectively under stress (Was et al., 2009).

The model holds that academic identity statuses explain students' academic achievement (Was & Isaacson, 2008). In studies among college and high school students, achieved academic identity status is the most adaptive as it consistently correlates positively with academic achievement. The other identity statuses correlate negatively (Fearon, 2012; Was et al., 2009). Among younger students, diffused and moratorium academic identity statuses are reported to correlate positively with academic achievement (Jelenic, 2013). Studies based on the model do not report significant differences in the academic identity statuses of boys and girls. In addition, the academic identity statuses are linked to other identity process variables including self-determination (Yailagh, Abbasi, Behrozi, Alipour, & Yakhchali, 2014); and achievement goals (Hejazi et al., 2012) that relate to academic outcomes.

The following statement summarizes the underlying logic for selecting this model for the current study. If academic identity status influences academic outcomes and if goals are contents of identity status, then the model suggests links among academic identity status, achievement goal orientation, and academic achievement as conceptualized in this study. This study may enrich the model by offering empirical data on academic identity statuses of students in Kenya. The Kenyan cultural context is very different from the one in which the academic identity statuses model was developed. However, although the model emphasizes the critical role of goals in identity development, it does not show how specific goals relate to academic outcomes. This necessitated the inclusion of a second theoretical model in the study.

1.11.2 The 3 x 2 Model of Achievement Goal Orientation (Elliot et al., 2011)

The focus on how achievement goal orientations predict academic achievement was based on the 3 x 2 model of achievement goal orientation (Elliot et al., 2011). This model conceptualizes achievement goal orientations as a set of beliefs that reflect the reasons why a person approaches and engages in academic and learning tasks. According to Elliot et al. (2011), achievement goals and their underlying reasons form a complex that represents two distinct pathways through which the need for achievement and fear of failure relate to learning outcomes. In this model, six types of goals are measured using the 3 x 2 Achievement Goal Questionnaire (AGQ). The goals are defined based on each of the three standards used in competence evaluation: task, self, and other. They are also defined based on approach versus avoidance

distinction. The goals are juxtaposed as: task-approach versus task-avoidance; self-approach versus self-avoidance; and other-approach versus other-avoidance (Elliot et al., 2011). To suit the current study, all approach-oriented and avoidance-oriented goals in the AGQ were collapsed into two distinct types: approach achievement goal orientation- the focus on attaining competence and avoidance achievement goal orientation- the focus on avoiding incompetence.

The model proposes that the type of goals that a student adopts offers a certain orientation to learning and achievement which is instrumental in motivating learning behaviours. Approach goals have been described as having activating characteristics like positive affect and directing focus to a task. Approach goals also have a facilitative effect on students' deeper processing of information and conceptual change (Johnson & Sinatra, 2014).

According to Elliot, Eder, and Harmon-Jones (2013), avoidance goals are perceived as having deactivating characteristics like negative moods, and distraction from a task. An avoidance orientation focuses a student's attention on not being the worst or on avoiding losing ability. The orientation leads students to be cautious and resistant to engaging fully in the learning task. It lowers the speed or degree to which students understand the learning content hence lower academic achievement. A number of studies report that while approach achievement goal orientation correlate positively with academic achievement, avoidance achievement goal orientation correlate negatively (Hejazi et al., 2012; Steinmayr & Spinath, 2009; Van Yperen, Blaga, &

Postmes, 2014). Therefore, students with approach achievement goal orientation may be expected to attain better scores that those with avoidance goal orientation.

In relation to the current study, the model focuses on both inter-person and intra-person interpretation of academic ability. It suggests that approach goals are more adaptive than avoidance goals in achievement set-ups. If the model significantly predicts students' academic achievement and behavioural patterns relevant to identity development (Elliot et al., 2011); then it is suitable for investigating how achievement goal orientation and academic identity status predict academic achievement as conceptualized in this study.

1.12 Conceptual Framework

As shown in Figure 1.1 academic identity status and achievement goal orientation were the predictor variables while academic achievement was the outcome variable in the study. Academic achievement was hypothesized to be influenced by the four academic identity status components as well as by the two types of achievement goal orientation. Achieved academic identity status and approach achievement goal orientation were expected to have positive correlations with academic achievement. The other academic identity statuses and avoidance achievement goal orientation were expected to have negative correlations with academic achievement.

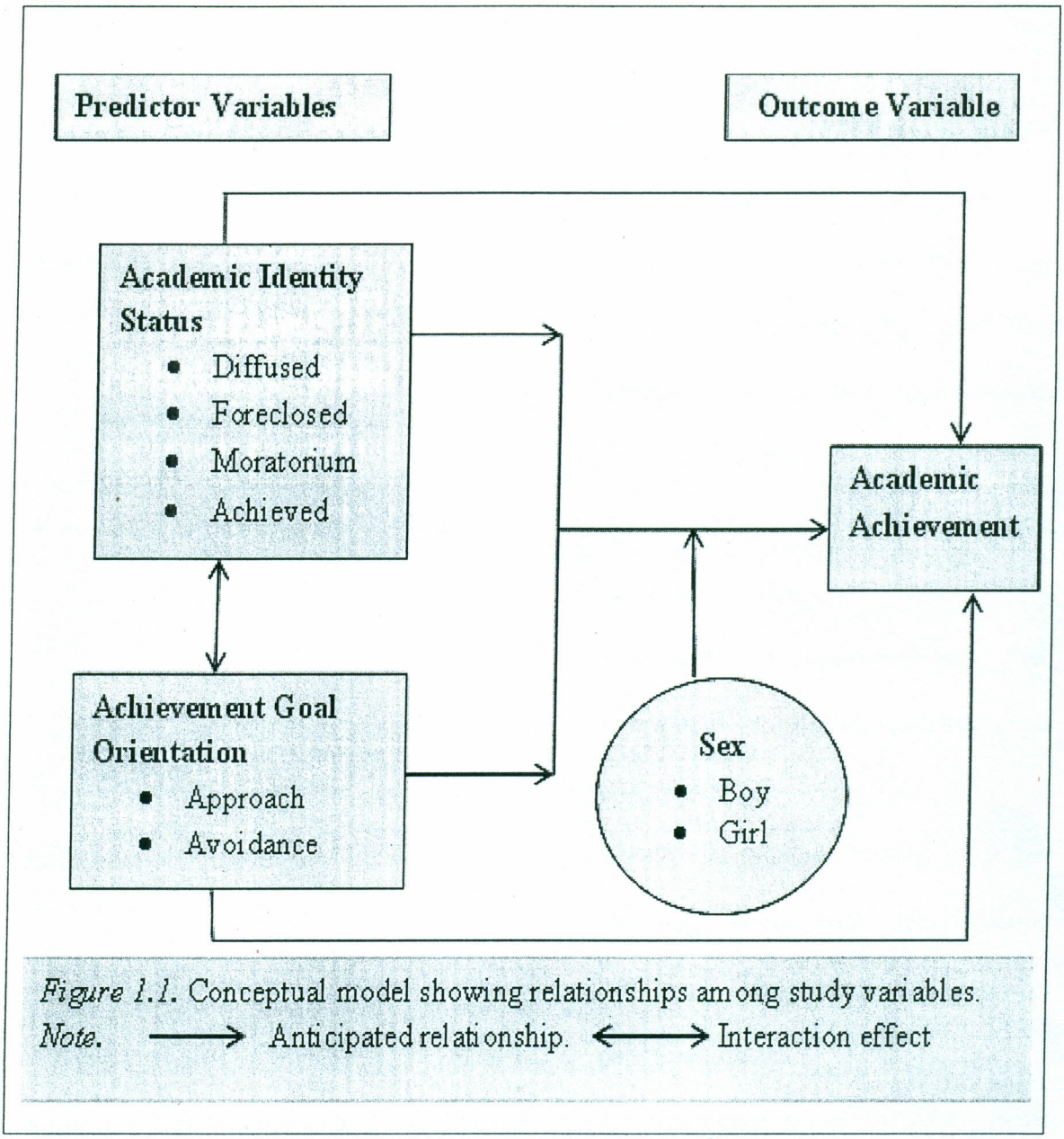


Figure 1.1. Conceptual model showing relationships among study variables.
Note. ⟶ Anticipated relationship. ⟷ Interaction effect

Students' academic identity status was hypothesized to interact with achievement goal orientation in determining academic achievement. A student who had achieved academic identity status and approach achievement goal orientation was expected to be a high achiever. Sex differences in academic identity status and achievement goal orientation were also hypothesized.

1.13 Operational Definition of Terms

Academic Achievement	Mean score in form three mid and end of term one year 2015 examinations.
Academic Identity Status	Student's sense of who they are in school as reflected by how they interpret and react to school outcomes as well as by their choices in school.
Achieved Academic Identity Status	An aggregate score in AIM items indicating that a student had considered alternatives and then committed to a set of academic goals and values.
Achievement Goal Orientation	Whether a student focuses on either attaining competence or avoiding displaying incompetence in school examinations.
Approach Achievement Goal Orientation	An aggregate score in AGQ items indicating a student's focus on attainment of competence.
Avoidance Achievement Goal Orientation	An aggregate score in AGQ items indicating a student's focus on the avoidance of incompetence.

Diffused Academic Identity Status	An aggregate score in AIM items indicating a student who had not considered alternatives nor committed to any academic values.
Foreclosed Academic Identity Status	An aggregate score in AIM items indicating a student who had committed to academic values and ideals inspired by significant others.
Moratorium Academic Identity Status	An aggregate score in AIM items reflecting a student who was undecided and who was considering different academic values and goals.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this chapter, literature on how academic achievement is associated with academic identity status and achievement goal orientation was reviewed. In addition, studies on sex differences in students' academic identity status and achievement goal orientation were reviewed. A review of studies on how academic identity status and achievement goal orientations predict academic achievement was also done. The chapter ends with a summary of the literature review and gap identification.

2.2 Relationship between Academic Identity Status and Academic Achievement

The relationship between academic identity status and academic achievement has received relatively less research attention. However, available studies indicate that academic identity status components relate differently with academic achievement.

While developing the AIM, Was and Isaacson (2008) conducted a study among 421 first and second year undergraduate students at a Midwestern university in the USA. The participants' average age was 16 years. The study assessed the predictive validity of AIM by investigated the relationship between the academic identity statuses and final scores obtained in on an introductory Educational Psychology course. The final score was calculated as the sum of 12 exams and 12 quizzes administered throughout the semester. The study found that only the AIM achieved academic identity status

was positively correlated with student's grades implying that the higher the student scored on the AIM achievement status, the higher the grade received in the course. All the other sub scales of the AIM negatively correlated with course grade. However, the study only relied on students' scores on the AIM to measure their academic identity status.

Some studies have investigated the relationship between academic identity status as measured by AIM and academic achievement among high school students. One such study was conducted by Hejazi et al. (2012) among 301 first year Iranian high school students with an average age of 15 years. In their study, Hejazi and colleagues measured academic identity status using the AIM and used the average of 10 exam scores as the academic achievement index. Their results indicated that diffused academic identity had a significant negative correlation with academic achievement while achieved academic identity had a significant positive correlation. The other sub scales had insignificant negative correlation with academic achievement. Hejazi et al. (2012) argued that their sample had just entered high school and therefore may not have committed to the school settings and to some academic identity statuses in the new context. To address this concern, the current study involved only students who had been in the secondary school in Kenya context for at least three years and so they were expected to have committed to academic identities.

Notably, the AIM was developed in North America and it was normed with a sample of American college students. Was and Isaacson (2008) emphasized the need to

conduct further research exploring the application of the AIM among students in Non-American contexts. The validity of the AIM as used to study secondary school students in African contexts remains underexplored. Of methodological concern is whether the AIM academic identity statuses, as validated upon university and secondary school students in America and Asia, may be used to categorize students in African educational contexts. It also remains unclear whether academic identity status as measured through the AIM, can reliably predict the academic achievement of secondary school students. These challenges were addressed in the current study by investigating academic identity statuses as measured by the AIM among a sample of Kenyan secondary school students.

The relationship between identity status and academic achievement is also reported in studies involving younger students. Jelenic (2013) investigated the relationship between academic identity status and academic achievement among 78 elementary school students aged 10-13 years in the USA. In the study, identity status was measured using the Objective Measure of Ego-Identity Status II (EOM EIS II) (Adams, Bennion, & Huh, 1989). Academic achievement was indexed from average grades in Maths and English. The study found diffused academic identity status to be correlated with higher average grades. Further, a positive relationship was reported between moratorium identity status and academic achievement. However, EOM EIS II provides a global measure of identity (Was & Isaacson, 2008) and its results may not reflect academic identity status. In addition, Schwartz, Adamson, Ferrer-Wreder,

Dillon, and Berman (2006) give evidence of cross-cultural variation of measurement structure and mean levels of identity statuses as measured by EOM EIS II.

No study was readily available on the influence of academic identity status on academic achievement among students in Kenya, its importance was inferred from studies that on academic self-concept and academic achievement. A study by Mucherah, Dixon, Hartley, and Hardin (2010), explored the relationship between self-concept and academic performance among 1990 students in two boarding schools in Kenya, with an age range of 14-18 years. Their results indicated that academic self-concept, as well as all other types of self-concept, significantly related to students' academic performance. However, academic self-concept is only suggestive of who students deem themselves to be at school, and therefore cannot give actual data on how academic identity status relates with students' academic achievement. This was a gap addressed in the current study.

A step not taken in the reviewed studies was to investigate academic identity status among secondary school students in African educational contexts. This study was designed to empirically investigate how academic identity status as measured by AIM related with academic achievement among secondary school students in Kenya.

2.3 Relationship between Achievement Goal Orientation and Academic Achievement

Majority of the existing studies on the relationship between self-reported achievement goal orientation and academic achievement have been conducted among college and high school students. In testing the 3x2 model of academic achievement goal orientations, Elliot et al. (2011) involved 319 (206 male; 113 female) undergraduate students in the USA. AGQ-measured achievement goal orientation was correlated with academic achievement as measured through a performance index based on participants' scores on three exams. Their study found academic achievement to relate significantly and positively with approach achievement goals; and negatively with avoidance achievement goals. However, the 3 x2 model was tested only using university students in USA. The current study evaluated how achievement goal orientation as conceptualized under the 3x2 model related with academic achievement among secondary school students in Kenya.

A study by Abd-El-Fattah and Patrick (2011) explored the relationship between achievement goal orientation and the academic achievement of 503 Australian secondary school students aged 14-16 years. In the study, AGQ measured achievement goal orientations while academic achievement was inferred from scores obtained by students in three subjects in mid-term exams. The results indicate significant positive correlations for approach goals and negative correlations for avoidance achievement goals with academic achievement. There was a dearth of such

studies among secondary school students in African educational setups, hence the need for the current study.

Recently, Van Yperen, Blaga, and Postmes, (2014) conducted a meta-analysis of self-reported achievement goal orientation and non-self-report performance in work, sports, and education achievement domains. Their results generally suggest that in education, approach goals associated positively with performance attainment while avoidance goals associated negatively with performance attainment. The authors recommend the use of multiple ways of data collection and sources of information to broaden the understanding of the relationship between achievement goal orientation and achievement outcomes, an aspect of the current study.

2.4 Sex Differences in Academic Identity Status and Achievement Goal Orientation

Sex differences in academic achievement are attributed to differences in motivation for learning. A factor that may contribute to sex differences in achievement motivation is a difference in students' academic identity status and achievement goal orientation. Studies on sex differences in these constructs present inconclusive and inconsistent results.

2.4.1 Sex Differences in Academic Identity Status

Sex differences in identity development have been a focus of research for many decades. According to Marcia (1993) although there are no sex differences in identity

development, boys and girls differ in content and field of identity. Majority of the studies based on Marcia's theory of identity status do no report significant differences in the identity statuses of boys and girls.

A study by Yunus, Malik, and Zakaria (2012) examined the identity status of 118 Malaysian university students aged 17-20 years. One of the objectives of the study tested whether there were statistically significant sex differences in the students' identity status. The scores of four identity statuses as measured through the EOM EIS II(Adams et al., 1989) were compared. Their results revealed that girls scored higher than boys on identity moratorium and foreclosure statuses. Boys scored higher than girls in identity diffusion. No statistically significant difference was found in the identity status scores of boys and girls.

An earlier study by Yunus, Kamal, Jusoff, and Zakaria, (2010) had investigated gender differences in the identity status of 100 students (54 females; 46 males) enrolled in a preparatory course in a public university in Malaysia. The mean age of the participants was 18.7 years. Identity status was measured using EOM EIS II. The study results indicated that there were more females than males in the foreclosed and moratorium identity statuses. On the other hand, the were more males than females in diffused and achieved identity statuses. However, the studies by Yunus and colleagues raise three methodological issues. First, the two studies had inconsistent results. This could be because they relied on EOM EIS II, a global measure of identity status, which may not actually reveal the specific academic identity status of a student. Second, the

samples comprised of more females than males and the disproportionate composition may have influenced the reported differences. Third, the generizability of the results is limited by the fact the study only involved college students in Malaysia. The current study addressed the above concerns by investigating sex differences in academic identity status as measured by AIM among secondary school students in Embu County in Kenya. This study had a more balanced distribution of participants by sex and it involved using the AIM to measure academic identity status, a specific aspect of students' identity.

In Iran, Hejazi et al. (2012) explored sex differences in the academic identity status as measured by AIM among high school students. Their results show that boys had higher scores in the diffused and foreclosed academic identity statuses. Girls had higher scores in moratorium academic identity status and in mastery-avoidance goal orientation. The authors attributed the difference to the fact that in the Iranian social context, girls attached high importance to education as a passage to social life. Consequently, they feared failure and worried about it. Since in Kenya academic success also grants boys and girls a passage to good life, there was a need to evaluate sex differences in the constructs among secondary school students.

2.4.2 Sex Differences in Achievement Goal Orientation

Sex differences in students' achievement goal orientations are evident in studies using the AGQ or other measures. A study by Fouladchang, Marzooghi, and Shemshiri (2009) investigated the effect of gender and grade level differences on achievement

goal orientations. The sample comprised of 302 Iranian undergraduate students (154 first graders and 148 last graders) 64 percent of whom were females and 36 percent males. The mean age was 20.78 years (*SD* = 1.58). Achievement goal orientation was measured using an earlier version of the AGQ (Elliot & Church, 1997). In the study, male students reported statistically higher mean than females on the performance approach goal orientation. No significant sex differences were reported in the other orientations. However, the study used a sample that was disproportionate in terms of sex and grade level. These results contrast those reported in the study by Hejazi et al. (2012) regarding sex differences in the achievement goal orientation of Iranian high school students whose average age was 15. 17 years (*SD* = 0.68). Hejazi et al. measured achievement goal orientation using the revised version of AGQ (Elliot & McGregor, 2001). The study found high school girls to have had significantly higher scores in mastery-avoidance goal orientation than boys. No significant sex differences were reported in the other orientations.

The studies among Iranian students raise three important methodological issues. First, even when students are from the same social cultural backgrounds, achievement goal orientation of university and high school students are likely to be different. Second, the study by Fouladchang et al. (2009) used a sample that was disproportionate in terms of sex and grade level. These variations could have introduced the reported differences, yet study did not evaluate the differences using techniques that account for latent variables. Second, the two studies used earlier versions of AGQ, which may have limited their operationalization of achievement goals. The current study addressed the

concerns by using path analysis to complement the analysis of sex differences. In addition, the study used a more proportionate sample in terms of sex that comprised of form three students only. In addition, this study used the 3 x 2 model of achievement goal orientation that offers a broader base for operationalizing the construct.

Recently, Dekker et al. (2013) studied sex differences in the goal orientations of adolescents aged 10-19. The sample comprised of 910 students in primary and secondary schools in Netherlands. The study employed short characterizations, or vignettes, of different achievement goal orientations among the students. The vignettes contrasted mastery versus work avoidant goals and performance avoidant versus approach goals. The participants had to select the vignette that best reflected the goals they mainly endorsed for all academic activities. The study hypothesized that boys were more likely than girls to endorse work avoidant goals but less likely to endorse mastery goals. The study found that performance approach and work avoidant goals were endorsed more by boys than girls. In contrast, girls endorsed avoidance goals more often than boys did. The researchers highlighted a need to explain sex differences in achievement goal orientations using mixed approaches, an aspect of this study.

Local studies in achievement motivation have not directly investigated academic identity status and achievement goal orientations. However, studies on variables related to the two constructs reveal appreciable sex differences among Kenyan secondary school students. For example, Mutweleli (2014) investigated how academic motivation and self-regulation predict academic achievement among 938 form three

students in Nairobi County. The study found that boys tended to be more self-regulated than girls. On the other hand, girls sought assistance in learning tasks more than boys. Since self-regulation is a content of both identity status and achievement goal orientation, it is likely that sex differences exist in the two constructs. An objective of this study was to evaluate sex differences in academic identity status and achievement goal orientation of secondary school students in Embu County in Kenya.

Majority of the reviewed studies have investigated academic identity status and achievement goal orientation using Likert scale measures only. Relying on such measures alone is said not to counter the sex bias introduced by some items. This may explain the inconsistencies in the sex differences among the variables (Muis & Winne, 2012). This study examined sex differences in academic identity status and achievement goal orientation using both quantitative and qualitative data.

2.5 Academic Identity Status and Achievement Goal Orientation as Predictors of Academic Achievement

Scant literature is available on the predictive value of academic identity status and achievement goal orientation on students' academic achievement. Available studies have mainly focused on how the components of the two constructs interact. Only a few studies have looked at how the two constructs jointly predict academic outcomes.

A study by Was et al. (2009) investigated the interaction between academic identity status and achievement goal orientation in predicting academic achievement among 407 undergraduate students in a university in the United States of America (USA). The study employed AIM and AGQ Scales. The study found that foreclosed academic identity status positively correlated with both approach and avoidance goal orientations. It was also reported that diffused and moratorium academic identity statuses correlated positively with avoidance goals. Achieved academic identity status was found to correlate positively with approach goals and negatively with avoidance goals. Subsequent path analyses revealed a model of the relationship between the AIM and AGQ supporting these relationships. However, the study only involved university students and did not investigate whether the two constructs could jointly predict academic outcomes. There was a need to compare the findings with data obtained from high school students. This was a major focus of the current study.

In their study, Hejazi et al. (2012) evaluated how academic identity status and achievement goal orientation predict academic achievement among a sample of 301 Iranian high school students whose average age was 15 years. Through multiple regression, the authors established that diffused and foreclosed academic identity statuses as well as approach achievement goal orientation contributed significantly in predicting academic achievement. However, diffused and foreclosed academic identity sub scales had negative contribution while mastery-approach goal orientation had a positive contribution in predicting academic achievement. All the other statuses and achievement goal orientations had insignificant contribution. In light of these findings,

a key objective of the current study was to establish how these constructs predict academic achievement among secondary school students in Kenya.

To understand the contribution of achievement goal orientation in predicting academic achievement, Elliot et al. (2011) conducted a study involving 126 undergraduate students in Germany and 319 in USA. Achievement goal orientation was measured using the 3 x 2 AGQ while academic achievement was inferred from an exam performance index created by averaging participants' scores across three exams. Elliot et al. regressed exam performance on the base model of the 3 x 2 framework for achievement goal orientations. Their findings revealed that only performance-approach goal orientation positively predicted exam performance. Notably, all avoidance achievement goal orientations either negatively predicted exam performance or had insignificant negative correlation with exam performance. Elliot et al. did not investigate how the components of achievement goal orientations interact with academic identity status in influencing academic achievement, an interest of this study.

In the reviewed studies, both achieved academic identity status and approach achievement goal orientation are associated with an adaptive profile of functioning. The basic argument is that a student with an achieved academic identity status is likely to be more concerned with development of academic competence than students in the other statuses. However, there is a dearth of studies involving students from African educational set ups. This study addressed this concern by evaluating how academic

identity status and achievement goal orientations predict academic achievement among secondary school students in the Kenyan context.

2.6 Summary of Literature Review

Majority of the studies reviewed in this chapter generally indicated that academic identity status and achievement goal orientation components correlate with academic achievement. Majority of the reviewed studies reported significant sex differences in students' academic identity status and achievement goal orientation. In addition, reviewed studies indicated a joint action of academic identity status and achievement goal orientation in predicting academic achievement. However, most of the reviewed studies on academic identity status and achievement goal orientations had been conducted with college undergraduate students in the USA. The few available studies on students in other regions largely concentrated on Asian samples. In addition, very few of the previous studies involved secondary school students. Studies on the academic identity status and achievement goal orientation among secondary school students in African educational set ups were not readily available. The reviewed local studies had only addressed constructs related to achievement motivation and academic self-concept. None of the reviewed studies had used methodological and data triangulation. The current study addressed these concerns by evaluating how academic identity status and achievement goal orientation predicted academic achievement among secondary school students in Embu County of Kenya. The study used a mixed-method design involving both quantitative and qualitative data.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter discusses the methodology used in the study. Aspects of research design, variables and location of the study are discussed. The target population, sampling procedures, sample size, pilot study, and the research instruments are also described. The chapter also describes data collection and analyses procedures, as well as logistical and ethical considerations.

3.2 Research Design

The study used an explanatory sequential mixed methods design. This design involves two phases: Phase one involves collection of quantitative data and analysing the results, while phase two involves collecting in-depth qualitative data to explain the quantitative data obtained in the first phase (Creswell, 2014). In this study, the quantitative data collection phase was ex-post facto in nature. In this design two or more groups with similar backgrounds are compared in terms of an independent variable that has already happened (Creswell, 2012). The design was appropriate for this study since academic identity status and achievement goal orientation were measured through questions related to current and past learning activities of the participants. The collected data were analysed to assess whether students' academic identity status and achievement goal orientation predicted academic achievement. The quantitative data provided further inferences and possible generalizations.

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The predictor variables in this study, academic identity status and achievement goal orientation had not been the focus of much research among secondary school students. They, therefore, required further description. In the second phase, qualitative data was obtained from a subset of the participants through in-depth interviews in schools to learn about students' academic identity status and achievement goal orientation in their own words. This phase complemented the explanations for the quantitative data obtained in the first phase of the study.

3.2.1 Research Variables

The predictor variables in the study were academic identity status and achievement goal orientation. Academic identity status had four levels: diffused, foreclosed, moratorium and achieved. On the other hand achievement goal orientation had two levels: approach and avoidance. Academic identity status and achievement goal orientation were measured at interval level of measurement through scores on adapted scales. Qualitative data on the variables were collected through interviews to explain the scores in the scales. In data analysis, sex was considered a categorical variable.

The outcome variable was academic achievement and it was measured at interval level of measurement. It was obtained from participants' average marks in form three examinations for midterm and end of term one in the year 2015. The scores were converted to standard T-scores. To get a T-score value, the raw scores were first converted into standard Z-scores and then transformed into T-score using the formula: $T = Z(10) + 50$.

3.2.2 Location of the Study

The study was conducted in Embu County. The county is largely rural and agricultural. According to the KCSE statistics for the years 2012, 2013, and 2014 the County had an average pass rate of 38 per cent which was above the national pass rate of 28 per cent over the same period of time (see Appendix J). Although the county average pass rate in KCSE may be considered relatively good, discrepancies in pass rates among the four sub counties in Embu County are worrying. Over the three years, Mbeere South Sub County had the least average pass rate of 27 per cent. This was below both the county and national pass rates. There was need to find out some of the factors that may explain the low pass rates in Mbeere South Sub County. This was the major reason why the Sub County was purposively selected as the location of the study.

Studies in Embu County attribute the low academic achievement in Mbeere South Sub County to academic risks attendant to a Miraa growing context. Indeed, the sub county is the largest Miraa producer in Embu County. Miraa growing areas have been described as having high rates of school dropout, absenteeism, propensity to drug abuse, and a relatively poor scholastic progression (Gatumu et al., 2012; Ngeranwa, 2013). In addition, some students are already involved in the Miraa business and their earnings enhance their status and popularity among peers (Kabangi, 2008). Even when students know the future benefits of education, such a context may make some students to hold a relatively low value for education. This poses the risk of a cycle of poor educational attainment. The long-term social stability of the sub county is likely

to be affected by increased illiteracy, unskilled work force, and alienation from the mainstream society. This may greatly compromise the attainment of county and national development agenda as well as the Millennium Development Goals (MDGs).

Although, the educational risks identified in Mbeere South Sub County depend on individual characteristics, no study had evaluated how learners' achievement goals and academic identity processes may predict academic outcomes. Investigating how identity processes determine academic achievement may help stakeholders to know the personal characteristics to enhance among learners in the sub county. This is what the current study sought to do.

3.3 Population

The study's target population was all the form three students in secondary schools in Embu County in the year 2015. The accessible population was the 2081 (1071 boys and 1010 girls) form three students in 48 public secondary schools in Mbeere South Sub County. The sex distribution of the accessible population was 51 % boys while girls constituted 49 % (Mbeere South Sub County Education Office, 2015).

Form three students were selected for the study for two reasons. First, in Kenya, form three students are in middle and late adolescence (Ministry of Education Science and Technology, 2014). At their age, identity was expected to have started differentiating into different statuses. Further, these students had been in secondary school for at least

three years and had already selected subjects for the KCSE examination. The students were likely to have definite academic values and to be pursuing certain achievement goals. Second, involving secondary school students in Kenya helped address a gap in literature regarding identity development in students outside America and Asia.

3.4 Sampling Techniques and Sample Size Determination

3.4.1 Sampling Techniques

Purposive sampling was used to select Mbeere South Sub County, public secondary schools, and form three classes. Stratified sampling was used for selecting the schools for inclusion in the study. Using a list of all the public secondary schools in Mbeere South Sub County as the sampling frame, schools was stratified thus: Boys only boarding, girls only boarding, co-educational boarding and coeducational day. Proportionate sampling was then used to select schools from each stratum. In each stratum, only those schools that had candidates in KCSE examinations for the past three years were selected. Such schools were likely to have had more students enrolled in form three, which helped in meeting the required sample size.

In each selected public secondary school, participants' selection was based on the following inclusion criteria: Being a form three student for two consecutive months; having sat all the required examinations for the class, and having been graded in those exams by the teachers. The researcher then randomly selected the required number of form three students in each school.

In the qualitative phase of the study, participants were purposively selected using the following inclusion criteria: having attained a high score in any of the four academic identity statuses and in any of the two types of achievement goal orientation. Only the two single sex schools were involved in this phase of the study. A list of participants in these schools was generated and the participants were sorted out based on their responses in the AIM and AGO sub scales. Only the five highest scores in each of the six sub scales were selected for the in-depth interviews in each school. The resultant sample size was 40 participants.

3.4.2 Sample Size Determination

In the quantitative phase of the study, the strata sample sizes was determined by the equation suggested by Kish (1965) for proportionate stratified sampling: $n_h = (N_h / N) \times n$. Where: 'n_h' is the sample size for stratum '*h*', 'N_h' is the population size for stratum '*h*', 'N' is total population size, and 'n' is total sample size. Consequently, from the four school strata: one boys only boarding school, one girls only boarding school, one coeducational boarding school and seven coeducational day schools were selected yielding a total sample of 10 schools. The proportionate sampling procedure yielded a total of 390 participants distributed in the selected schools thus: 61 participants from the boys' school, 48 from the girls' school, 49 from the coeducational boarding school, and 232 from seven coeducational day schools. The sample size for the schools and students constituted 21 per cent and 18 per cent of the accessible population respectively. According to (Vanvoorhis & Morgan, 2007), a sample size of above 10 per cent of the accessible population is large enough for

detecting differences, associations, and for multiple regression analysis. Table 3.1 presents a summary of the accessible population and the sample size for the quantitative phase of the study. The sample size for the qualitative phase of the study was 40 participants. This represented 10 % of the sample size in phase one.

Table 3.1

Target Population and Sample Size

School Type	Target Population			Sample Size		
	Schools	Students		Schools	Students	
		Boys	Girls		Boys	Girls
Boys only boarding	3	346	-	1	61	-
Girls only boarding	4	-	223	1	-	48
Coeducational boarding	5	138	143	1	24	25
Coeducational day	36	637	674	7	112	120
Sub-total[a]	-	1,121 (51)	1,040 (49)	-	197 (51)	193 (49)
Total[a]	48(100)	2,161 (100)		10(21)	390 (18)	

Note. Adapted from "*Secondary School Enrolment Data-2013, Mbeere South Sub County*" by Mbeere South Sub County Education Office, (2015, February).
[a] Parenthesis indicate percentage of respective total.

3.5 Research Instruments

In this study, a self-administered questionnaire, a pro forma summary for students' examination results and an interview schedule were used for data collection.

3.5.1 Questionnaire

The researcher-administered questionnaires was structured into four sections: Section I comprised of instructions, Section II comprised of items on the background information such as student's code based on their admission numbers, age, and sex. Section III consisted of the Achievement Goal Orientation Questionnaire (AGQ) scale and Section D comprised of the Academic Identity Status Measure (AIM) scale. Below is brief overview of the instruments. The full scales as adapted appear in Appendix B.

a. The Achievement Goal Orientation Questionnaire (AGQ)

Items to measure approach and avoidance achievement goal orientations were adapted from the 3 x 2 Achievement Goal Orientation Questionnaire (AGQ) (Elliot et al., 2011). The 3 x 2 AGQ is an-18 item instrument that measures six types of goal orientations: task-approach goals; task-avoidance goals; self-approach goals; self-avoidance goals; other-approach goals; and other-avoidance goals. The researcher sought permission to use this scale from the authors. Upon getting their consent, the scale was adapted for the study. In this study, all approach and avoidance oriented goals were collapsed into two distinct categories labelled approach achievement goal orientation and avoidance achievement goal orientation. Each category was measured through a sub scale of nine items. In addition, the AGQ was adapted from its course-specific perspective to more general class goals across the subjects (for example, my goal in this class is to get better marks than my classmates). Using data from a pilot study, the adapted AGQ was further refined to make it more appropriate for the study.

The pilot study involved a random sample of 40 form three students (20 boys, 20 girls) from a purposively selected public coeducational day secondary school in Mbeere South Sub County. The school was not involved in the main study. The pilot study data were analysed to ascertain that the items were stated clearly, the adequacy of the allocated time, as well as the psychometric properties of the adapted scales. To enhance content validity of the adapted scales, the opinions of the class teachers and the respondents about the tools and data collection procedures were sought. Their feedback identified ambiguous or vague questionnaire items and interview questions, which were modified. The pilot data analyses also established the suitability of the selected mixed method design and the suggested hypothesis testing procedures.

The adapted AGQ had 18 items to which participants responded on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The sub scale scores ranged from 9 to 45. Elliot et al. (2011) reported the reliability coefficients of the AGQ as ranging from .77 to .91. The pilot study data for the adapted AGQ items yielded good internal consistency estimates ranging from .75 to .83 as presented in Table 3.2. The overall reliability coefficient for the achievement goal orientation questionnaire was .83. This coefficient was high enough to allow the adoption of the scale in the study. The AGQ items adopted for this study were deemed to be reliable.

Table 3.2

Reliability Coefficients for the Achievement Goal Orientation Questionnaire

AGO Sub scale	Alpha coefficients (Elliot et al. 2011)	Alpha coefficients (Pilot Study)
Approach AGO (9)[a]	.84	.79
Avoidance AGO (9)	.85	.83
Overall scale (18)	-	.83

Note. $N = 40$. AGO = achievement goal orientation.
[a] Number of items in the sub scale/measure.

The descriptive statistics for the AGQ items in the actual study are show in Appendix E (Table E.1). For this 18-item scale, the least item mean score was 2.17 for item 4 on the avoidance achievement goal orientation sub scale (I work hard, because I fear performing worse than my classmates do). The highest item mean score was 4.62 for item 3 on the approach achievement goal orientation sub scale (My goal is to perform better in form three exams than I have done in other classes).

The construct validity for the AGQ was ascertained using an exploratory factor (principal component) analysis. This analysis resulted in a two-factor solution for the 18-item measure. Item loadings ranged from .46 to .76. According to Elliot et al. (2011) valid 3 x 2 AGQ items should have factor loadings ranging from .50 to .95. Therefore, all items on this measure met the criteria for retention. The total variance explained for this solution was 36.64 %. Factor 1, Approach achievement goal orientation, accounted for 20.46 % of the total item variance, while Factor 2,

Avoidance achievement goal orientation, accounted for 16.18% of the total item variance. Indices obtained from the exploratory factor analysis (KMO = .74, Bartlett's Test of Sphericity = 1940.94, $df = 153$, $p < .01$) indicated that the data was suitable for factor analysis. Thus each of the items made considerable and significant contribution in measuring achievement goal orientation. Items retained in the AGQ were subsequently utilized in analyses pertinent to answering the research hypotheses and questions. Table E.4. of appendix E summarizes the results of this two factor solution.

b. The Academic Identity Status Measure (AIM)

The instrument to measure the four academic identity statuses was adapted from the AIM developed by Was and Isaacson (2008). Permission to use the AIM in the current study was sought from the corresponding author who consented. The AIM contained four sub scales: diffused, foreclosed, moratorium and achieved each with 10 items. The Participants responded to each of the items on a 4-point scale ranging from 1 (*Strongly disagree*) to 4 (*Strongly agree*). The sub scale scores ranged from 10 to 40.

The pilot study data for the adapted academic identity measure items yielded adequate internal consistency estimates ranging from .71 to .86 as presented in Table 3.3. The four sub scales of the adapted AIM had alpha coefficients similar to those reported by Was and Isaacson (2008) which ranged from .76 to .86.

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Table 3.3

Reliability Coefficients for the Academic Identity Measure Sub Scales

AIS Sub scale	Alpha coefficient (Was & Isaacson, 2008)	Alpha coefficient (Pilot Study)
Diffused AIS (10)[a]	.76	.74
Foreclosed AIS (10)	.77	.71
Moratorium AIS (10)	.85	.81
Achieved AIS (10)	.76	.86
AIS (Overall) (40)	-	.77

Note. $N = 40$. AIS = academic identity status.
[a]Number of items in the sub scale/measure.

Notably, the sub scale achieved academic identity status had the highest reliability estimate (.86) which was higher than that reported by Was and Isaacson (2008). The sub scale measuring foreclosed academic identity had the least reliability coefficient (.71). The overall reliability coefficient for the Academic Identity Measure was found to be .77. This was considered high enough and consequently, the scale was adapted.

The descriptive statistics for the academic identity measure items adapted for the actual study are show in Appendix E (Table E.5.). For this 40-item scale, the least item mean score was 1.13 for item 3 on the diffused academic identity status sub scale (I don't worry about my marks and I don't set academic goals for myself). The highest item mean score was 3.75 for item 1 on the achieved academic identity status (University education is a high priority for me and I am willing to do everything in order to achieve it).

To establish construct validity for Academic identity measure (AIM), an exploratory factor (principal component) analysis was completed using the entire sample (N = 385). This analysis resulted in a four-factor solution for the 40-item measure. Item loadings ranged from .34 to .70. Was and Isaacson (2008) indicate that factor loadings ranging from .30 to .74 for the AIM items are valid. Thus, all items on this measure met the criteria for retention. The total variance explained for this solution was 35.71 %. Factor 1, Moratorium academic identity status, accounted for 17.55 % of the total item variance, Factor 2, Achieved academic identity status, accounted for 9.09 % of the total item variance, Factor 3, Diffused academic identity status, accounted for 8.75 % of the total item variance, while Factor 4, Foreclosed academic identity status, accounted for 5.00 % of the total item variance. Indices obtained from the exploratory factor analysis (KMO = .83, Bartlett's Test of Sphericity = 4099.95, df = 780, $p < .01$) indicated considerable and significant contribution of each of the items in measuring academic identity status. Items retained in the AIM were subsequently utilized in analyses pertinent to answering the research hypotheses and questions. The four-factor solution is summarized in Table E.3 of Appendix E.

3.5.2 Pro Forma Summary of Students' Examination Results

Each participant's academic achievement was inferred from school achievement records. Using a pro forma schedule designed by the researcher (Appendix C), the students' total marks in form three examinations for mid and end of term one in the

year 2015 were obtained. An average score on the two examinations was then calculated. The scores were then transformed into standardized scores to make them comparable among students in different schools. The researcher conceptualized academic achievement using examination marks given by teachers as done in other studies among secondary school students in Kenya (Mutweleli, 2014; Wawire, 2010).

3.5.3 Interview Schedule

An in-depth interview schedule (see appendix D) was used in the second phase of the study. The purpose of the interview was to crosscheck the participants' responses in the AIM and AGO sub scales.

3.6 Data Collection

In this study, data were collected in two phases. In phase one, the researcher administered questionnaires to students at the times set aside by the school administrators. The researcher then gave the participants the background information of the study and instructions on how to fill the questionnaire. The researcher also explained the rating scales with a few sampled items. Thereafter, students filled the questionnaires supervised by the researcher and class teachers. The average time for filling the questionnaires was 25 minutes. The filled questionnaires were then collected and kept by the researcher. The class teachers provided the researcher with the results for the participants in form three mid-term and end of term one examinations.

The second phase of the study involved an interview. The selected students were briefed on the importance of the interview and the nature of the questions to be explored. The participants used pseudonyms in the interview and were reassured of confidentiality. The interview proceedings were transcribed verbatim and the transcripts were used for data analysis.

3.7 Logistical and Ethical Considerations

3.7.1 Logistical Considerations

The researcher obtained research clearance from Kenyatta University's Graduate School. Research permit was also sought from the National Commission for Science, Technology, and Innovation (NACOSTI). Afterwards, the researcher booked appointments with the education and administration officials at the county and the sub county levels to obtain their clearance. The researcher also sought appointments with the principal and form three class teachers in each sampled school. During these appointments, the researcher discussed the purpose, benefits of the study and agreed on the best day, time, and venues for data collection.

3.7.2 Ethical Considerations

The researcher clearly explained the purpose of the study to the participants and sought their consent for participation. The researcher then assured the participants of confidentiality regarding the collected data and anonymity of their identities. In addition, the researcher ensured that the study did not expose participants to any risk.

Participants were free to withdraw from the study whenever they felt uncomfortable participating. Finally, the general research findings were shared with the schools, and the public through available information sharing platforms.

3.8 Data Analyses

The questionnaire data were scored and coded for statistical analysis. The obtained descriptive statistics for the AIM and AGO sub scales included: overall scores, percentages, means, and standard deviations. The analysed data were then presented in tables and figures. The following hypothesis were tested at $p = .05$ using the indicated statistical tests:

H_{01}: There is no significant relationship between academic identity status and academic achievement.

To make the first hypothesis more testable, the following four supplementary null hypothesis were formulated:

$H_{01.1}$: There is no significant relationship between diffused academic identity status and academic achievement.

$H_{01.2}$: There is no significant relationship between foreclosed academic identity status and academic achievement.

$H_{01.3}$: There is no significant relationship between moratorium academic identity status and academic achievement.

$H_{01.4}$: There is no significant relationship between achieved academic identity status and academic achievement.

The supplementary hypotheses were tested using Pearson's Product Moment Correlation Coefficient.

H_{02}: There is no significant relationship between achievement goal orientation and academic achievement.

To make the second hypothesis more testable, the following two supplementary null hypotheses were formulated:

$H_{02.1}$: There is no significant relationship between approach achievement goal orientation and academic achievement.

$H_{02.2}$: The is no significant relationship between avoidance achievement goal orientation and academic achievement.

The supplementary hypotheses were tested using Pearson's Product Moment Correlation Coefficient.

H_{03}: There are no significant sex differences in students' academic identity status and achievement goal orientation.

To make the third null hypothesis more testable, the following six supplementary null hypotheses were formulated:

$H_{03.1}$: There are no significant sex differences in students' diffused academic identity status.

$H_{03.2}$: There are no significant sex differences in students' foreclosed academic identity status.

$H_{03.3}$: There are no significant sex differences in students' moratorium

academic identity status.

$H_{03.4}$: There are no significant sex differences in students' achieved academic identity status.

$H_{03.5}$: There are no significant sex differences in students' approach achievement goal orientation.

$H_{03.6}$: There are no significant sex differences in students' avoidance achievement goal orientation.

The supplementary hypotheses derived from hypothesis 3 were tested using the independent samples *t* tests.

H_{04}: Academic identity status and achievement goal orientation have no significant predictive value in determining students' academic achievement.

To make the fourth hypothesis more testable, the following two supplementary null hypotheses were formulated:

$H_{04.1}$: Academic identity status has no significant predictive value in determining student's academic achievement.

$H_{04.2}$: Achievement goal orientation has no significant predictive value in determining students' academic achievement.

The supplementary null hypotheses derived from hypothesis four were tested using multiple regression analysis.

Exploratory analysis of hypotheses three and four was done using path analysis. Qualitative data were used to complement the results for hypotheses one and two. Qualitative analysis involved transcribing the interview scripts verbatim and then analysing the contents using a deductive coding method. Eventually, major themes and sub-themes were picked from the coded content.

CHAPTER FOUR

PRESENTATION OF FINDINGS, INTERPRETATION, AND DISCUSSION

4.1 Introduction

This chapter presents the study findings as per the study objectives and hypotheses. For each objective, relevant descriptive statistics are given followed by the specific inferential statistics used to test the null hypothesis. The findings are then discussed. The chapter is organized into four parts: introduction, general and demographic information; findings, interpretation and discussion, and exploratory analysis.

4.2 General and Demographic Information

This section gives the general information on the return rate of the questionnaires and the demographic data.

4.2.1 Return Rate

In this study, 390 form three students in 10 public secondary schools in Mbeere South Sub County completed the research questionnaires during the first term of the year 2015. However, the researcher discarded five of the filled questionnaires. The exclusion criteria entailed having more than three items not filled in a scale, giving multiple responses on items, marking one answer throughout the entire document. The actual number of the returned copies of the questionnaire was thus 385, translating into 98.71 % return rate. The targeted sample size compared with the actual return rate was as presented in Table 4.1.

Table 4.1

Return Rate

School Type[a]	Target			Actual		
	Boys	Girls	Total	Boys	Girls	Total
CD	112	120	232	112	120	232
BB	62	0	62	60	0	60
CB	24	25	49	24	25	49
GB	0	47	47	0	44	44
Total[b]	197 (50.77)	193 (49.49)	390 (100)	196 (50.26)	189 (48.46)	385 (98.71)

Note. CD = co-educational day; BB = boys only boarding; CB = coeducational boarding; GB = girls only boarding.

[a] All were public secondary schools.

[b] ( ) indicate percentage of the target total.

4.2.2 Demographic Data on Sex, Age, and Type of School

This section presents a profile of participants' demographic characteristics that includes sex, age, and type of school. As shown in Table 4.2, the participants' age ranged from 14 to 23 years. The mean age of boys was 16.68 (*SD* = 1.36) while that of girls was 16.63 (*SD* = 1.26). The overall mean age in years was 16.65 (*SD* = 1.31).

Table 4.2

Summary of Participants Age by Sex

Sex	Age Category (Years)					Descriptive Statistics			
	12-14	15-17	18-20	21-23	N.R.	*M*	*SD*	*Sk*	*Kur*
Boys[a]	1	151	41	2	1	16.68	1.36	.53	.70
	(0.51)	(77.04)	(20.92)	(1.02)	(0.51)				
Girls[b]	0	149	37	1	2	16.63	1.26	1.55	3.20
	(0.00)	(78.84)	(19.58)	(0.52)	(1.06)				
Total	1	300	78	3	3	16.65	1.31	1.12	2.80
	(0.26)	(77.92)	(20.26)	(0.78)	(0.78)				

Note. N =385. N.R. = no response; *Sk* = skewness; *Kur* = kurtosis.
[a] n = 196. ( ) indicate percentage of n.
[b] n = 189. ( ) indicate percentage of n.

The mean age for boys was 16.68 (*SD* = 1.36) while that for girls was 16.63 (*SD* = 1.26). This was within the range of years of form three students in Kenya. The participants' ages were grouped into four age categories. The highest percentage of boys (77.0 %) was aged between 15 and 17 with their age breakdown as follows: 12-14 (0.5 %); 15-17 (77.0 %); 18-20 (20.9 %) and 21-23 (1.0 %). The measures of distribution shape (skewness = 0.53, kurtosis = 0.70) for boy's age were below. According to Schmider, Ziegler, Danay, Beyer, and Bühner (2010) skewness and kurtosis values below three indicate a normal distribution.

On the other hand, more than three quarters of the girls were aged between 15 and 17 with their age breakdown as follows: 12-14 (0.0 %); 15-17 (78.8 %); 18-20 (20.9 %);

21-23 (0.0 %). Skewness (*Sk* = 1.55) and kurtosis (*Kur* = 3.20) values for girls' age were below three and slightly above three respectively implying an approximately normal distribution. The no response for age was 0.5 % for boys and 1.1 % for girls. A cross tabulation of the age categories and school type is presented in Table 4.3.

Table 4. 3

Participants' Age Categories by School Type

		Age Category in Years					
		12-14	15-17	18-20	21-23	N R	Total[a]
School Type[b]	CD	0 (0.00)	163 (42.34)	65 (16.88)	3 (0.78)	3 (0.78)	234 60.78)
	BB	0 (0.00)	42 (10.91)	4 (1.04)	0 (0.00)	0 (0.0)	46 (11.95)
	CB	1 (0.26)	54 (14.03)	8 (2.08)	0 (0.00)	0 (0.0)	63 (16.36)
	GB	0 (0.00)	41 (10.65)	1 (0.26)	0 (0.00)	0 (0.0)	42 (10.91)
	Total	1 (0.26)	300 (77.92)	78 (20.26)	3 (0.78)	3 (0.78)	385 (100)

Note. CD = co-educational day; BB = boys only boarding; CB = coeducational boarding; GB = girls only boarding; NR = no response.
[a] ( ) indicate percentage of the total.
[b] All were public secondary schools.

The results presented in Table 4.3 indicated that majority of students (78 %) were aged between 15 and 17 years. The three students aged between 21 and 23 as well as the three who had not indicated their age were all from coeducational day secondary schools. The only student aged between 12 and 14 was from a coeducational boarding secondary school. Consistent with the data by Ministry of Education Science and Technology (2014), coeducational day secondary schools had the highest number of students in all the other age categories.

4.3 Relationship between Academic Identity Status and Academic Achievement

The first objective of the study was to establish the relationship between academic identity status and academic achievement. Academic identity status was operationalized by analysing the participants' scores in the academic identity status measure (AIM). For each item on AIM, scores ranged from 1 to 4 as participants marked answers on a four-point modified Likert Scale ranging from 1= *Strongly Disagree* to 4 = *Strongly Agree*. Descriptive statistics for the AIM items are presented in Table E.5 of Appendix E. Participants' academic achievement was represented by the mean score obtained in form three examinations for mid-term and end of term one year 2015.

4.3.1 Description of Participants' Academic Identity Status

Participants' total scores in each sub scale were used to compute the range, mean, standard deviation, skewness, and kurtosis for each of the four sub scales of academic identity status. As presented in Table 4.4, the least range for participants' scores was in the diffused academic identity status, while the largest range was in the moratorium academic identity status sub scales. The highest mean was for the achieved academic Identity status (M = 34.28, SD = 4.31) and the lowest was for the diffused academic identity status (M = 13.52, SD = 3.57). The standard deviations were moderately large ranging from 3.58 to 5.94.

Using the criteria outlined in Appendix G, the participants were categorized as having pure and transitional academic identity statuses as summarized in Table 4.5.

Table 4.5

Uncollapsed Categories of Participants Academic Identity Status

Pure Identity Statuses[a]		Transitional Identity Statuses[a]	
Diffused	21(5.45)	Diffused-Foreclosed	4 (1.04)
		Diffused-Moratorium	15 (3.90)
		Diffused-Achieved	2 (0.52)
Foreclosed	31 (8.05)	Foreclosed-Moratorium	8 (2.08)
		Foreclosed-Achieved	10 (2.60)
Moratorium	31 (8.05)	Moratorium-Achieved	5 (1.30)
		Low-profile Moratorium	197 (51.17)
Achieved	61 (15.84)		

Note. $N = 385$.
[a] ( ) indicate percentage of the total.

The results show that relatively fewer students had pure academic identity status compared to those with transitional academic identity status. Among those with pure statuses, diffused academic identity status had the least participants while achieved academic identity status had majority of the participants. Among the transitional academic identity statuses, diffusion-achieved academic identity status had the least participants while the low-profile moratorium had majority of the participants.

To increase the interpretability of the academic identity sub scale scores, it was necessary to classify the subjects into a single academic identity status. The transitional academic identity statuses were collapsed into the four statuses as per the criteria outlined in Appendix G. The cut off scores for the sub scale scores were derived using the sub scale means and standard deviations. For each sub scale, the cut-off score was arrived at by adding the mean and standard deviation. Table 4.6 presents the final classification of participants into the academic identity statuses.

Table 4.6

Classification of Participants' Scores into Academic Identity Sub scales

			Cut off scores		
AIM Sub Scale	Mean	*SD*	Low	High	*n* [a]
Diffused	13.52	3.57	10	17	42 (10.91)
Foreclosed	21.74	4.45	17	26	47 (12.21)
Moratorium	23.18	5.95	17	29	236 (61.30)
Achieved	34.28	4.31	30	39	60 (15.58)

Note. $N = 385$. AIM = academic identity status measure; *SD* = Standard deviation.
[a] ( ) indicate percentage of *N*.

The participants' raw scores in the academic identity status sub scales were further used to categorize them as having low, average, or high endorsement of each academic identity status. The cut off scores in each sub scale were as follows: scores falling at least one standard deviation from the sub scale mean were treated as a low endorsement of the sub scale. The scores falling at least one standard deviation above

the sub scale mean were treated as a high endorsement of that sub scale. Those scores in the middle were treated as a moderate endorsement of the sub scale. The results are indicated in Table 4.7.

Table 4. 7

Participants' Level of Academic Identity Status

Academic identity status	Level[a]			Total
	Low	Moderate	High	
Diffused	0 (0.00)	1 (0.30)	40 (10.40)	41 (10.60)
Foreclosed	2 (0.50)	0 (0.00)	43 (11.20)	45 (11.70)
Moratorium	48 (12.50)	154 (40.00)	39 (10.10)	241 (62.60)
Achieved	0 (0.00)	0 (0.00)	58 (15.10)	58 (15.10)

Note. $N = 385$.
[a] ( ) indicate percentage of the total.

As shown in Table 4.7, over 62 per cent of the participants had moratorium academic identity status, with majority of them having a moderate endorsement of the sub scale. On the other hand, majority of the participants categorized as having diffused, foreclosed, and achieved academic identity statuses had high endorsements of their respective sub scales. No participants had a low endorsement of the diffused and achieved academic identity statuses.

In order to establish the interrelationships that existed among the four types of academic identity status and academic achievement, a bivariate correlation analysis was conducted and the results are presented in Table 4.8.

Table 4.8

Correlation Matrix of the Academic Identity Status Sub scales

AIM Sub scale	1	2	3	4
1. Diffused	-			
2. Foreclosed	.30**	-		
3. Moratorium	.46**	.30**	-	
4. Achieved	-.26**	-.09	-.31**	-

Note. $N = 385$. AIM = academic identity status measure.
** $p < .01$.

The results in Table 4.8 indicated that the correlations between the Academic Identity Status Measure (AIM) sub scales were small to moderate. The highest correlation was found between diffused and moratorium academic identity statuses (r (383) = .46, $p <$ .05), while the lowest was between foreclosed and achieved academic identity statuses (r (383) = -.09, $p > .05$). Positive correlations were found between diffused, foreclosed and moratorium academic identity statuses. However, the three academic identity statuses had negative correlations with achieved academic identity status. All correlations were significant except the correlation between foreclosed and achieved academic identity statuses. The finding that there were small to moderate correlations between the AIM sub scales suggested that the academic identity statuses may be separate and distinguishable from each other.

4.3.2 Description of Participants' Academic Achievement Scores

To enhance comparability of participants' academic achievement scores across schools, their mean scores in the mid-term and end of term one year 2015 form three examinations were transformed into z-scores and then into T-scores. Table 4.9 presents the range, mean, standard deviation, skewness, and kurtosis of the transformed scores.

Table 4.9

Summary Statistics for Participants Academic Achievement

Range	*M*	*SD*	*Sk*	*Kur*
23 - 72	50.00	10.00	-0.36	-0.42

Note. $N = 385$. *Sk* = skewness; *Kur* = kurtosis.

As shown in Table 4.9, the participants' scores ranged from 23 to 72. The results further indicated that the participants' scores were transformed into T-scores ($M = 50$, $SD = 10$). The obtained T-scores were used to categorize the participants' academic achievement into high, average, or low. The cut off scores for each category were as follows: 59 to 76 for high, 41 to 58 for average, and 23 to 40 for low. The results are presented in Table 4.10.

Table 4.10

Levels of Academic Achievement

Level of Academic Achievement	Frequency[a]	*M*	*SD*
Low	66 (17.1)	33.79	4.06
Average	259 (67.3)	50.88	5.42
High	60 (15.6)	64.03	2.65
Total	385(100)		

Note. M = mean; SD = standard deviation.
[a] ( ) indicate percentage of total.

As presented in Table 4.10, over two-thirds (67 %) of the participants had average level of academic achievement. The means of the three levels of academic achievement were: high (M = 64.03, SD = 2.65), average (M = 50.88, SD = 5.42), and low (M = 3.07, SD = 4.06). The standard deviation values indicated that the highest variability of the scores was among students in the average academic achievement group while the least was among the scores of students in the high academic achievement group.

4.3.3 Hypothesis Testing

In order to determine the relationship between academic identity status and academic achievement, the following null hypothesis was advanced:

H_{01}: There is no significant relationship between academic identity status and academic achievement.

To make the hypothesis more testable, the following four supplementary null hypotheses were formulated:

$H_{01.1}$: There is no significant relationship between diffused academic identity status and academic achievement.

$H_{01.2}$: There is no significant relationship between foreclosed academic identity status and academic achievement.

$H_{01.3}$: There is no significant relationship between moratorium academic identity status and academic achievement.

$H_{01.4}$: There is no significant relationship between achieved academic identity status and academic achievement.

To test the supplementary null hypotheses, a bivariate correlation analysis was conducted using the Pearson's Product Moment Correlation Coefficient. Table 4.11 presents the results.

Table 4.11

Correlations between Academic Identity Statuses and Academic Achievement

AIM Sub scale	r^a
Diffused	-.08
Foreclosed	-.07
Moratorium	-.06
Achieved	.38**

Note. $N = 385$. AIM = academic identity status measure
** $p < .01$ (2-tailed).
[a] Correlation with academic achievement.

As presented in Table 4.11, the correlations ranged from very weak (r (383) = -.06, p = .27), to moderate (r (383) = .38, p = .00). Three academic identity statuses had weak negative correlations with academic achievement (diffused, r (383) = -.08, p = .11; foreclosed, r (383) = -.07, p = .16; and moratorium r (383) = -.06, p = .27). The obtained p values for the three identity statuses were above p = .05 implying non-significant correlations. Achieved academic identity status sub scale had the highest and the only positive as well as significant correlation with academic achievement (r (383) = .38, p < .001). Moratorium academic identity status had the weakest correlation with academic achievement.

Generally, the results did not support the hypothesized relationships except one. The first supplementary hypothesis stated that there was no significant relationship between diffused academic identity status and academic achievement. The results in Table 4.11 show that the correlation between diffused academic identity status and academic achievement (r (383) = -.08, p > .05) was statistically non-significant. Therefore, the null hypothesis was supported and it was concluded that diffused academic identity status was not significantly related to students' academic achievement.

The second supplementary hypothesis stated that there was no significant relationship between foreclosed academic identity status and academic achievement. The obtained correlation did not reach statistical significance (r (383) = -.07, p > .05). Thus, the null

hypothesis was supported and it was concluded that foreclosed academic identity status was not significantly related with students' academic achievement.

The third supplementary hypothesis stated that there was no significant relationship between moratorium academic identity status and academic achievement. As shown in Table 4.11, the obtained correlation was statistically non-significant (r (383) = -.06, p > .05). Therefore, the null hypothesis was supported and it was concluded that moratorium academic identity status did not significantly correlate with students' academic achievement.

The fourth supplementary hypothesis stated that there was no significant relationship between achieved academic identity status and academic achievement. The correlation presented in Table 4.11 was statistically significant (r (383) = .38, p < .05). The results failed to support the null hypothesis and it was concluded that achieved academic identity status was significantly related to students' academic achievement.

Prompted by these correlational results, the researcher sought to establish the differences in the students' academic achievement scores across the four academic identity statuses. The descriptive statistics associated with participants' academic achievement across the four academic identity statuses were as summarized in Table 4.12. The results indicate that foreclosed academic identity status had the least mean academic achievement T-score (M = 47.19, SD = 12.71) while achieved academic identity status had the highest mean academic achievement T-score (M = 53.99, SD =

9.74). Diffused and moratorium academic identity statuses had mean scores of M = 48.23 (SD = 10.13) and M = 50.11 (SD = 9.26) respectively.

Table 4.12

Academic Achievement T-scores across the Academic Identity Statuses

AIS	*n*	*M*	*SD*	*SE*	95% *CI* for *M*		*Sk*	*Kur*
					LL	*UL*		
Diffused	42	48.23	10.13	1.56	45.09	51.41	-.36	-.42
Foreclosed	47	47.19	12.71	1.85	43.46	50.92	-.36	-.42
Moratorium	236	50.11	9.26	0.60	48.93	51.30	-.36	-.42
Achieved	60	52.99	9.74	1.26	50.47	55.50	-.36	-.42
Total	385	50.00	10.00	0.51	49.00	51.00	-.36	-.42

Note. AIS = academic identity status; *SE* = standard error of the mean; *CI* = confidence interval for the mean; *LL* = lower limit; *UL* = upper limit; *Sk* = skewness; *Kur* = kurtosis.

In order to test for differences in the academic achievement scores across the academic identity statuses, a one-way analysis of variance (ANOVA) was computed. Prior to performing the ANOVA, the assumption of normality was evaluated. The skewness and kurtosis values were used as measures of distribution shape for academic achievement scores. As summarized in Table 4.12, for each academic identity status skewness and kurtosis values below three, indicating a normal distribution as per the criteria outlined by Schmider et al. (2010). Additionally, the assumption of homogeneity of variances was tested and satisfied through a Levene's F test (F (383) = 4.50, $p > .05$).

Table 4.14

Post Hoc Analyses

(I) AIS Type	(J) AIS Type	*MD* (I-J)	*SE*	Sig.	95% *CI*	
					LL	*UL*
	Foreclosed	1.06	2.10	.99	-4.37	6.49
Diffused	Moratorium	-1.86	1.66	.66	-6.14	2.42
	Achieved	-4.74	1.99	.08	-9.88	0.40
	Diffused	-1.06	2.10	.96	-6.48	4.37
Foreclosed	Moratorium	-2.92	1.58	.25	-7.00	1.16
	Achieved	-5.79*	1.93	.02	-10.77	-0.82
	Diffused	1.86	1.66	.68	-2.42	6.14
Moratorium	Foreclosed	2.92	1.58	.25	-1.16	7.00
	Achieved	-2.87	1.43	.19	-6.57	0.82
	Diffused	4.74	1.99	.08	-0.40	9.88
Achieved	Foreclosed	5.79*	1.93	.02	0.82	10.77
	Moratorium	2.87	1.43	.19	-0.82	6.57

Note. AIS = academic identity status; *MD* = mean difference; *SE* = standard error; *LL* = lower limit; *UL* = upper limit.
*The mean difference is significant at $p = .05$.

4.3.4 Discussion of the Results

The study results in indicated that only achieved academic identity status had a positive and significant correlation with academic achievement (see Table 4.11). Diffused, foreclosed, and moratorium academic identity statuses had negative and statistically non-significant correlation with academic achievement. The study also

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found achieved academic identity status to have the highest mean academic achievement score while foreclosed academic identity status had the least. The mean academic achievement scores of the other statuses were relatively close to each other. In addition, the post-hoc analyses in Table 4.14 revealed that the difference between the mean academic achievement scores across the four statuses was only significant between the foreclosed and achieved statuses. The results suggest that students with achieved academic identity status had significantly higher academic achievement scores than students with foreclosed academic identity status.

The results on the relationship between academic identity status and academic achievement corroborated the findings of the study by Hejazi et al. (2012) among Iranian high school students. In that study, it was reported that achieved academic identity status positively correlated with academic achievement while the other academic identity statuses had negative correlations. These results were also consistent with findings by Was and Isaacson (2008) among college students in a Midwestern university college in the USA who found that only achieved academic identity status positively correlated with students' academic achievement. According to Was and Isaacson (2008), only a student in an achieved academic identity achieved status is strongly committed to a set of academic values following a period of exploration. Such students are likely to have positive adjustment in school and exert the effort needed to complete their academic tasks.

An interesting finding in the current study was that foreclosed and achieved academic identity statuses was the only pair with a significant difference in the mean academic achievement. According to the academic identity statuses model (Was & Isaacson, 2008) the two are the only academic identity statuses characterized by a commitment to a set of academic values and goals. Although the findings seemed to identify achieved academic identity as the only adaptive status for achieving in school, the role of significant others in influencing academic outcomes should not be downplayed. Students in the foreclosed academic identity status have committed to academic goals and values, not out of self-exploration, but under the influence of significant others. An implication of this finding was that the source of students' commitment to academic goals and values may account for the significant difference in the academic achievement of students in the foreclosed and achieved academic identity statuses. Future studies may explore this possibility.

The finding that only achieved academic identity status related significantly academic achievement was achieved was a contrast to the findings reported in the studies by Was and Isaacson (2008) and Hejazi et al. (2012). These two studies reported significant correlations between the four academic identity statuses and academic achievement. The finding also deviated from those reported by Jelenic (2013) among elementary school students that diffused and moratorium academic identity statuses correlated positively with academic achievement. The sample used in the current study consisted of secondary school students in Embu County of Kenya. The inconsistency in the results with those of studies done in other countries may indicate that academic

identity development depends on the students' age, grade level, and school context. In addition, the reported differences in the study results with those from other cultural contexts may suggest that cultural differences shape academic identity development.

4.4 Relationship between Achievement Goal Orientation and Academic Achievement

The second objective of the study sought to evaluate the relationship between achievement goal orientation and academic achievement. Achievement goal orientation was operationalized by analysing the participants' scores in the achievement goal orientation questionnaire (AGQ). The AGQ comprised of 18 items divided into two sub scales each with nine items. One sub scale measured approach achievement goal orientation while the other measured avoidance achievement goal orientation. For each item on AGQ, scores ranged from 1 to 5 as participants marked answers on a five-point modified Likert Scale ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*. Descriptive statistics for the AGQ items are presented in Table E.1 of Appendix E. Participants' academic achievement was represented by the mean score obtained in form three examinations for mid-term and end of term one year 2015.

4.4.1 Description of Participants Achievement Goal Orientation

The participants items scores were summed up to obtain the AGQ sub scale total scores which ranged from 9 to 45. The participants' scores on the achievement goal

orientation sub scales were analysed to obtain the range, mean, standard deviation, skewness, and kurtosis. As summarized in Table 4.15, approach achievement goal orientation sub scale scores ranged from 11 to 45. In the avoidance achievement goal orientation sub scale, the scores ranged from 9 to 45. The potential range for each achievement goal orientation sub scale was 9 to 45.

Table 4.15

Descriptive Statistics for Achievement Goal Orientation Sub scales

AGO Sub scale	Range		*M*	*SD*	*Sk*	*Kur*
	Potential	Actual				
Approach	9-45	11-45	37.45	6.11	-0.77	0.55
Avoidance	9-45	9- 45	30.40	6.43	-0.25	0.41

Note. $N = 385$. AGO = achievement goal orientation; *Sk* = Skewness; *Kur* = Kurtosis.

The mean scores for the approach and avoidance sub scales of achievement goal orientation were 37.45 (SD = 6.11) and 30.40 (SD = 6.43) respectively. The coefficients of skewness for both sub scales were negative implying that majority of the participants rated themselves highly on the sub scales. The obtained Skewness and Kurtosis values for both sub scales were below three. Taken together, the measures of distribution shape showed that, as per the criteria suggested by Schmider et al. (2010), the achievement goal orientation data were sufficiently normally distributed.

The participants were further categorized as either favouring approach or avoidance achievement goal orientation. The criterion followed was that a participant was

categorized as having the achievement goal orientation for the sub scale with the higher total score. Those participants whose approach goal scores were higher than their avoidance goal scores were coded as 1; those whose avoidance goals were higher than their approach goal scores were coded as 0. Any participant with equal approach and avoidance goal scores was to be excluded from further analysis. The classifications resulted in 269 approach-oriented students and 116 avoidance-oriented students. The results are shown in Table 4.16.

Table 4.16

Participants' Types of Achievement Goal Orientation

Achievement Goal Orientation	n^a
Approach	269 (69.87)
Avoidance	116 (30.13)

Note. $N = 385$.
[a] ( ) indicate percentage of the total.

As shown in Table 4.16, over two thirds of the participants (69.87 %) were categorized as having approach achievement goal orientation while less than a third (30.13 %) were categorized as having avoidance achievement goal orientation.

4.4.2 Hypothesis Testing

In order to determine the relationship between achievement goal orientation and academic achievement, the following null hypothesis was advanced:

H_{02}: There is no significant relationship between achievement goal orientation and academic achievement.

academic achievement (r (267) = .20, $p < .05$). In addition, there was a statistically significant but weak and negative correlation between avoidance achievement goal orientation and academic achievement (r (114) = -.15, $p < .05$). The correlational results did not support the two supplementary null hypotheses and therefore, it was concluded that both approach and avoidance achievement goal orientations were significantly related to academic achievement.

Following the correlational results, an independent samples t-test was conducted to compare the academic achievement scores between the two types of achievement goal orientations. The predictor variable was achievement goal orientation with two levels: approach and avoidance. The outcome variable was academic achievement. As seen in Tables 4.9 and 4.15, academic achievement and achievement goal orientation distributions were sufficiently normal for the purposes of conducting a t-test. Additionally, the assumption of homogeneity of variances was tested and satisfied through a Levene's F test (F (383) = .04, p = .85). The independent samples t-test results were as presented in Table 4.18.

Table 4.18

Independent Samples T-Test for Equality of Academic Achievement Means

	t	*df*	Sig. (2-tailed)	*MD*	SE	95% CI	
						LL	*UL*
Academic achievement	4.69	383	.00	5.03	1.07	2.92	7.15

Note.N = 385. *MD* = mean difference; SE = standard error of the difference; CI = confidence interval of the difference; *LL*= lower limit; *UL*= upper limit.

The results in Table 4.18 indicated that there was a significant difference in the mean academic achievement scores (t (383) = 4.69, $p < .05$) for the approach achievement goal orientation (M = 51.56, SD = 9.68) and avoidance achievement goal orientation (M = 46.52, SD = 9.87). The magnitude of the difference in the means was 5.03 with a 95 % confidence interval of 2.92 to 7.15.

4.4.3 Discussion of the Results

The second objective of the study sought to find out whether there was a significant relationship between achievement goal orientation and academic achievement. The findings suggested that both approach and avoidance achievement goal orientations had significant but weak correlation with academic achievement. However, the evidence for this correlation was different for the two types of achievement goal orientation. Whereas approach achievement goal orientation correlated positively with academic achievement, avoidance achievement goal orientation correlated negatively. There were significant differences in the mean academic achievement scores of the two types of achievement goal orientation. Specifically, participants with approach achievement goal orientation had higher academic achievement scores than those with avoidance goal orientation.

The study findings were consistent with the premise held in earlier studies that approach goals are more beneficial than avoidance goals in achievement set-ups. For example, in a meta-analysis of self-reported achievement goal orientations in various achievement domains, Van Ypren et al. (2014) reported that approach goals correlated

positively with non-self-reported performance measures while avoidance achievement goals correlated negatively. Similarly, Hejazi et al. (2012) found that among first year Iranian secondary school students, approach achievement goals correlated significantly and positively with academic achievement, while avoidance orientation correlated significantly and negatively. Similar findings have also been reported by Abd-El-Fattah and Patrick (2011) among Australian secondary school students.

An interesting finding of this study was that the magnitude of the correlation to academic achievement for both approach and avoidance achievement goal orientation was almost the same. This was despite the significant difference in their mean scores with approach achievement goal orientation having a higher mean. This contrasts with the findings by Hejazi et al. (2012) that mastery approach goal orientation had a bigger correlation with academic achievement compared to mastery avoidance goal orientation. It should be noted that in the current study, the different forms of avoidance achievement goal orientation were collapsed into approach and avoidance dimensions and this may have introduced the reported difference.

The finding that approach-oriented students had higher academic achievement scores than their avoidance-oriented counterparts may be explained in terms of differences in the effects of the two achievement goal orientations. The notions of approach and avoidance suggest that individuals are motivated to optimize satisfaction by either approaching success or avoiding failure. These different motivations may occasion varying outcomes. Approach goals have been described as having activating

characteristics like positive affect and directing focus to a task. In a study on the effect of approach and avoidance goal orientations on students' conceptual change, Johnson and Sinatra, (2014) found approach goals to have a facilitative effect on undergraduate students' deeper processing of information and conceptual change.

The negative correlation between avoidance achievement goal orientation and academic achievement may be explained guided by the assertions by (Elliot et al., 2013). The authors argued that avoidance goal orientations are have deactivating characteristics like negative moods, and distraction from a task. An avoidance orientation focuses a student's attention on not being the worst or on avoiding losing ability. The orientation leads students to be cautious and resistant to engaging fully in the learning task. It lowers the speed or degree to which students understand the learning content hence the lower academic achievement.

4.5 Sex Differences in Academic Identity Status and Achievement Goal Orientation

The third objective of the study sought to find out the sex differences in students' academic identity status and achievement goal orientation.

4.5.1 Description of Study Variables Based on Sex

The scores for boys and girls in all the sub scales were analysed to find the mean, standard error of the mean, standard deviation, skewness, and kurtosis. Table 4.19 gives a summary of the results.

Table 4.19

Descriptive Statistics of the Variables Grouped by Sex

	Boy (n = 196)					Girl (n = 189)				
Variable	Range	*M*	*SD*	*Sk*	*Kur*	Range	*M*	*SD*	*Sk*	*Kur*
DAIS	10-24	13.54	3.36	1.03	0.55	10-32	13.50	3.78	1.82	5.27
FAIS	10-36	22.23	4.50	-0.17	0.39	10-31	21.23	4.35	1.82	-0.11
MAIS	10-40	22.91	5.70	0.26	0.09	10-40	23.46	6.21	-0.31	-0.17
ACHAIS	11-40	34.06	4.65	-1.56	4.02	19-40	34.50	3.92	0.20	2.17
APAGO	11-45	35.79	6.23	-0.59	0.87	22-45	39.17	5.51	-1.03	0.47
AVAGO	9-45	30.57	6.90	-0.28	0.35	12-45	30.22	5.93	-0.23	0.39

Note. N = 385. DAIS = diffused academic identity status; FAIS = foreclosed academic identity status; MAIS = moratorium academic identity status; ACHAIS = achieved academic identity status; APAGO = achievement goal orientation; AVAGO = avoidance achievement goal orientation; *Sk* = skewness; *Kur* = kurtosis.

As presented in Table 4.19, highest variability of scores was in the avoidance achievement goal orientation (*SD* = 6.90) for boys and in the moratorium academic identity status (*SD* = 6.21) for girls. Boys had higher mean scores than girls in diffused and foreclosed academic identity statuses, as well as in avoidance achievement goal orientation. On the other hand, girls had higher mean scores in moratorium and achieved academic identity statuses as well as in approach achievement goal orientation. Most of the sub scale scores had skewness and kurtosis values of below three implying normal distributions (Schmider et al., 2010). However, boys' scores on

achieved academic identity status and girls' scores in the diffused academic identity status had kurtosis statistics above three implying leptokurtic distributions.

The participants' scores on Academic Identity Measure were then used to categorize them as having high, average, or low endorsement of each academic identity status. A cross-tabulation of these levels with sex was as presented in Table 4.20.

Table 4.20

Levels of Academic Identity Status Grouped by Sex

	Boy (n = 196)				Girl (n = 189)			
AIS[a]	L	A	H	T	L	A	H	T
Diffused	0	1	25	26	0	0	15	15
	(0.00)	(0.50)	(12.8)	(13.27)	(0.00)	(0.00)	(7.94)	(7.94)
Foreclosed	0	0	23	23	2	0	20	22
	(0.00)	(0.00)	(11.73)	(11.73)	(1.06)	(0.00)	(10.58)	(11.64)
Moratorium	19	79	15	113	29	75	24	128
	(9.69)	(40.31)	(7.65)	(57.65)	(15.34)	(39.68)	(12.70)	(67.72)
Achieved	0 (0.00)	0 (0.00)	34 (17.35)	34 (17.35)	0 (0.00)	0 (0.00)	24 (12.70)	24 (12.70)

Note. N =385. AIS= Academic Identity Status; L = low; A = average; H = high; T = total.

[a] ( ) indicate percentage of the respective n.

The results presented in Table 4.20 show that majority of the participants were categorized as having average level of moratorium academic identity status and that there were more boys than girls in that category. In addition, there were more boys

than girls categorized as having high levels of diffused, foreclosed, and achieved academic identity statuses. On the other hand, there were more girls than boys categorized as having a high level of moratorium academic identity status. More girls than boys were also categorized as having a low level of foreclosed and moratorium academic identity statuses.

The Achievement Goal Orientation Questionnaire scores were used to categorize the participants into either having a high endorsement of approach or avoidance achievement goal orientation. As presented in Table 4.21 there were more boys than girls with approach achievement goal orientation. On the other hand, more girls than boys were categorized as having avoidance achievement goal orientation. Overall, majority of the participants had approach achievement goal orientation.

Table 4.21

Achievement Goal Orientation Grouped by Sex[a]

Sex	Approach AGO	Avoidance AGO	Total
Boy	142 (36.88)	54 (14.03)	196(50.91)
Girl	126 (32.73)	63 (16.36)	189(49.09)
Total	268 (69.61)	117 (30.39)	385 (100.00)

Note. AGO = achievement goal orientation.
[a]( ) indicate percentage of total.

4.5.2 Hypothesis Testing

The third objective of the study was to find out sex differences in students' academic identity status and achievement goal orientation. Consequently, the third null hypothesis was:

H_{03}: There are no significant sex differences in the students' academic identity status and achievement goal orientation.

To make this hypothesis more testable, the following six supplementary null hypotheses were formulated:

$H_{03.1}$: There are no significant sex differences in students' diffused academic identity status.

$H_{03.2}$: There are no significant sex differences in students' foreclosed academic identity status.

$H_{03.3}$: There are no significant sex differences in students' moratorium academic identity status.

$H_{03.4}$: There are no significant sex differences in students' achieved academic identity status.

$H_{03.5}$: There are no significant sex differences in students' approach achievement goal orientation.

$H_{03.6}$: There are no significant sex differences in students' avoidance achievement goal orientation.

To test these supplementary null hypothesis, independent samples *t* tests comparing the mean scores for boys and girls in the four academic identity statuses and the two

achievement goal orientations were performed at an alpha level of .05. The obtained data were first screened to check whether they met the assumptions of the independent samples *t* test. As presented in Tables 4.4 and 4.15, most sub scales had skewness and kurtosis statistics below three. However, two (boys achieved academic identity status, *Kur* = 4.02 ; Girls diffused academic identity status, *Kur* = 5.27) had kurtosis values slightly above three. According to the criteria outlined by Schmider et al. (2010) the measures of distribution shape indicated that the scores were approximately normally distributed. In addition, as presented in Table 4.22, the assumption of homogeneity of variances was tested and satisfied since the Levene's *F* test did not reach statistical significance ($p > .05$) for all the independent variables.

As presented in Table 4.22, there was no statistically significant difference between the diffused academic identity status (t (383) = 0.11, $p > .05$, $d = 0.01$) (two-tailed), scores for boys and girls. Thus, supplementary null hypothesis 3.1 was supported. On the other hand, there was a statistically significant difference in the foreclosed academic identity status scores (t (383) = 2.21, $p < .05$, $d = 0.17$) (two-tailed), for boys (M = 22.23, SD = 4.50) and girls (M = 21.23, SD = 4.35). The mean difference was 1.00 with a 95 % confidence interval of 0.11 to 1.88. The difference was in favour of boys. The effect size $d = 0.21$ was within the Cohen's convention for a small effect (Cohen, 1988). These results failed to support the supplementary null hypothesis 3.2. Notably, sex differences across moratorium (t (383) = -0.90, $p > .05$ (two-tailed), $d = -0.09$) and achieved (t (383) = -0.99, $p > .05$ (two-tailed), $d = -0.10$) academic identity statuses

achievement goal orientation scores for boys (M = 30.57, SD = 6.90) and girls (M = 30.22, SD = 5.93) did not reach statistical significance (t (383) = 0.53, $p > .05$). The effect size (d = 0.05) was found to be within Cohen's convention for a very small effect (Cohen, 1988). Therefore, the results supported the supplementary null hypothesis 3.6.

Although not part of the study objectives, an independent samples t test was computed to compare the mean academic achievement scores of boys and girls. There was no a priori null hypothesis about sex differences in academic achievement. The transformed academic achievement data (Table 4.9) were used in the analysis. The data were screened to check whether they met the assumptions of the independent samples t test. As presented in Table 4.23, the skewness (-.036) and kurtosis (-0.42) statistics for participants academic achievement scores were sufficiently normally distributed as per the criteria outlined by Schmider et al. (2010).

Table 4.23

Descriptive Statistics for Academic Achievement

Sex	*N*	Ob. Range	*M*	*SD*	*SE*	*Sk*	*Kur*
Boys	196	23.19 - 71.48	49.09	10.36	.74	-.17	-.52
Girls	189	27.23 - 72.02	50.95	9.55	.69	-.57	-.16
Total	385	23.19 - 72.02	50.00	10.00	.51	-.36	-.42

Note. Ob. = observed; *SE* = standard error of the mean; *Sk* = skewness; *Kur* = kurtosis.

achievement goal orientation than boys did. Notably, there were no significant sex differences in the participants' avoidance achievement goal orientation and academic achievement.

The results aligned themselves with the findings by Yunus et al. (2012) among college-aged students who reported non-significantly higher scores for boys in diffused academic identity status and for girls in moratorium academic identity status. The findings also corroborated those reported in a study by Hejazi et al. (2012) among Iranian high school students where significant sex differences were only found in the foreclosed academic identity status. However, the present study found boys to have significantly higher scores in foreclosed academic identity status contrary to the Hejazi and others who found higher scores for girls in this sub scale.

The findings that majority of the students were in moratorium academic identity status was consistent with the findings among non-college samples by Hejazi et al. (2012) and Jelenic, (2013). This may offer support to the contention that school contexts put students into a state of moratorium as they try to navigate through various identities and contextual demands regarding their academics, the future careers, as well as the other developmental tasks of adolescence (Kroger et al., 2010).

The findings on achievement goal orientations corroborated those reported by Finney and Davis, (2003) among college students that girls had higher endorsement of approach achievement goal orientation than boys. However, the results contrast those

$H_{04.2}$: Achievement goal orientation has no significant predictive value in determining students' academic achievement.

To test the supplementary null hypotheses, two sets of standard multiple regression analysis were conducted to predict students' academic achievement. One analysis included the four types of academic identity status as predictors, while the second analysis included the two types of achievement goal orientations as predictors. Prior to the analyses, the data were screened for missingness and violations of assumptions. There were no missing data. Review of the partial scatter plots of the predictor variables (the four academic identity statuses and the two achievement goal orientations) and the outcome variable (academic achievement) suggested that linearity was a reasonable assumption (see Appendix F).

To establish whether multicollinearity was an issue in the data, bivariate correlations were computed among the predictor variables. As presented in Table 4.25, the correlations between the study variables ranged from very weak to moderate. Diffused, foreclosed, and moratorium identity statuses had very weak, negative, and insignificant correlations with academic achievement. Achieved academic identity status had moderate, positive correlation with academic achievement. In addition, approach achievement goal orientation had a significant weak positive correlation with academic achievement while avoidance achievement goal orientation had a significant weak negative correlation with academic achievement. Most of the predictor variables were

weakly to moderately correlated. Therefore, multicollinearity was not implied among the predictor variables.

Table 4.25

Intercorrelations among the Study Variables

	1	2	3	4	5	6	7
1. Diffused AIS	-						
2. Foreclosed AIS	.30**	-					
3. Moratorium AIS	.46**	.30**	-				
4. Achieved AIS	-.26**	-.09	-.31**	-			
5. Approach AGO	-.12*	-.07	-.09	.31**	-		
6. Avoidance AGO	.07	.17**	.02	-.02	.06	-	
7. Ac. achievement	-.08	-.07	-.06	.38**	.20**	-.15**	-

Note. $N = 385$. AIS = academic identity status; AGO = achievement goal orientation; Ac. = academic

**. Correlation is significant at $p = .01$ (2-tailed).

*. Correlation is significant at $p = .05$ (2-tailed).

4.6.1 Hypothesis Testing

The null hypothesis 4.1 stated that academic identity status has no significant predictive value in determining student's academic achievement. To test this hypothesis, a standard multiple regression analysis was conducted to evaluate how the four academic identity statuses predict academic achievement. As presented in Table

4.26, the regression equation for predicting academic achievement using the four academic identity statuses explains 14 % of variance of the model (Adjusted $R^2 = .14$).

The resultant prediction equation was:

$$\dot{y} = 0.00 + .40 \text{ (ACHAIS)} \quad (1)$$

Where: $\dot{y}$ = predicted academic achievement; ACHAIS = achieved academic identity status.

The regression equation (1) was significant (F (4, 380) = 17.02, $p < .05$). Thus, the supplementary null hypothesis 4.1 was not supported. Achieved academic identity status had the highest contribution in the equation and it was the only significant predictor of academic achievement ($\beta = 0.40$, $t = 0.80$, $p < .05$). The contribution of the other academic identity statuses in the prediction equation was very low and did not reach statistical significance (diffusion $\beta = 0.00$, $t = 0.07$, $p > .05$; foreclosed $\beta = -0.06$, $t = -1.26$, $p > .05$; Moratorium $\beta = 0.09$, $t = 1.55$, $p > .05$).

Table 4.26

Predicting Academic Achievement Based on Academic Identity Status

Predictors (AIS)	Unstandardized coefficients β	*SE*	Standardized coefficient β	*t*	Sig	95% CI *LL*	*UL*
Constant	-0.00	.05		-0.07	.95	-.10	.09
Diffused	0.00	.06	.00	0.07	.94	-.10	.112
Foreclosed	-0.06	.05	-.06	-1.26	.21	-.16	.04
Moratorium	0.09	.06	.09	1.55	.12	-.02	.20
Achieved	0.40	.05	.40	0.80	.00	.30	.50
Model[a]: $R = .39$, $R^2 = .15$, Adjusted $R^2 = .14$, $SE = 9.26$, $F(4,380) = 17.02$, $p < .001$							

Note. $N = 385$. AIS = academic identity status; LL = lower limit; UL = upper limit.
[a] Regression model summary.

The supplementary null hypothesis 4.2 stated that achievement goal orientation has no significant predictive value in determining students' academic achievement. To test this hypothesis, a standard multiple regression analysis was computed to evaluate whether the two types of achievement goal orientation predict students' academic achievement. The results presented in Table 4.27 show that the regression model for predicting academic achievement using the two types of achievement goal orientation explains six percent of variance of the model (Adjusted $R^2 = .06$). A significant regression equation was found ($F(2, 382) = 13.49$, $p < .05$). Thus, the supplementary null hypothesis 4.2 was not supported.

Table 4.27

Predicting Academic Achievement from Achievement Goal Orientation

Predictors (AGO)	Coefficients β	*SE*	Std. β	*t*	sig	95 % CI *LL*	*UL*
Constant	47.53	3.43		13.84	.00	40.78	54.28
Approach	0.21	0.05	.21	4.24	.00	0.11	0.20
Avoidance	-0.16	0.05	-.16	-3.24	.00	-0.26	-0.06
Model[a]: $R = .26$, $R^2 = .07$, Adj. $R^2 = .06$, $SE = 9.69$, $F(2, 382) = 13.49$, $p < .001$							

Note. $N = 385$. AGO = achievement goal orientation; Std.= standardized; CI = confidence interval; *LL* = lower limit; *UL* = upper limit.
[a] Regression model summary.

The resultant equation for predicting academic achievement from achievement goal orientation was:

$$\dot{y} = 47.53 - .16\,(AVAGO) + .21\,(APAGO) \qquad (2)$$

Where: $\dot{y}$ = Predicted academic achievement; AVAGO = Avoidance achievement goal orientation; APAGO = Approach achievement goal orientation.

Both approach achievement goal orientation ($\beta = .21$, $t = 4.24$, $p < .05$) and avoidance achievement goal orientation ($\beta = -.16$, $t = -3.24$, $p < .05$) were significant predictors of academic achievement. The obtained beta values indicated that while approach goal orientation had a higher and positive predictive value on academic achievement, avoidance achievement goal orientation had a lower and inverse predictive value on academic achievement. Equation (2) suggested that students' academic achievement increased by 0.21 points for every standard deviation increase of approach

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achievement goal orientation and decreased by 0.16 points for every standard deviation increase of avoidance achievement goal orientation. The results failed to support the supplementary null hypothesis 4.2.

Based on the standard multiple regression results, the researcher conducted a stepwise multiple regression to establish whether the four types of academic identity statuses and the two types of achievement goal orientations were all necessary for predicting student's academic achievement. This analysis would simplify the multiple regression equation for predicting academic achievement. The resultant prediction model included three of the six predictors and was reached in three steps with no variables removed. As presented in Table 4.28, at step 1 of the analysis, achieved academic identity status was entered into the regression equation and it was significantly related to student's academic achievement (F (1, 383) = 64.46, $p < .05$). The coefficient of determination was $R^2 = .14$ indicating approximately 14 % of the variance of students' academic achievement could be accounted for by achieved academic identity status alone. At step 2 of the analysis, avoidance achievement goal orientation entered into the regression equation. Its linear combination with achieved academic identity status was significantly related to students' academic achievement (F (2, 382) = 37.52, $p < .05$). The coefficient of determination for step 2 was $R^2 = .16$ indicating approximately 16 % of the variance of students' academic achievement could be accounted for jointly by achieved academic identity status and avoidance achievement goal orientation. At step 3, approach achievement goal orientation was entered into the regression equation and its linear combination of the achieved academic identity status and avoidance

achievement goal orientation was significantly related to students' academic achievement (F (3, 381) = 26.73, $p < .05$). The coefficient of determination at step 3 was $R^2 = .17$ indicating that the three independent variables could account for approximately 17 % of the variance in students' academic achievement.

Table 4.28

Stepwise Multiple Regression Analysis Predicting Academic Achievement

Model		Coefficients			t	Sig.	95% CI for β	
		β	SE	Std. β			*LL*	*UL*
1[a]	(Constant)	30.98	2.42		12.82	.00	26.23	35.73
	ACHAIS	0.38	0.05	.38	8.03	.00	0.29	0.47
2[b]	(Constant)	38.19	3.37		11.33	.00	31.56	44.8
	ACHAIS	0.38	0.05	.38	8.06	.00	0.29	0.47
	AVAGO	-0.14	0.05	-.14	-3.03	.00	-0.23	-0.05
3[c]	(Constant)	34.92	3.70		9.45	.00	27.66	42.19
	ACHAIS	0.35	0.05	.35	7.05	.00	0.25	0.44
	AVAGO	-0.15	0.05	-.15	-3.18	.00	-0.24	-0.06
	APAGO	0.10	.05	.10	2.12	.04	0.01	0.20

[a] $R = .38, R^2 = .14$, Adjusted $R^2 = .14$, $SE = 9.27$, $F = 64.46$, $df = 1, 383$, $p < .01$.

[b] $R = .41$, $R^2 = .16$, Adjusted $R^2 = .16$, $SE = 9.17$, $F = 37.52$, $df = 2, 382$, $p < .01$.

[c] $R = .42$, $R^2 = .17$, Adjusted $R^2 = .17$, $SE = 9.13$, $F = 26.73$, $df = 3, 381$, $p < .01$.

Note. $N = 385$. ACHAIS = achieved academic identity status; AVAGO = Avoidance achievement goal orientation; APAGO = Approach achievement goal orientation; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit; AGO = achievement goal orientation; *SE* = standard error.

[a]Regression model summary at step 1.

[b]Regression model summary at step 2.

[c]Regression model summary at step 3.

Of the three predictors in the model, achieved academic identity status received the strongest predictive weight (β = .35), followed by avoidance achievement goal orientation (β = -.15) while approach achievement goal orientation had the least predictive value (β = .10). The beta values further indicate that while both achieved academic identity status and approach achievement goal orientation had positive contribution, avoidance achievement goal orientation had a negative contribution in predicting academic achievement. Therefore, the most robust regression equation for predicting students' academic achievement from academic identity status and achievement goal orientation was:

$$\dot{y} = 34.92 - 0.15\,(AVAGO) + 0.35\,(ACHAIS) + 0.10\,(APAGO) \quad (3)$$

Where: $\dot{y}$ = predicted academic achievement score; AVAGO = avoidance achievement goal orientation; ACHAIS = achieved academic identity status; APAGO = approach achievement goal orientation.

The equation (3) indicated that students' academic achievement increased by 0.35 and 0.10 points for each standard deviation of achieved academic identity status and approach achievement goal orientation respectively, and it reduced by 0.15 points for each standard deviation of avoidance achievement goal orientation.

4.6.2 Discussion of the Results

The present study hypothesized that academic identity status and achievement goal orientation had no significant predictive values on academic achievement. From the multiple regression results, achieved academic identity status and the two achievement

goal orientations had significant predictive values. The results indicated that while achieved academic identity status had the strongest significant predictive value on academic achievement, none of the other academic identity statuses had significant predictive values. It was also observed that the predictive value for approach achievement goal orientation was positive while that for avoidance achievement goal orientation was negative.

The study results generally supported the findings reported by Fearon (2012) among undergraduate students that achieved academic identity status had the strongest predictive value on academic achievement when compared to others statuses. The results were also in line with those reported in the study by Hejazi et al. (2012) among first year Iranian high school students that diffused and foreclosed academic identity statuses had negative predictive values on academic achievement. The findings may further substantiate the view by Was and Isaacson (2008) that an achieved academic identity may be superior to any other identity status in explaining students' academic achievement.

The study findings, however, contrasted with those in the previous studies regarding the predictive value of academic identity status on academic achievement. Hejazi et al. (2012) reported significant predictive values for diffused and foreclosed academic identity statuses and that diffused academic identity status predicted the greatest amount of variance in academic achievement. Fearon (2012) reported a significant predictive value for moratorium academic identity status on academic achievement. In

the current study, only achieved academic identity status had significant predictive value on secondary school students' academic achievement.

The contrasts in the findings suggest that students' academic identity statuses and their prediction of academic outcomes may differ according to their grade level. This is consistent with the view that identity is dynamic, contextual, and can shift in school years (Fearon, 2012; Kroger et al., 2010). Although the sample characteristics agreed with those of the first year high school students studied by Hejazi et al. (2012) in terms of school level and some aspects of the educational system, the participants in the current study were in form three in Embu County in Kenya. The contrasts in the study findings with those of earlier studies may be attributable to differences in the samples' age, academic experiences, and cultural backgrounds. Schwartz et al. (2006) argue that differences in the influence of psychological constructs and processes ought to be interpreted based on situational and cultural contexts.

The superior predictive value of achieved academic identity status supported the notion that this identity status is the most adaptive identity profile. As discussed in the literature review, students with achieved academic identity status have a set of academic values that they are committed to and are therefore likely to exert the effort needed to complete their academic goals. Previous studies have suggested that students with achieved academic identity are more focused on their academic goals and are more likely to adopt goal orientations that lead to more classroom success than those in other statuses (Hejazi et al., 2012; Was et al., 2009). Notably, majority of the

students in this study had moratorium academic identity status. Granted that individuals in the moratorium state have high levels of distress, while those with an achieved identity have greater understanding of themselves (Kroger et al., 2010), it may be advantageous to help students make a commitment to their own academic values and goals early in their academic life.

Consistent with previous studies among high school students in Autralia, and Iran (Abd-El-Fattah & Patrick, 2011; Hejazi,et al., 2012), this study found that students' approach achievement goal orientation had a positive and significant contribution in predicting academic achievement. On the other hand, avoidance goal orientation had a significant and negative contribution in predicting academic achievement. Notably, the predictive value for approach achievement goal orientation was higher than that of avoidance achievement goal orientation. Similar findings have been reported among college students in China and USA (Chen & Wong, 2014; Elliot et al., 2011; Was, Al-harthy, Stack-oden, & Isaacson, 2009). The differences were also consistent with those reported in a meta-analysis by Van Yperen, Blaga, and Postmes (2015) where approach goals generally enhanced performance in achievement situations across 19 journal papers.

Achievement goal orientation theory offers an explanation for the differences in the predictive values of the achievement goals on academic achievement. Elliot and colleagues (Elliot et al., 2011; Elliot et al., 2013) argue that approach achievement goals focus students' attention on the possibility of success, which evokes and sustains

hope, eagerness, and excitement. When students appraise the learning task as a challenge, this tends to evoke effort and persistence. This subsequently benefits performance attainment. In contrast, students who endorse avoidance achievement goals regulate their efforts at achievement tasks focusing mainly on failure, a negative outcome. In the metanalysis by Van Yperen et al. (2015), it was found that the focus on negative outcomes evoked different negative feelings and cognitions, including anxiety, disorganization, and self-handicapping, which subsequently undermine performance attainment.

The differences in the equations for predicting academic achievement from academic identity status and achievement goal orientation were interesting. The model for predicting academic achievement from academic identity status accounted for 14 % of the variance in students' academic achievement. On the other hand, the model predicting academic achievement from achievement goal orientation only accounted for six per cent of variance in students' academic achievement. On the other hand, the model involving achieved academic identity status and the two achievement goal orientations explained 17 % of the variance in students' academic achievement. This result indicated that achievement goal orientation and academic identity status work together in predicting students' academic achievement. It also suggested that some other factors explained the rest of variance in students' academic achievement. The finding was consistent with the view that achievement goal orientation is linked to the process of personality development (Kaplan & Flum, 2010; Was et al., 2009).

Interestingly, in the predictive model combining academic identity status and achievement goal orientation, avoidance achievement goal orientations had a higher predictive value than approach achievement goal orientations. This was suggestive that an achieved academic identity status makes up for the negative effects of avoidance achievement goal orientation. The finding further implied the need to consider how the combinations of different academic identity statuses and achievement goal orientations influence students' academic achievement.

Taken together, the results offer evidence of the predictive validity of academic identity statuses and achievement goal orientations on academic achievement. The differences in the predictive values of the four academic identity statuses indicate that the academic identity status and achievement goal orientation models may explain individual differences in students' academic performance as suggested in the literature (Van Yperen et al., 2014; Was et al., 2009). The results also indicate that it may be theoretically beneficial to bifurcate the achievement goal orientations into either approach or avoidance in research among secondary school students.

4.7 Exploratory Analyses

Based on the foregoing findings, the researcher conducted exploratory analyses focusing on objectives three and four of the study. Specifically, the researcher explored how participants' sex, age, and school type interacted with academic identity status and achievement goal orientation in predicting academic achievement. Sex differences

in the prediction models were also evaluated. Further analyses were also done to establish the factor structures of the scales as well as path analyses to establish standardized direct and indirect associations among achievement goal orientation, academic identity status, and academic achievement.

4.7.1 Interaction of Age Group, School Type, Sex, Academic Identity Status, and Achievement Goal Orientation in Predicting Academic Achievement

The distribution of the predictor variables across the age groups was as presented in Table 4.29. The bivariate correlations between age and these variables are included in the table.

Table 4.29

Relationship between the Study Variables and Participants' Age[a]

Variable	Age Group (Years)						
	12-14	15-17	18-20	21-23	N.R.	Total	r^b
DAIS	1 (0.26)	35 (9.09)	7 (1.82)	0 (0.00)	0 (0.00)	42 (10.91)	-.26
FAIS	0 (0.00)	35 (9.09)	12 (3.12)	0 (0.00)	0 (0.00)	47 (12.21)	.02
MAIS	0 (0.00)	185 (48.05)	46 (11.95)	2 (0.52)	3 (0.78)	236 (61.30)	-.07
ACHAIS	0 (0.00)	46 (11.95)	13 (3.38)	1 (0.26)	0 (0.00)	60 (15.58)	-.01
APAGO	1(0.26)	217 (56.36)	47 (12.21)	2 (0.52)	2 (0.52)	269 (69.87)	.01
AVAGO	0 (0.00)	83 (21.56)	31 (8.05)	1 (0.26)	1 (0.26)	116 (30.13)	.12*

Note. $N = 385$. DAIS = diffused academic identity status; FAIS = foreclosed academic identity status; MAIS = moratorium academic identity status; ACHAIS = achieved academic identity status; APAGO = approach achievement goal orientation; AVAGO = avoidance achievement goal orientation; N.R.= no response.

[a] ( ) indicate percentage of the total.
[b] Bivariate correlation to participants' age.
*Significant at $p = .05$.

The results in Table 4.29 indicated that majority of the participants in all the variables were aged between 15 and 17 years. The correlations between participants' age and the study variables were all very weak. Among the identity statuses, only foreclosed academic identity was positively correlated with age. On the other hand, the two achievement goal orientations correlated positively with participants' age. However, only avoidance achievement goal orientation correlated significantly with age (r (114) $= .12, p < .05$). Academic achievement had a significant but weak negative correlation with age (r (383) $= -.19, p < .05$).

The participants' academic identity status and achievement goal orientation per school type were as presented in Table 4.30. The results indicated that there were more participants from coeducational day schools than any other school category across the study variables. The researcher analysed whether these differences were significant. Chi-square tests for independence were computed comparing the frequencies of the four academic identity statuses and the two achievement goal orientations across the four school types.

Table 4.30

Academic Identity Status and Achievement Goal Orientation per School Type[a]

Variable	School Type			
	CD	BB	CB	GB
DAIS	26 (6.75)	6 (1.56)	5 (1.30)	5 (1.30)
FAIS	25 (6.49)	7 (1.82)	11 (2.86)	4 (1.04)
MAIS	146 (37.92)	23 (5.97)	38 (9.87)	29 (7.53)
ACHAIS	37 (9.61)	10 (2.60)	9 (2.34)	4 (1.04)
APAGO	151 (40.05)	38 (10.08)	47 (12.21)	27 (7.01)
AVAGO	177 (46.95)	7 (1.86)	16 (4.16)	14 (3.64)

Note. DAIS = diffused academic identity status; FAIS = foreclosed academic identity status; MAIS = moratorium academic identity status; ACHAIS = achieved academic identity status; APAGO = approach achievement goal orientation; AVAGO = avoidance achievement goal orientation; CD = coeducational day; BB = boys only boarding; CB = coeducational boarding; GB = girls only boarding.

[a] ( ) indicate percentage of the total.

The differences in the frequencies were non-significant for academic identity status (χ^2 (9) = 6.82; p = .66) and for the type of achievement goal orientation (χ^2 (3) = 6.95; p = .07). In line with the above findings, the researcher sought to establish whether the predictive values of academic identity status and achievement goal orientation differed taking into consideration the type of school. Multiple regression analysis was done and the results are presented in Table 4.31.

Table 4.31

Standardized Regression Weights for the Predictors per School Type

	CD		CB		BB		GB	
Predictors	β	*p*	β	*p*	β	*p*	β	*p*
Achieved AIS	.40	.00	.12	.35	.43	.01	.45	.00
Approach AGO	.09	.17	.52	.61	.19	.21	.35	.05
Avoidance AGO	-.11	.06	.01	.96	-.42	.01	-.04	.81

Note. AIS = academic identity status; AGO = achievement goal orientation; CD = coeducational day; CB = coeducational boarding; BB = boys only boarding; GB = girls only boarding.

The results in Table 4.31 indicated that achieved academic identity status significantly predicted students' academic achievement in coeducational day and in the boys and girls only boarding schools. Approach achievement goal orientation significantly predicted students' academic achievement in girls' only boarding schools. On the other hand, avoidance achievement goal orientation significantly predicted students' academic achievement in boys' only boarding school. Notably, the predictive value of avoidance achievement goal orientation in coeducational day secondary schools was marginally insignificant. Interestingly, the three predictors had non-significant predictive weights in coeducational boarding schools.

The researcher further explored whether the regression coefficients differed in terms of participants' sex. Consequently, the data were split by sex with boys coded as zero and girls coded as one. A standard multiple regression was run with the achieved academic

identity status and the two achievement goal orientations as predictors of academic achievement. The results are presented in Table 4.32.

Table 4.32

Regression Analysis Results Grouped by Sex

	Boys					Girls				
	Coefficients					Coefficients				
Model	β	SE	Std. β	*t*	Sig.	β	SE	Std. β	*t*	Sig.
(Constant)	57.36	4.65		12.33	.00	47.44	4.84		9.79	.00
ACHAIS	3.70	0.65	.39	5.70	.00	3.19	0.76	.30	4.20	.00
APAGO	0.03	0.07	.03	0.49	.63	0.15	0.08	.15	1.97	.05
AVAGO	-0.19	0.06	-.20	-3.09	.00	-0.09	0.07	-.09	-1.34	.18

Note. ACHAIS = achieved academic identity status; APAGO = approach achievement goal orientation; AVAGO = avoidance achievement goal orientation; Std. = standardized.

As shown in Table 4.32 boys' academic achievement was significantly predicted by achieved academic identity status ($\beta = 0.39$; $t\ (193) = 12.33$, $p < .05$) and avoidance achievement goal orientation ($\beta = -.20$, $t\ (191) = -3.09$, $p < .05$). On the other hand, the academic achievement of girls was significantly predicted by achieved academic identity status ($\beta = 0.30$; $t\ (186) = 4.20$, $p < .05$) and approach achievement goal orientation ($\beta=0.15$; $t\ (186) = 1.97$, $p = .05$). A Chow Test was conducted to establish the stability of the prediction model across the two groups. The resultant test statistic ($F = 0.71$) was less than the critical value ($F\ (2, 375) = 3.00$, $p = .05$). Therefore, it was concluded that the model predicting academic achievement for boys was not statistically different from that predicting the academic achievement of girls.

The researcher further explored whether the pattern of sex differences in the standard multiple regression would be obtained in a stepwise multiple regression analysis. The results are presented in Table 4.33.

Table 4.33

Stepwise Multiple Regression Analyses Grouped by Sex

	Model	Boys					Girls				
		β	*SE*	Std. β	*t*	Sig.	β	*SE*	Std. β	*t*	sig.
1[a,b]	(Constant)	30.42	3.22		9.45	.00	31.95	3.69		8.67	.00
	ACHAIS	0.38	.06	.39	5.94	.00	.38	.07	.36	5.24	.00
2[c]	(Constant)	40.05	4.42		9.07	.00					
	ACHAIS	0.38	.06	.40	6.11	.00					
	AVAGO	-0.19	.06	-.20	-3.11	.00					

Note. N =385. ACHAIS = achieved academic identity status; AVAGO = avoidance achievement goal orientation; *SE*= standard error.

[a] Model summary at step 1 (Boys) R =.39, R^2 = .15, Adj. R^2 = .15; SE = 9.56, F (1, 194) = 35.25, p < .05.

[b] Model summary at step 1 (Girls) R = .44, R^2 = .19, Adj. R^2 = .19; SE = 9.35, F (2, 193) = 23.25, p < .05.

[c] Model summary at step 2 (Boys) R = .38, R^2= .13, Adj. R^2 = .12; SE = 9.56, F (1, 187) = 27.40, p < .05.

As shown in Table 4.33, at step 1 of the analysis in the model for boys, achieved academic identity status was entered into the regression equation and it was significantly related to student's academic achievement (F (1, 194) = 35.25, p < .05).

The coefficient of determination was $R^2 = .15$ indicating approximately 15 % of the variance of boys' academic achievement could be accounted for by achieved academic identity status alone. At step 2 of the analysis, avoidance achievement goal orientation entered into the regression equation. Its linear combination with achieved academic identity status was significantly related to boys' academic achievement (F (2, 193) = 23.25, $p < .05$). The coefficient of determination for step 2 was $R^2 = .19$ indicating approximately 19 % of the variance of students' academic achievement could be accounted for jointly by achieved academic identity status and avoidance achievement goal orientation.

In the model for boys, academic identity status had a significant positive predictive value $\beta = .39$, t (193) = 5.94, $p < .05$, while avoidance achievement goal orientation had a significant negative predictive value $\beta = -.20$, t (193) = -3.11, $p < .05$. Of the two predictors in the model, achieved academic identity status had the stronger predictive weight. Thus the most robust regression equation for predicting boys' academic achievement was:

$$\grave{y} = 40.05 - 0.20\ (AVAGO) + 0.39\ (ACHAIS) \qquad (4)$$

Where: $\grave{y}$ = predicted academic achievement score; AVAGO = avoidance achievement goal orientation; ACHAIS = achieved academic identity status.

The resultant equation (4) indicated that boys' academic achievement increased by 0.39 points and reduced by 0.20 points for every standard deviation increase in

achieved academic identity status and avoidance achievement goal orientation respectively.

In the model for girls, only achieved academic identity status entered into the regression equation at step 1 and it was significantly related to girls' academic achievement (F (1, 187) = 27.40, p < .05). The coefficient of determination was R^2 = .13 indicating that achieved academic identity status accounted for approximately 13 % of the variance in girls' academic achievement. Thus, achieved academic identity status had a significant positive predictive value on girls' academic achievement β = .36, t (186) = 8.66, p < .05). The most robust regression equation for predicting girls' academic achievement was:

$$\dot{y} = 31.95 + 0.36\,(\text{ACHAIS}) \qquad (5)$$

Where: $\dot{y}$ = predicted academic achievement score; ACHAIS = achieved academic identity status.

The obtained equation (5) implied that for every standard deviation increase in achieved academic identity status, girls' academic achievement increased by 0.36 points.

A general linear model was computed to establish the interaction effects between age group, sex, school type, and academic identity status and achievement goal orientation in predicting academic achievement. The results are presented in Table 4.34. There was evidence of a significant interaction effect between school type, the level of

academic identity status, and the type of achievement goal orientation ($F = 2.76$, $p < .05$) in the prediction of academic achievement.

While sex had a significant interaction effect with achievement goal orientation ($F = 5.66$, $p = .02$, $\eta^2 = .02$), its interaction with level of academic identity status ($F = 1.18$, $p = .32$, $\eta^2 = .02$) was not significant. On the other hand, age group had a significant interaction effect with the level of academic identity status ($F = 2.44$; $p = .04$, $\eta^2 = .02$) and a non-significant interaction with the type of achievement goal orientation ($F = 0.31$; $p = .58$, $\eta^2 = .01$). However, in all the reported interactions, the effect size was small as per Cohen's interpretation convention (Cohen, 1988). The adjusted R^2 for the interaction model was found to be .30. Considering that the model summarized in equation (3) had $R^2 = .17$, it was evident that the inclusion of school type, sex, and age group into the general linear model for predicting student's academic achievement substantively improved the model's predictive ability.

Table 4.34

Tests of between Subject Effects

Source	Type III SS	*df*	*MS*	*F*	Sig.	η^2
Corrected Model	11247.80[a]	66	170.42	2.63	.00	.41
Intercept	31683.93	1	31683.93	489.70	.00	.66
ST	1223.22	3	407.74	6.30	.00	.07
LAIS	870.38	2	435.19	1.92	.02	.05
TAGO	133.69	1	133.69	2.07	.15	.01
Sex	284.42	1	284.42	4.40	.04	.02
AGRP	1620.15	4	405.04	6.26	.00	.09
LAIS *TAGO	134.27	5	26.85	0.42	.84	.01
TAGO* Sex	366.25	1	366.25	5.66	.02	.02
LAIS* Sex	382.36	5	76.47	1.18	.32	.02
TAGO* AGRP	20.18	1	20.18	0.31	.58	.01
LAIS* AGRP	788.62	5	157.72	2.44	.04	.05
ST*LAIS*TAGO	1326.59	7	189.51	2.76	.03	.08
LAIS*TAGO* Sex	265.18	5	53.04	0.82	.54	.02
Error	21840.50	361	60.50			
Total	887579.61	385				
Corrected Total	27526.75	384				

Note. $N = 385$. SS = sum of squares, MS = mean square; ST = school Type; η^2 = eta squared; LAIS = level of academic identity status; TAGO = type of achievement goal orientation; AGRP = age group.
[a] $R^2 = .41$ (Adjusted $R^2 = .30$).

4.7.2 Discussion of the Results

The finding that most of the participants had moratorium academic identity status agree with studies that have reported age to be a factor in the distribution of academic identity status (Jelenic, 2013). Interestingly, of the four academic identity statuses, only foreclosed identity positively correlated with participants' age. This finding contradicts the assumption made by a group of researchers that identity development in adolescents is characterised by identity status maturation (Meeus, van de Schoot, Keijsers, & Branje, 2012; Meeus, 2011). Meeus and colleagues suggest that identity status maturation follows a clear developmental pattern epitomized by reductions in diffusion, moratorium, and foreclosure as well as by increase in stability in identity achievement. The general expectation is that as students mature, they become more aware of their capacities and abilities and pursue their own academic values more than those prescribed by significant others.

In this study, avoidance achievement goal orientation was positively correlated with age. However, age group did not have a significant interaction with the type of achievement goal orientation in predicting academic achievement. The findings support the contention that age could be a factor in explaining differences in achievement goal orientation (Dekker et al., 2013). This may have a two-fold explanation. First, that as students mature, they focus more on avoiding demonstrating incompetence. This may be because as children mature, they are expected to demonstrate more positive functioning, to be successful, and responsible. These expectations may give rise to pressure and fear of failure among the students. Thus,

older students were more likely to be inclined to avoid the possibility of not getting grades at par with what they got the previous term, and to avoid looking less competent than their peers.

Second, the finding may be aligned to studies that relate avoidance goals to fear of failure more than approach goals (Michou, Vansteenkiste, Mouratidis, & Lens, 2014; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2011). Grounded in these studies, the current results may imply that the older the students are the more they fear failure in schoolwork. Such an interpretation would be consistent with the suggestion by Hannula, Maijala, and Pehkonen (2004) that younger individuals report an approach orientation in their goals, whereas older adults report a stronger orientation toward maintenance and loss prevention.

In this study, differences in students' academic identity status and achievement goal orientation were not significantly related to school type. Notably, the predictive values for achieved academic identity status were significant, across three of the four school types. What was even more interesting was the finding that achievement goal orientation had significant predictive values only in the single sex schools. Approach goals significantly predicted academic achievement in girls' only boarding school while avoidance achievement goal orientation significantly predicted academic achievement in boys' only boarding school. In addition, school type interacted significantly with academic identity status and achievement goal orientation in predicting academic achievement.

Taken together, the results implied that the type of school was important in predicting academic achievement from academic identity status and achievement goal orientation. These findings aligned well with the assertion by Flum and Kaplan (2010) that school is an important context for the development of students' academic identity status and achievement goals. It is likely that factors within the schools may be responsible for explaining the variance in students' academic achievement. In addition, the results suggested that school type might illuminate the sex differences in the association between achievement goal orientation and students' academic achievement.

The results indicated that achieved academic identity status is a stronger predictor of academic achievement for boys than for girls. The results further implied that achievement goal orientations predict academic achievement differently among boys and girls. It was found that approach achievement goal orientations had significant positive predictive value on girl's academic achievement while avoidance achievement goal orientation had significant negative predictive value on boys' academic achievement.

Paradoxically, the model that explained the greater amount of variance in boys' academic achievement combined achieved academic identity status and avoidance goal orientation. Since avoidance goals are linked to fear of failure than approach goals (Van Yperen et al., 2015), this finding could suggest that boys are more sensitive than girls to environmental cues demanding them to excel. It is also possible that boys

pursue avoidance goals more autonomously and in a way that does not harm their wellbeing and quality of task engagement than girls. The finding raises important concerns related to theorizing about the fit between avoidance motivation and personality variables. The finding shared a commonality with the recent theorizing on goal orientations, which posits that any achievement goal can be pursued for autonomous reasons and garner relatively positive outcomes (Ikeda, Castel, & Murayama, 2015; Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014).

4.7.3 Path Analyses

In relation to objective four of the study, multiple regression results revealed interesting contrasts. In the prediction model for academic achievement using achievement goal orientations alone, the predictive value for approach goal orientation was higher than that of avoidance goal orientation. However, in the model involving achievement goal orientations and academic identity status, the predictive value for avoidance achievement goal orientation was higher than that of approach achievement goal orientation.

To complement the multiple regression results, a path analysis was conducted using AMOS Version 21. Path analysis is a particular kind of multiple regression analysis that enables the researcher to see the relative weighting of predictor variables on each other and on an outcome variable. Path analysis further indicates whether there are consistent pathways of association and determines the direct and indirect effects between predictors and outcome variables (Cohen, Manion, & Morrison, 2011). In this study, path analysis aimed at establishing whether achievement goal orientation

mediated the relationship between academic identity status and academic achievement. According to Cohen et al. (2011), in conducting the path analysis, the researcher constructs what is conceptualized as a suitable model of the associations between the variables based on theory and literature and then tests to see how this model fits with the collected data. Figure 4.1 displays the proposed baseline model for predicting academic achievement from academic identity status and achievement goal orientation.

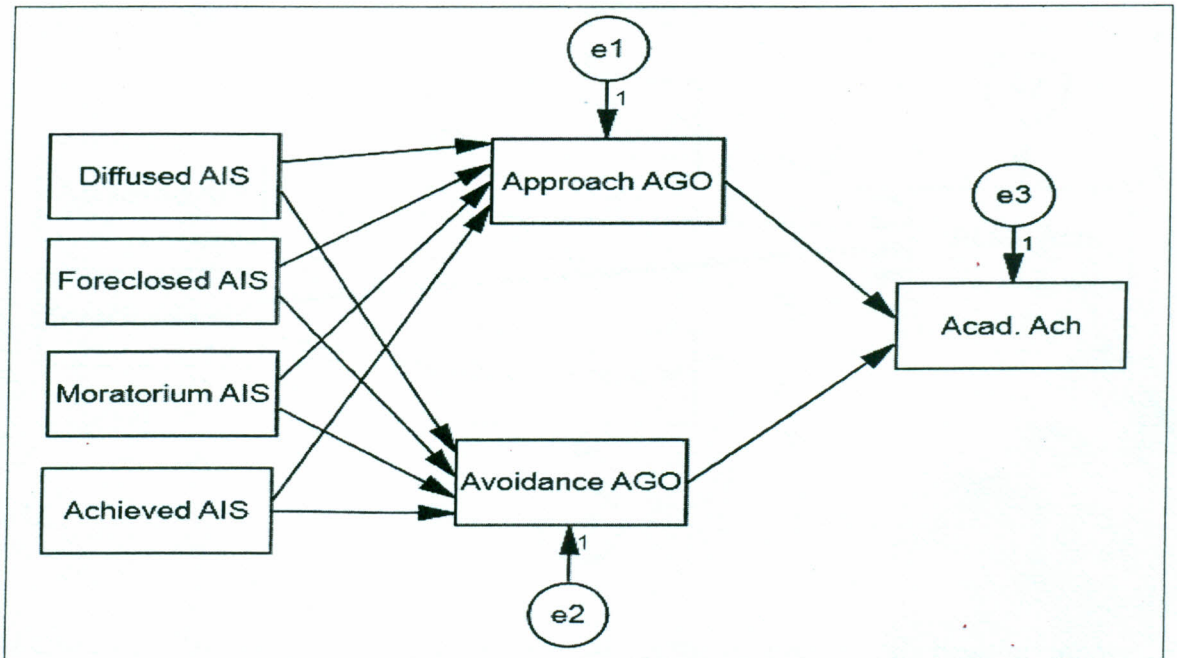


Figure 4.1. The proposed overall model. AIS = academic identity status; AGO = achievement goal orientation; Acad. Ach = academic achievement; e = error term.

The proposed overall model was tested and the fit indices showed that it was not the best fitting model for the sample data (χ^2 (11) = 242.04, $p < .05$). The values for the normed fit index (NFI), the comparative fit index (CFI), and the goodness fit index (GFI) were .45, .68, and .84, respectively. In addition, the Root Mean Square Error of Approximation (RMSEA) was .23. The four indices indicated poor model fit as per the

convention suggested by Cohen et al. (2011). In order to come up with the best fitting overall baseline model, the researcher had to revise the proposed model. This was achieved by examining the modification indices, and adding those paths that would provide the largest reduction in chi-square, while retaining the conceptual framework suggested by theory. The revised model was as presented in Figure 4.2.

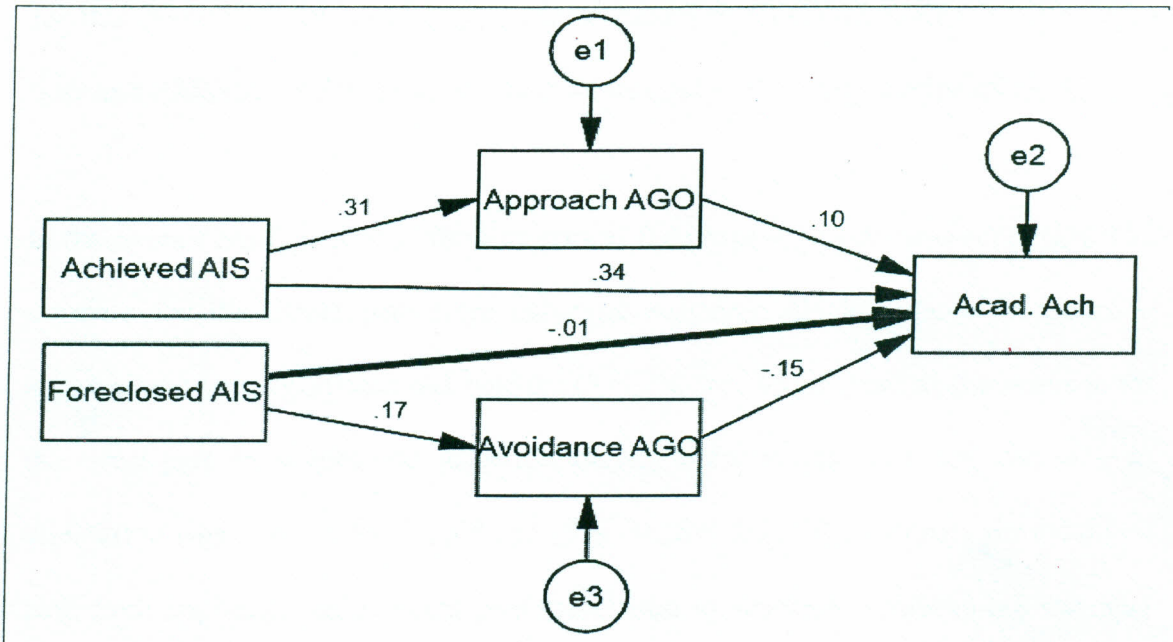


Figure 4.2. Path diagram of significant paths on the revised overall baseline model. AIS = academic identity status; AGO = achievement goal orientation; Acad. Ach = academic achievement; e = error term. The thick line denotes non-significant path.

The revised overall model differed from the proposed model in that it excluded diffused and moratorium academic identity statuses. In addition, the revised overall baseline model dropped two paths: the path from achieved academic identity status to avoidance achievement goal orientation and the path from foreclosed academic identity status to approach achievement goal orientation. In this study, modification

indices indicated that foreclosed academic identity status was not significantly related to academic achievement (r (383) = -.07, p > .05). However, its inclusion in the baseline model substantially improved model fit when it was viewed as a precursor to avoidance achievement goal orientation. The best fitting revised overall model (χ^2 (4) = 5.65, p = .23) for the sample data (N = 385) is shown in Figure 4.2. The fit indices for this revised model showed an adequate model fit CFI = 0.99, NFI = 0.98, GFI = 0.99 and RMSEA = 0.02. Thus, the model was used in the interpretation of the data.

In the overall baseline model, the first part of the proposed model was supported. The estimate for the direct path from achieved academic identity status to academic achievement was significant and positive (β = .34, p < .05). Likewise, the estimate for the direct path from achieved academic identity status to approach achievement goal orientation was positive and significant (β = .31, p < .05). The estimate for the direct path from approach achievement goal orientation to academic achievement was also positive and significant (β = .10, p < .05). On the other hand, the estimate for the direct path from foreclosed academic identity status to academic achievement was negative and not significant (β = -.01, p > .05). The estimate for the direct path from foreclosed academic identity status to avoidance achievement goal orientation was positive and significant (β = .17, p < .05). However, the estimate for the direct path from avoidance achievement goal orientation to academic achievement was negative and significant (β = -.15, p < .05).

To test whether the overall baseline model would differ when this model was applied to boys and girls separately, multiple group path analysis was conducted. The overall group was divided into boys (n = 196) and girls (n = 189), in order to test for differences between these two groups. The results of the boy/girl multigroup path analysis with freed versus constrained paths, yielded a chi-square difference statistic of $\chi^2(6) = 13.60, p < .05$. This chi-square difference test was significant, indicating that, at the level of the overall baseline model, there was a significant difference in the effect of academic identity status and achievement goal orientation in predicting the academic achievement of boys and girls. There was therefore a need to check for sex differences in the specific paths of the model. The significant paths for males and females on the overall baseline model are depicted in Figures 4.3 and 4.4. Notably, these two models did not specify those paths for which boys and girls differed significantly from one another.

In the revised model for boys (Figure 4.3), the estimate for the direct path from achieved academic identity status to academic achievement was significant and positive ($\beta = .39, p < .05$). Likewise, the estimate for the direct path from achieved academic identity status to approach achievement goal orientation was positive and significant ($\beta = .31, p < .05$).

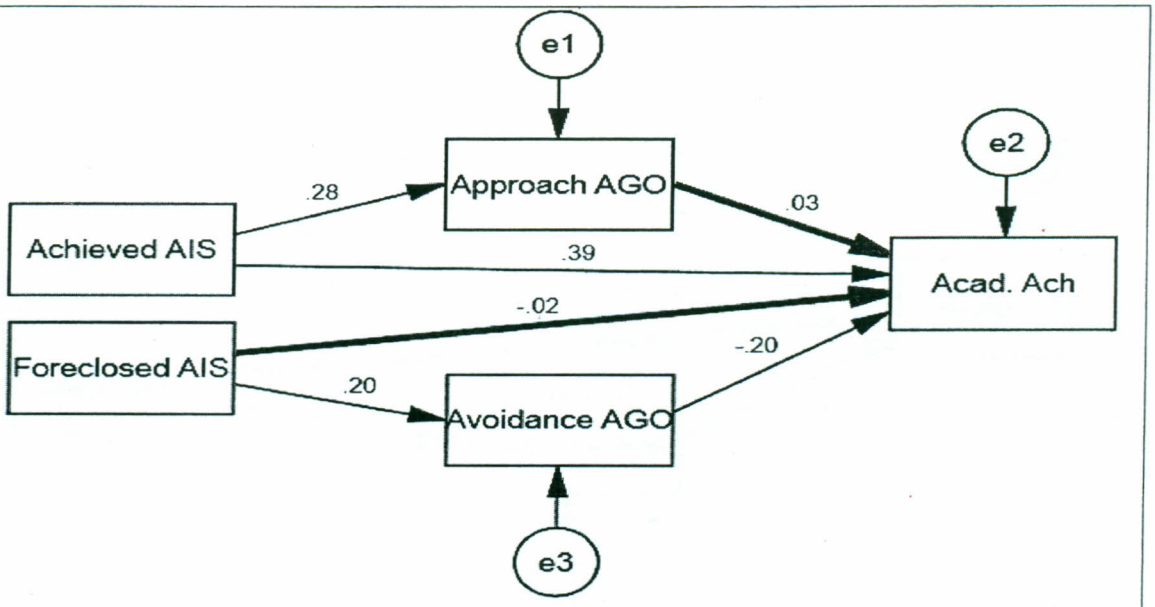


Figure 4.3. Path diagram of significant paths on the revised overall model for boys. AIS = academic identity status; AGO = achievement goal orientation; Acad. Ach = academic achievement; e = error term. The thick lines denote non-significant paths at $p = .05$.

The estimate for a direct path from approach achievement goal orientation to academic achievement was positive but not significant ($\beta = .03$, $p > .05$). As in the overall model, the estimate for the direct path from foreclosed academic identity status to boys' academic achievement was negative and not significant ($\beta = -.02$, $p > .05$). The estimate for the direct path from foreclosed academic identity status to avoidance achievement goal orientation was positive and significant ($\beta = .20$, $p < .05$). However, the estimate for the direct path from avoidance achievement goal orientation to academic achievement was negative and significant ($\beta = -.20$, $p < .05$). Interestingly, this path had equal weight with the path from foreclosed academic identity status to avoidance achievement goal orientation.

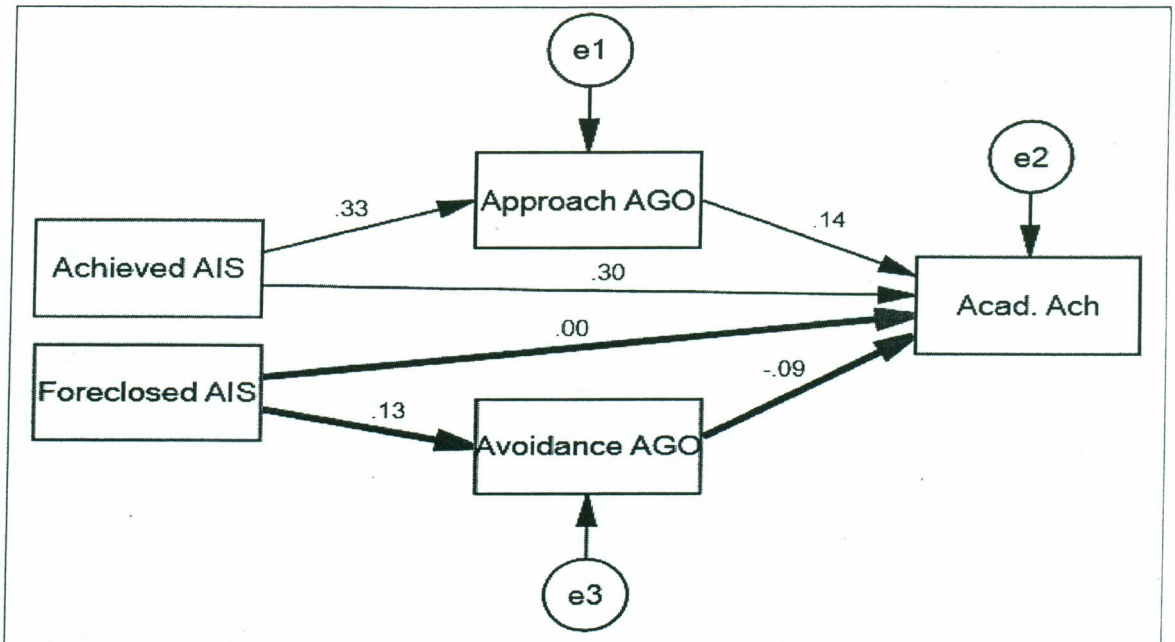


Figure 4.4. Path diagram of significant paths on the revised overall model for girls. AIS = academic identity status; AGO = achievement goal orientation; Acad. Ach = academic achievement; e = error term. The thick lines denote non-significant paths at $p = .05$.

In the revised model for girls (Figure 4.4), the estimate for the direct path from achieved academic identity status to academic achievement was significant and positive ($\beta = .30$, $p < .05$). Likewise, the estimate for the direct path from achieved academic identity status to approach achievement goal orientation was positive and significant ($\beta = .33$, $p < .05$). Unlike in the boys' model, the estimate for the direct path from approach achievement goal orientation to girls' academic achievement was positive and significant ($\beta = .14$, $p < .05$). On the other hand, the estimate for the direct path from foreclosed academic identity status to academic achievement was positive and not significant ($\beta = .00$, $p > .05$). The estimate for the direct path from foreclosed academic identity status to avoidance achievement goal orientation was positive and not significant ($\beta = .13$, $p > .05$). However, the estimate for the direct path from

avoidance achievement goal orientation to girls' academic achievement was negative and not significant (β = -.09, p > .05). The summary of the direct, indirect, and total effects of the latent variables in the overall and in the boy/girl model of predicting academic achievement were as presented in Table 4.35.

Table 4.35

Direct, Indirect, and Total Effects in Predicting Academic Achievement

	Overall model			Boys' model			Girls' model		
Variable	DE	IE	TE	DE	IE	TE	DE	IE	TE
FAIS	-.01	-.03	-.03	.00	-.04	-.04	.00	-.02	-.02
ACHAIS	.35	.03	.38	.00	.05	.05	.00	.08	.08
AVAGO	-.15	.00	-.15	-.19	.00	-.19	-.13	.00	-.13
APAGO	.10	.00	.10	.15	.00	.14	.25	.00	.25

Note. FAIS = foreclosed academic identity status; ACHAIS = achieved academic identity status; AVAGO = Avoidance achievement goal orientation; APAGO = Approach achievement goal orientation; DE = direct effects; IE = indirect effects; TE = total effects.

The results in Table 4.35 showed that, overall, achieved academic identity status had the highest direct effects on academic achievement. While the two academic identity statuses had both direct and indirect effects on academic achievement, the two achievement goal orientations had only direct effects. Apparently, while the indirect effects of foreclosed academic identity status were higher that direct ones, the direct effects of achieved academic identity status were higher than indirect effects. In terms of direction of association, foreclosed academic identity status and avoidance

achievement goal orientation had negative effects on academic achievement while achieved academic identity status and approach achievement goal orientation had positive effects.

As presented in Table 4.35, there were notable patterns in terms of sex in the effects of the predictor variables on the academic achievement. Specifically, due to the standardized indirect effects of foreclosed academic identity status on academic achievement, when foreclosed academic identity status went up by 1 standard deviation, the academic achievement of boys went down by 0.04 standard deviations, while that of girls went down by 0.02 standard deviations. On the other hand, owing to the standardized indirect effects of achieved academic identity status on academic achievement, when achieved academic identity status went up by 1 standard deviation, the academic achievement of boys went up by 0.05 standard deviations, while that of girls went up by 0.09 standard deviations. In addition, owing to the standardized direct effects of avoidance achievement goal orientation, when avoidance achievement goal orientation went up by 1 standard deviation, the academic achievement of boys went down by 0.19 standard deviations, while that of girls went up by 0.09 standard deviation. Similarly, when approach achievement goal orientation went up by 1 standard deviation, the academic achievement of boys went up by 0.14 standard deviations, while that of girls went up by 0.25 standard deviations.

In order to explore whether significant sex differences existed in each individual path, the researcher used the miscrosoft excel stats tool package by Gaskin (2012). This tool

compares the model regression weights as well as the pairwise parameter comparisons for the two groups. The results of the differences test were as presented in Table 4.36. None of the difference in the path estimates for boys and girls yielded a significant z - score value. This implied that the path estimates were equivalent across the two groups. From this path analysis, it was concluded that there were no significant differences between the boys' and girls' models in the six paths.

Table 4.36

Sex Differences in Path Estimates

			Boy		Girl		
Path			Estimate	*p*	Estimate	*p*	z-score
APAGO	<---	ACHAIS	0.27	.00	0.33	.00	0.62
AVAGO	<---	FAIS	0.21	.01	0.13	.07	-0.81
AC.ACH	<---	AVAGO	-0.19	.00	-0.10	.17	0.98
AC.ACH	<---	FAIS	-0.02	.79	0.00	.96	0.23
AC.ACH	<---	APAGO	0.03	.64	0.15	.04	1.19
AC.ACH	<---	ACHAIS	0.37	.00	0.32	.00	-0.51

Note. FAIS = foreclosed academic identity status; ACHAIS = achieved academic identity status; APAGO = Approach achievement goal orientation; AVAGO = Avoidance achievement goal orientation; AC.ACH = academic achievement.

The differences in path estimates added more evidence that academic identity status and achievement goal orientation have different associations with academic achievement across sex. Notably, the academic identity statuses only had indirect effects on academic achievement, while the achievement goal orientations only had direct effects. Negative effects were found in foreclosed academic identity status and

avoidance achievement goal orientations. These negative effects were higher among boys than among girls. Positive effects on academic achievement were found in achieved academic status and approach achievement goal orientation and these effects were higher among girls than among boys.

4.7.4 Discussion of the Results

The overall baseline model supported the contention that achievement goal orientation mediated the association between academic identity status and academic achievement. This may offer credence to the assertion that achievement goal orientations are contents of identity processes (Kaplan & Flum, 2010). The overall path model implied that approach achievement goal orientation strengthened the positive relationship between achieved academic identity status and academic achievement. On the other hand, the path analyses results suggested that avoidance achievement goal orientation strengthened the inverse relationship between foreclosed academic identity status and academic achievement. These patterns were replicated in the models for boys and girls. However, among girls, approach achievement goal orientation seemed to enhance the positive relationship between achieved academic identity status and academic achievement than among boys. The above findings were aligned to the views by a group of theorists who argue that identity development processes may be a precursor to the type of achievement goal orientation a student adopts (Berzonsky, Cieciuch, Duriez, & Soenens, 2011; Kaplan & Flum, 2010).

The study also found interesting sex differences in path diagrams. Specifically, achieved academic identity status had higher indirect effects among girls while foreclosed academic identity status had higher indirect effects among boys. On the other hand, approach achievement goal orientation had higher direct effects among girls, while avoidance achievement goal orientation had higher direct effects among boys.

The differences in the way achievement goal orientations mediate the association between academic identity status and academic achievement were provocative in a way. The results seemed to suggest that the type of academic identity status a student adopts acts as a precursor to the type of achievement goal orientation that they have in academic set ups. This position remains speculative though it aligns with the commentary by Eder, Elliot, and Harmon-Jones (2013), that emotional stimuli in achievement situations elicit two different types of behavioural inclinations, with appetitive stimuli affecting approach and aversive stimuli affecting avoidance. Thus, the current study findings may be taken to allude that each academic identity status creates different emotional stimuli among students in school set-ups. More research would be necessary to test this interesting possibility. Such research would enhance cross-pollination of achievement goal orientation theory with concepts from identity development theories.

4.7.5 Qualitative Data Analyses

To complement the findings in relation to objectives one and two of the study, the researcher conducted interviews to explore the subjective components related with participants' academic identity status, achievement goal orientations, and academic achievement.

The interview questions were adapted from the Academic Identity Status Measure (Was & Isaacson, 2008). Unlike the original interview items by Was and Isaacson that focused on decisions by college students, interview questions in this study were modified for participants in secondary school based on pilot study data, input from school teachers, and recommendations from the academic advisors. To align with the concept of academic identity status, the researcher created questions using the 10 distinct key topics identified by Was and Isaacson (2008) as the bases for academic identity decisions among adolescent students. These decisions include choosing subjects, reasons for choosing subjects, classroom attention, the purpose of education in future, academic goals, interest and motivation, discipline and volition, responding to failure and persistence in the face of failure.

a. Interview Analysis

This section outlines how the interviews were analysed and how participants' responses were put into specific themes. The interviews were analysed based on a deductive coding method and the pre-existing categories mentioned earlier. Each sentence was analyzed individually to gain better understanding of the phenomenon.

Following the method used by Jelenic (2013), a definite structure with fixed categories was established. Participants were then categorized into identity statuses using prominent themes. As proposed by Bernard and Ryan (2010), themes were extracted by counting repetition, similarities, and differences among responses.

b. Coding Method

The researcher followed the method suggested by Creswell (2014) in which the transcripts were reviewed severally using sequential description method. In this method, the text was divided by using participants' exact words as codes and grouping the text into themes and subthemes. Following the recommendation by Creswell (2014), the researcher had a high school teacher cross-check the codes. The data did not have many metaphors and inferences. Qualitative reliability was checked through high inter-coder agreement. This was necessary to facilitate logical and objective interpretations of the data.

c. Codebook Development

The development of the codebook included a priori categories adapted from the key topics of academic identity decisions that adolescents must make as identified by Was and Isaacson's (2008). The coding process was done following the eight steps suggested by Tesch (1990) cited in Creswell (2014). Afterwards, a qualitative codebook was developed outlining the list of codes, code labels, detailed description of the codes, inclusion and exclusion criteria and an example of quote illustrating each code. This method was deemed sufficient to succinctly define the parameters and

maximize coherence among the codes. The coding process also made it easy to revisit the transcripts and finding specified text.

Using the outlined coding method, the data were analysed to identify themes. The topics relevant to the respondents received priority in the codebook and were arranged hierarchically. Through this analysis, potential themes emerged from repeated responses. Additional analysis involved constantly comparing the data with the codes and this yielded more refined insight and reduced drifts in the coding process thus strengthening the reliability of the data. Table 4.37 presents the coding process used in analysing the interviews.

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Table 4.37

Codebook for Academic Identity Status

Parameters	**Topic**
Coded as	College-intent parental
Description	Parents demand that the student go to college/university and get a specific job or career. The eventual career is not relevant as much as college attendance in and of itself.
Inclusion criteria	Parents make their wish known by telling the child she/he is going to attend college
Exclusion criteria	The parents do not wish the child to go to college
Typical exemplars	"you will go to college'' or "study hard, pass, and go to college"
Coded as	No college-intent
Description	Student responds they don't intend to join university/college
Inclusion criteria	Indication that the student does not intend to go to college
Exclusion criteria	Student has intention of going to college
Typical exemplars	When asked whether they plan to go to college, the student replies in the negative.
Coded as	College-intent Personal
Description	Students respond that they intend to join university/college
Inclusion criteria	Indication that the student plans to go to college/university.
Exclusion criteria	Student has no intention of going to college/university.
Typical exemplars	When asked whether they plan to go to college, the student replies in the affirmative.

d. The Coding Rubric

Following the criteria used by Jelenic (2013), the coding rubric in Table 4.38 was based on the participants' degree of exploration and commitment. Upon analysing the participants' responses, the researcher assigned a status according to the rubric. For example, students who considered going to college/university and multiple career choices, had some (adequate to moderate) knowledge of career requirements, and opinions about academic values and priorities that differed from their parents' opinions were coded as having moratorium status. Students who had a single career choice, superficial to adequate career knowledge, and whose opinions about academic values and priorities were the same as their parents' opinions were assigned foreclosed status. Students who displayed a lack of focus were assigned diffusion, status. Such students decided against or had not considered college, academic values or priorities. In addition, students in diffused status chose subjects with extremely limited knowledge of how relevant they were to their careers.

Table 4.38

The Coding Rubric

Status	CD	CC	CK	Academic Values
DAIS	No	single	None	Undecided/same as parents
FAIS	Yes	Single	Superficial to adequate	Like parents/significant others
MAIS	Yes	Multiple	Moderate to adequate	Different from parents
ACHAIS	Yes	Single	Adequate	Different from parents

Note. DAIS = diffused academic identity status; FAIS = foreclosed academic identity status; MAIS = moratorium academic identity status; ACHAIS = achieved academic identity status; CD = college decision; CC = career choice; CK = career knowledge.

e. Status Assignment

Marcia (1966) stated that identity status involved exploration and commitment. Thus, from a hierarchical perspective, the most sophisticated status involves the greatest amount of exploration. Kroger et al. (2010) described exploration as having depth and breadth. Thus, those students who had knowledge of their chosen profession were considered as having depth. Students who chose to pursue higher education and had multiple job ideas were designated as having breadth. The degree of commitment and exploration further differentiated status assignment (for example Diffused or Foreclosed). Whether participants considered various careers was seen as an indicator of their maturity and, in turn, affected the hierarchical position of their assigned status.

To assign individuals to a status, three parameters were considered: the degree of exploration and commitment; the breadth of exploration and the subsequent commitment. This required the researcher to assign students' responses in terms of themes and patterns, potential plausibility, and by counting. To complement the explanations given in the explanatory phase of the study, the researcher sought to establish relations between variables and identify any apparent intervening ones. This approach was deemed necessary to build a linkage in evidence that may suggest a theoretical framework for future research.

Prompted responses were used to expand theme development but not to assign status. Only the student's initial response was considered in the coding. For example, when asked, "What do you want to pursue when you go to college?" and the student's

unprompted response was, "I want to do engineering," the response was deemed a single career choice. "I want to do medicine or engineering" was considered to be a multiple career choice.

The identity statuses as determined by students' responses and the rubric are presented in the next section starting from diffused academic identity status to Achieved academic identity status. Each academic identity status is described followed by examples from the interviews to support how it was coded and assigned. Importantly, a student's academic identity status was determined by how well the responses aligned with the overall definition of each status, a method that has been found to be valid in previous research (Jelenic, 2013). A boy and a girl are presented for each identity status, along with an example from each school. Pseudonyms have been used for all names.

i. Diffused Academic Identity Status

Individuals categorized as having diffused academic identity status, exhibited little interest in exploration or commitment. Such individuals remained indecisive and procrastinated regarding decisions pertaining to academic values and priorities in school.

Wa. The first participant, a girl, expressed no desire to attend college, and her reason was, "I will make my decision after completing my secondary education regarding my life in the community." Upon being asked about her career plans, she answered that

she would like to be an important person in the community. Her answer was rather general, and further prodding made her specify, she would wish to be a nurse. The researcher then probed if the student had ever had suggestions from her parents and siblings regarding her career choice. She said, the parents only insisted on being a teacher. When asked about why she chose her elective subjects in form three, Wa replied 'I feel comfortable.' Asked if she had discussed these choices with her parents she shook her head. When asked if her parents were likely to advise her to choose one subject over another, Wa replied, "no. " When asked on what makes her continue with secondary education, Wa replied, 'So that I can acquire a certificate and pursue a career of choice.'' This general response was consistent with her answer to the question on her career plans. However, the ambition to get a certificate and pursue a career without being specific showed a focus on the future that was not refined. In the vignette selection task, Wa chose diffused academic identity status and avoidance achievement goal orientation vignettes.

Dan. This boy indicated that he wished to go to the university. Asked why he selected his optional subjects in form three, Dan replied, "Because they were the only ones I could do." When asked what he wanted to become after secondary school he stated, "To become a famous person….." When the question of what he wanted to study in the university was posed, he replied, 'pharmacy'. Upon being asked what he would eventually do with his degree in pharmacy, Dan replied, "treat people." Although Dan had chosen a single career, he did not know what the concept of being a pharmacist entailed. Asked whether his parents influenced him in his subject selection in form

three, Dan said "No." In regards to receiving pressure from parents concerning whether to join college after secondary school, Dan said, "No." Asked what he does when a subject is difficult, Dan said, "I look for something else to do." Though this student chose the vignette for diffused academic identity status, he selected one for approach achievement goal orientation.

ii. Foreclosed Academic Identity Status

Students in the foreclosed status lacked exploration yet were firmly committed and readily conformed to academic values and expectations adapted from significant others. They had not experienced an identity crisis because they had not explored alternatives. Instead, they adopted prescribed roles and goals. Their academic values and choices are predetermined (Was & Isaacson, 2008). Such students view success from the eyes of others. In this study, students in the Foreclosed academic identity status indicated that they planned to join the university or college after secondary school. They also chose a single career. However, the students did not attribute this choice to their own interests and they often displayed poor mastery of the job requirements. These students adopted the views of their parents and elder siblings unlike students in the more refined moratorium and achieved academic identity statuses.

Mugu. This was a boy whose career intention was to become an engineer. Mugu mentioned a course in engineering as the higher education required for this profession. He affirmed that he intended to join college/university since his parents had

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emphasized on the need to go to college. Asked which subjects from his optional subject selection would enable him realize his dream of being an engineer, Mugu replied "Biology and Chemistry." Asked why he did not choose to do Physics which would be more relevant for his career, he said "my elder sister advised me that it was easy to pass in Biology and Chemistry than in Mathematics and Physics". This implied adopting academic goals prescribed by significant others as well as limited knowledge of career requirements. This was considered an indicator of foreclosed identity. Mugu selected the vignettes for foreclosed academic identity status and approach achievement goal orientation.

Judy. Judy was also categorized as having foreclosed academic identity status. This participant had a single career choice, being a military officer, and she did not indicate having considered further exploration. She had selected the career because she admired to be like her parents and two siblings who served in the disciplined forces. "My family is comprised of police officers: dad, mum, and my two elder brothers. So.., I know I am next." This indicated a deep commitment to her career choice. Asked if she planned to join the university or college, Judy replied, 'yes'. She indicated that she intended to pursue a degree in conflict resolution. Asked why she chose this course, she said that her brothers had informed her that it "was very relevant for police officers and it would increase chances for promotion at work." To Judy, her family members were the motivating force behind her career choice. After being prompted she mentioned that she had considered being different from the other family members but had not decided which career she would pursue. Judy indicated that she had selected

her optional subjects because they were easy to pass in. Thus, the best indicator for foreclosed academic identity status was her career choice. Judy selected the vignettes for foreclosed academic identity status and avoidance achievement goal orientation.

iii. Moratorium Academic Identity Status

According to Was and Isaacson (2008), students in moratorium academic identity status display exploration of a variety of options without committing to any. In the interviews, respondents in the moratorium status mentioned pursuing multiple careers, having some knowledge of each, and entertaining a differing view of academic values and choices from their parents.

Mki. This respondent was decided he would join college/university after secondary school and that he would want to join "either Nairobi or Moi university." Mki indicated that he chose his optional subjects in form three because they would increase chances for success in his career life. He however lamented that "the school only allows you to do two science subjects yet doing the three sciences would enhance chances for getting my best career." Asked what he would like to be after his studies, Mki replied, "Being a teacher or an engineer." This implied he contemplated two distinct career choices. He said his interest in teaching began when he was young because his father was always admired and respected as a teacher. He said "I know being a teacher, I will serve my community. You do teaching, and you will get a job after college." Mki, wished to pursue a career of teaching based on a personal desire that started early in life due to social experiences. Asked why he also had interest in

being an engineer, Mki said "I love discovering things. You know....like....bringing things down, and then reassembling them. It is just nice to fix things up on your own." Asked whether he had considered another career, he said "Actuarial science but, I doubt, I can qualify for it." Mki's career choice considerations from different fields was considered a demonstration of high degree of exploratory behavior. Mki chose a vignette for moratorium academic identity status, and avoidance achievement goal orientation.

Shir. The next participant, Shir, indicated that she would go to college/university after secondary school and she planned to become a banker or a doctor. Asked which university she wanted to join after secondary school, Shir indicated she was not decided yet but she would like to join Nairobi. Asked whether her parents had influenced her choice of subjects in form three, she said, "I only informed them what I had chosen, because I chose the subjects that were fit for my career." When Shir was asked where her interest to pursue a career in banking came from, she said, "my auntie is a senior manager in--- a local bank and she has already promised me a job if I pass well in KCSE." This implied that the decision to be a banker came from an external influence. When asked why she also wanted to be a doctor, she said, "I think being a doctor, I would touch many lives, and empower people from my area to fight the many health challenges they face." This implied that Shir had considerable knowledge of her career. Exploration was implied by the fact that Shir's interest in becoming a banker came from an external influence while her decision to be a doctor arose from an internal desire. Shir was coded as having multiple career choice since the two jobs had

no close connection to each other, therefore reflecting a great deal of exploration. Shir chose a vignette for achieved academic identity status and approach achievement goal orientation. Therefore, only her career choice profile was considered when categorizing her as moratorium.

iv. Achieved Status Individuals

According to Was and Isaacson (2008), the Achieved status is the most refined academic identity status in which students exhibit high degrees of exploration and commitment. In the interviews, respondents in the achieved academic identity status mentioned pursuing a single career, having adequate knowledge of each, and entertaining a differing view of academic values and choices from their parents.

Nei. Nei indicated that she intended to join the university after secondary school. She mentioned that she had selected her subjects in form three because " I know myself and how I perform in each of these subjects will affect my career." Nei had chosen being a computer engineer as her career. Asked why she had chosen this field, she replied that, 'it is my best choice because the world today revolves around IT. I want to be a computer engineer because I pass well in all required subjects and since I naturally love IT." Regarding whether her parents had influenced her in subject and career choices, Nei responded, "I discussed my subject choices with mum and dad by the end of form two. At first, I felt being a doctor would be a cool thing. But, I know routine work would be boring to me. I know mum felt like.... I was not realistic in wanting to be a comp engineer, but dad respected my choice and encouraged me to

think big... Mum wanted me to think of something like..... nursing or teaching like my sis, but... that's not my stuff. I have already made up my mind on what I want to do in life. It may be...like difficult, but I know I will make it." Nei demonstrated a high sense of commitment to her career choice after a period of exploration. Nei was coded as having an adequate understanding of the requirements for the careers she chose. Thus she was categorized as having achieved academic identity status. Nei selected vignettes for achieved academic identity status and approach achievement goal orientation.

Mag. This boy responded that he wanted to join the University of Nairobi after secondary school. He indicated that he had selected his optional subjects based on his previous performance and his career interest. Mag indicated he wanted to be an electrical engineer. Asked whether his parents had influenced him in choosing his subjects and career he responded, "of course they were concerned... but I chose to do the three sciences since I want to take electrical engineering at the University.' Asked why he was specific about the university he said, "I know Nairobi University is the best in engineering courses and I want to go there." Prompted on whether he had considered other courses his response was, 'Yes, in primary school, I always admired policemen. I felt like being one was okay..... After considering the risks involved, I stopped thinking I could be one..... In addition I perform well in school and joining the police would be like wasting my brains." This indicated that Mag's decision to be an engineer was arrived at after exploratory behaviour. His college intention and commitment were coded as having come from personal interest without parental

influence. He chose the vignettes for achieved academic identity status and approach achievement goal orientation. Mag was thus categorized as having an achieved academic identity status.

The qualitative data were used to categorize participants into academic identity statuses as presented in Table 4.39.

Table 4.39

Qualitative Categorization of Participants' Academic Identity Status[a]

AIS	Boys	Girls	Total
Diffused	3 (7.50)	2 (5.00)	5 (12.50)
Foreclosed	2 (5.00)	2 (5.00)	4 (10.00)
Moratorium	12 (30.00)	13 (32.50)	25 (62.50)
Achieved	3 (7.50)	3 (7.50)	6 (15.00)
Total	20 (50.00)	20 (50.00)	40 (100.00)

Note. AIS = academic identity status.
[a] ( ) indicate percentage of the total.

Consistent with the findings in the quantitative phase of the study, majority of respondents were categorized into moratorium academic identity status (62.50 %). This reaffirmed the theoretical position that secondary school students are actively exploring various academic options and may be considering committing to academic goals and choices. On the other hand, the number of respondents categorized into foreclosed academic identity status was the least (10 %). This contrasted the quantitative findings where the least number of participants was in diffused academic

identity status. The rest of the respondents was categorized into achieved academic identity status (15 %) and diffused academic identity status (12.50 %).

In terms of sex, more boys were categorized as having diffused academic identity status than girls. On the other hand, there were more girls categorized as having moratorium academic identity status than boys. The sex differences in the qualitative categories mirrored those reported in the quantitative phase of the study. However, in the qualitative analyses, no sex differences were observed in foreclosed and achieved academic identity statuses.

To identify the participants' achievement goal orientations, their choices of achievement goal orientation vignettes were analysed. As presented in Table 4.40, majority (70 %) of the respondents in the qualitative study selected vignettes for approach achievement goal orientation. In addition, approach achievement goal orientation was endorsed more often by boys than girls. On the other hand, more girls endorsed avoidance achievement goal orientation than boys. These results supported those reported in the quantitative phase of the study (see Table 4.13). These results also corroborated those reported by Dekker et al. (2013).

Table 4.40

Qualitative Categorization of Respondents' Achievement Goal Orientation[a]

Vignette	Boy	Girl	Total
Approach AGO	15 (37.50)	13 (32.50)	28 (70.00)
Avoidance AGO	5 (12.50)	7 (17.50)	12 (30.00)
Total	20 (50.00)	20 (50.00)	40 (100.00)

Note. AGO = achievement goal orientation.

[a] ( ) indicate percentage of the total.

The researcher analysed how the selection of the vignettes for achievement goal orientations was distributed across the qualitative categorizations for academic identity status and the results are presented in Table 4.41. Those respondents categorized as having diffused and foreclosed academic identity statuses chose the vignettes for avoidance achievement goal orientation vignettes more often than for approach achievement goal orientation. On the other hand, respondents categorized as having moratorium and achieved academic identity statuses chose vignettes for approach achievement goal orientation more often than for avoidance achievement goal orientation. This pattern of responses may offer more evidence to the patterns of correlations between academic identity statuses and achievement goal orientation reported in the quantitative results (see Table 4.19).

Table 4.41

Distribution of Achievement Goal Orientation Vignettes across the Qualitative Academic Identity Status Categories

Academic identity status	Avoidance AGO	Approach AGO
Diffused	3	2
Foreclosed	3	1
Moratorium	5	20
Achieved	1	5
Total	12	28

Note. AGO = achievement goal orientation.

Two of the study objectives were concerned with establishing whether students' academic achievement was related to their academic identity status and achievement goal orientation. The researcher collected the academic achievement T-scores of the interviewees. These T-scores were averaged per study variable and the results were as presented in Table 4.42. The highest academic achievement average T-score was for the approach achievement goal orientation (M = 55.73) while the least was for diffused academic identity status (M = 33.03). These findings had considerable convergence with those reported in the quantitative phase of the study (see Tables 4.12 and 4.17). Among the qualitative categories of academic identity status, foreclosed academic identity status had the least academic achievement average T-score while achieved academic identity status had the highest. In addition, the academic achievement of the

individuals categorized as having approach achievement goal orientation was higher than those categorized as having avoidance achievement goal orientation.

Table 4.42

Academic Achievement across the Qualitative Categorizations of the Study Variables

Variable	Academic achievement T-score
Diffused academic identity status	33.03
Foreclosed academic identity status	38.50
Moratorium academic identity status	49.41
Achieved academic identity status	55.55
Approach achievement goal orientation	55.73
Avoidance achievement goal orientation	44.10

The fact that diffused academic identity had the least academic achievement score in qualitative phase of the study and not among the quantitative categories was not readily explicable. The difference could be attributed to the qualitative analysis of the interviews.

The assignment of a status represented only one facet of the qualitative analysis. The researcher further analysed students' responses to pick out the themes and subthemes that arose in the interviews, especially in relation to how academic identity status developed. This analysis provided further insight into the relationships between

academic identity status and achievement goal orientation and academic achievement. The major themes and sub-themes are included the next section.

v. Major Themes and Subthemes

As per the outlined categories, the researcher formulated themes based on repeated responses that indicated degrees of exploration and commitment. The categories, along with the level of exploration and commitment, allowed the researcher to determine an identity status. The themes represented similarities and differences within identity categories for the participants in addition to trends concerning careers, subject choice and college intentions. Each student's response was analyzed and compared to responses from other students and specific tendencies were recorded. The responses, however, elicited themes that may shed some light on the respondents in terms of identity development.

a. Theme 1: Higher Education

The first theme was the participant' intentions regarding higher education. Overall, majority of the interviewees demonstrated personal responsibility in their academic choices, and appeared to have clear academic goals. The reasons given for wanting to obtain college education were mainly personal. The reasoning behind their answers ranged from personal choice, edification, parental wishes, and improving one's life. In fact, most of the career choices required higher education. Notably, two of the five respondents in the diffused academic identity status did not have clear plans to attend college or university. These students demonstrated a lack of purpose and priorities in

school. This lack of purpose may explain the negative relationship between diffused academic identity status and academic achievement that was reported in the quantitative phase of the study.

b. Theme 2: Subject Selection

The two themes of subject selection and career choice were considered the most revealing in terms of academic identity status. Students discussed these topics freely and confidently regarding their future. The respondents demonstrated the behaviour reflective of the two processes required for identity development: exploration and commitment. From theory, it was expected that students in the more sophisticated academic identity status would display a high degree of exploration and commitment. On the other hand, commitment without exploration or lack of both was expected for students in the less sophisticated academic identity statuses. The respondents did not show variation in the extent of exploration in subject selection as they did in college attendance and career choice. The ease with which the participants evaluated subject selection may be associated with the fact that in Kenya, most secondary school students select optional subjects in form three.

Overall, students selected subjects for their usefulness especially in relation to their career choices. Although teachers, parents, and siblings were mentioned as having influenced subject selection, majority of the participants reported that they selected the subjects out of their own volition. However, majority of the students mentioned having discussed their subject choices with their teachers and family members.

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c. Theme 3: Career Choices

In terms of career, most participating students chose socially desirable jobs. For example, a number of the students who wanted to become doctors indicated that they were interested in this career since it paid higher salaries relative to other careers. Furthermore, they focused most often on multiple, white-collar jobs and they demonstrated moderate background knowledge regarding the educational requirements for the popular white-collar jobs. Some students were attracted to professions by their appealing nature but most had moderate in-depth knowledge regarding job description. Moreover, the students who unwaveringly chose only one career path were very specific regarding their future. Such students indicated that passing well in exams and being disciplined would enable them get into their careers. Such students were either in the foreclosed or achieved academic identity statuses.

In terms of career choice, high exploration was indicated by multiple career choices, while commitment was indicated by a single career. Notable sex differences were observed in the distribution of career choices among boys and girls. As presented in Table 4.43, boys chose single careers more often than girls did, while girls chose multiple careers more often than boys did. The career choices mentioned by the participants included the following: engineer (electrical, mechanical, and computer), lawyer, doctor, nurse, teacher, media personality, dentist, surgeon, pharmacist,

police/military officer. There were overlaps owing to multiple career choices but doctor and teacher were the most often cited.

Table 4.43

Respondents' Career Choice Grouped by Sex

Sex	Career Choice		Total
	Single	Multiple	
Boy	8 (20.00)	12 (30.00)	20 (50.00)
Girl	6 (15.00)	14 (35.00)	20 (50.00)
Total	14 (35.00)	26 (65.00)	40 (100.00)

Note. ( ) indicate percentage of the total.

d. Theme 4: Responding to Failure and Persistence in the Face of Failure

The interviewees responded to a number of questions focusing on how they responded to failure or threats of failure in school activities. This was a pertinent topic because failure is inevitable in achievement contexts. It was observed that interviewees categorized in the moratorium and achieved academic identity statuses often reported that they usually correct their mistakes and aspire to improve whenever they fail. These students reported that they would either consult with their classmates, textbooks, or their teachers whenever a subject was difficult. Those in diffused and foreclosed academic identity statuses often reported withdrawal or disengagement with the subject or classroom activity. This may explain why the two sub scales correlated negatively with academic achievement.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter is divided into four sections. Section one summarizes the study findings, section two shows the implications of the findings, section three outlines the conclusions based on the findings, and section four gives the study recommendations.

5.2 Summary

In summary, the study was conducted to investigate academic identity status and achievement goal orientation as predictors of academic achievement among form three students in Embu County. The study tested whether the predictive equation for academic achievement using academic identity status and achievement goal orientation was significant. The study further evaluated if there were significant sex differences in students' academic identity status, and achievement goal orientation. In the exploratory analyses, the study evaluated whether school type and students' age were related to academic achievement. Four objectives and four research questions framed the study.

The first objective of the study was to determine if there was a significant relationship between academic identity status and academic achievement. The results revealed that of the four academic identity statuses, only achieved academic identity status had a moderate positive correlation with academic achievement. Diffused, foreclosed, and

moratorium academic identity statuses had very weak statistically insignificant negative correlations with academic achievement.

The second objective of the study investigated the relationship between achievement goal orientation and academic achievement. The results generally corroborated the hypothesized relationship. Both approach and avoidance achievement goal orientations had weak but significant correlations with academic achievement. Academic achievement correlated positively with approach achievement goal orientation and negatively with avoidance achievement goal orientation.

The third objective of the study tested for sex differences in students' academic identity status, achievement goal orientations, and academic achievement. Only a few significant sex differences were discernible among the students on the variables included in the study. The analysis revealed that boys demonstrated a significantly higher endorsement of foreclosed academic identity status than girls did. No statistically significant sex differences were found in the other academic identity statuses. However, girls had a significantly higher endorsement of approach achievement goal orientation than boys did. There were no significant sex differences in the participants' avoidance achievement goal orientation and academic achievement.

The final objective of the study investigated whether academic identity status and achievement goal orientation have a significant predictive value in determining students' academic achievement.

Multiple regression analyses produced the following three equations:

$\dot{y} = 0.00 + .40$ (ACHAIS) $(R^2 = .14)$ (1)

$\dot{y} = 47.53 - .16$ (AvAGO)$+ .21$ (ApAGO) $(R^2 = .06)$ (2)

$\dot{y} = 34.92 - 0.15$ (AVAGO)$+ 0.35$ (ACHAIS)$+ 0.10$ (APAGO) $(R^2 = .17)$ (3)

Where: ACHAIS = achieved academic identity status; APAGO = approach achievement goal orientation; AVAGO = avoidance achievement goal orientation.

Given the four types of academic identity status and the two types of achievement goal orientations as predictors, a significant predictive equation was found. Equation (1) involved predicting academic achievement from the four academic identity statuses. In this equation, only achieved academic identity status was a significant predictor. In equation (2), academic achievement was predicted from the two achievement goal orientations. The two achievement goal orientations were significant predictors. Specifically, approach achievement goal orientation had a positive contribution while avoidance achievement goal orientation had a negative contribution in predicting academic achievement. In equation (3), academic achievement was predicted from achieved academic identity status together with the two achievement goal orientations. In this equation, achieved academic identity status emerged as the best predictor of students' academic achievement.

In the exploratory path analysis, it was found that the relationship between academic identity status and academic achievement was mediated by achievement goal

orientation. The findings suggested sex differences in these mediation. Avoidance achievement goal orientation enhanced the inverse association between foreclosed academic identity status in boys more than girls. On the other hand, approach achievement goal orientation enhanced the positive association between achieved academic identity status and academic achievement more in girls than boys. The qualitative findings also suggested that academic identity status and achievement goal orientation are associated with academic performance and there were appreciable sex differences in the two constructs.

5.3 Conclusion

Overall, the results suggested that when considering different academic identity statuses and achievement goal orientations in relation to academic achievement, academic identity status was more salient to students' academic achievement. The results generally supported the notion that academic identity status may account for individual differences in students' academic performance. While achieved academic identity status is adaptive to achieving in school, diffused, foreclosed, and moratorium academic identity statuses are not. In academic set ups, when students experience challenges, those in the achieved academic identity status are more likely to thrive than those in the other statuses.

The results further indicated that while approach achievement goal orientation made a significant positive contribution in predicting academic achievement, avoidance achievement goal orientation made a negative contribution. In examining the joint

contribution of academic identity status and achievement goal orientation sub scales in predicting academic achievement, achieved academic identity status was the only AIM sub scale to enter the regression model. The two sub scales of AGO entered the regression model but the joint prediction effect was higher for achieved academic identity status with avoidance achievement goal orientation than with approach achievement goal orientation. This was contrary to the findings of studies based on the academic identity status and the 3 x 2 achievement goal orientation models among college and high school students in America and Asia.

The study findings may offer credence to the view that different achievement goals influence learning processes differently. In addition, the results seem to support the notion that achievement goal orientations influence academic outcomes by working in cohort with academic identity statuses. The AIM and AGQ, with some refinements, act as multidimensional continuous scales that may be used confidently for future research among Kenyan students. The present findings may suggest that boys find avoidance achievement goals easy to pursue, and therefore feel low pressure when pursuing this goal. This may yield several positive outcomes. More work is needed to further test the links between academic identity status and achievement goal orientation.

5.4 Recommendations

Based on the study findings, the following recommendations for policy and further research were made:

5.4.1 Policy recommendations

The findings of the current study hold a number of implications for educators and students in secondary school settings in Kenya on how academic identity influences students' performance in the classroom.

i. The findings indicated that achieved academic identity status has the highest predictive value on academic achievement relative to the other academic identity statuses and achievement goal orientations. Therefore, schools should pay more attention to the development of achieved academic identity status and consider it as a key variable in determining students' academic achievement.

ii. Policy makers should consider introduction of school-based interventions aimed at helping students to navigate their identity development and to emerge in one of the most psychologically adaptive statuses. Such interventions may be more beneficial if they ensured that as students move towards the most adaptive academic identity status, they focus more on approach achievement goal orientation than avoidance achievement goal orientation. For example, teachers could structure the learning environments in ways that facilitate students to shorten their length of exploration as a way of enabling them to attain an achieved identity status and thus have better chances to perform well academically. Such interventions should address the sex differences in students' academic identity status, achievement goal orientation, and academic achievement.

iii. The designers of secondary school curriculum may also devise classroom activities that allow students to learn about the nature of identity development. This could be one way for facilitating exploration of alternatives prior to commitment and culminating with achieved an academic identity status.

iv. In this study, academic identity statuses characterized by forced academic values or lack of academic values had negative relationships with academic achievement. Thus, parents and other caregivers could be advised to offer guidance to students and give them room to make their own efforts to commit to an academic identity. This would be very crucial especially for those students in the diffused identity status, which had the weakest correlation with academic achievement. Such students may need to be pushed or to be taken through a guided exploration of identity choices in which they might be interested.

v. Parents and teachers should encourage both boys and girls to adapt an approach achievement goal orientation, as it was more beneficial academically than avoidance achievement goal orientation. To foster an approach goal orientation, students should be encouraged to focus on attaining competence in academic tasks. In such efforts, care should be taken to address the subtle differences between boys and girls in their achievement goal orientations.

iv. Interestingly, the study revealed that academic identity status and achievement goal orientation predicted academic achievement differently. In the predictive model combining academic identity status and achievement goal orientation, avoidance achievement goal orientations had a higher predictive value than approach achievement goal orientations. It is likely that an achieved academic identity status makes up for the negative effects of avoidance achievement goal orientation. Future studies to consider how the combinations of different academic identity statuses and achievement goal orientations influence each other and students' academic achievement. For example, to better understand the possible influence of achieved academic identity status on the academic achievement, an experimental study could be conducted.

v. In this study, achievement goal orientations were collapsed into two dimensions: approach and avoidance. This did not address the specificity of mastery versus performance achievement goals as suggested by the achievement goal orientation theory. Future studies may seek to establish whether the uncollapsed 3 x 2 model of achievement goal orientation captures differences in Kenyan students' achievement goal orientation.

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APPENDICES

Appendix A

Letter of Consent

Ireri Anthony Muriithi
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Nairobi.

Dear Student,

I am a PhD student in the Department of Educational Psychology of Kenyatta University. I am conducting a research involving form three students in Embu County. The research will involve questionnaires with statements about your goals and identity at school. Through the information collected in this exercise, we hope to help students, teachers, and parents in promoting student learning and academic performance. Your answers will be kept secret to anyone else other than the researcher.

You have been chosen to participate in the research because you are in form three. You are free to choose to or not to participate in this research. If you agree to participate and in the course of the study you wish to discontinue your participation, you will be free to do so. I promise to share with all participants the findings of the study upon its completion. If you agree to participate, please sign at the end of this letter.

Thank you.

Signature---------- (I agree to participate in the research).

Appendix B

Questionnaire for Students

Section I: Instructions

This questionnaire involves questions about your experiences in school. Your answers will help me and the school serve you and other students better. Note that this is not a test and there are no right or wrong answers. Don't check for answers from your neighbour. Your responses will be kept secret. Just be open and honest as you answer the questions.

To answer the questionnaire items you will be choosing how much you agree with the statement by selecting from '*strongly agree*,' '*agree*,' '*disagree*,' ''*undecided*', or '*strongly disagree.*' For each item, you will mark only one answer with a checkmark. If you make a mistake or change your mind, erase your old answer entirely and fill in your new answer. If you have any questions about any of the items or if you need a bit more time to answer an item, be sure to let me know. When you finish, just give me your questionnaire.

Section II: Background Information

Give the following details about yourself.

a. **Code number.....**

b. Age:_____years

c. Sex (Please tick one) Boy: _____ Girl: _____

Section III: Achievement Goal Orientation Questionnaire.

The following statements represent how you may or may not feel about yourself as a form three student. Choose only one answer for each statement by inserting a mark to indicate how you agree or disagree with statement regarding yourself. Answer as follows: If you: **Strongly Agree (SA),** mark in the fifth box; **Agree (A),** mark in the fourth box; are **Undecided (U),** mark in the third box; **Disagree (D),** mark in the second box; **Strongly Disagree (SD),** mark in the first box.

I) Approach Achievement Goal Orientation

	Statement	SD	D	U	A	SA
1	I want to get a lot of questions right in exams.					
2	My goal is to do well in form three exams just as I have done in the past.					
3	My goal is to perform better in form three exams than I have done in other classes.					
4	It is important for me to do better than other students in exams.					
5	My goal is to know the correct answers to the questions in exams.					
6	It is important for me to do well compared to others in exams.					
7	My goal in this class is to get better marks than my classmates.					
8	My goal is to do better in form three than I usually do.					
9	I want to answer a lot of questions correctly in exams for form three					

II) Avoidance Achievement Goal Orientation

	Statement	SD	D	U	A	SA
1	My goal is to avoid wrong answers in exams.					

Statement		SD	D	U	A	SA
2	My goal is to avoid getting lower marks in exams than what I normally get					
3	My goal is to avoid performing poorly in form three compared to my usual mean grade.					
4	I work hard because I fear performing worse than my classmates					
5	My goal is to avoid getting a lot of questions wrong in the exams in form three					
6	I want to avoid getting lower marks than my classmates in form three exams					
7	My goal is to avoid getting lower marks in form three exams than what I got before joining this class.					
8	I want to avoid missing a lot of questions on the exams in form three.					
9	I just want to avoid getting a bad position in form three.					

Section D: Academic Identity Status Measure (AIM)

The following statements represent how you may or may not feel about yourself as a form three student. Choose only one answer for each statement by inserting a mark in the box to indicate how you agree or disagree with statement regarding yourself. For each item, if you, **Strongly Agree (SA),** mark in the fourth box; **Agree (A),** mark in the third box; **Disagree (D),** mark in the second box; **Strongly Disagree (SD),** mark in the first box.

I) Diffused Academic Identity Status

Statement		SD	D	A	SA
1	Sometimes I think the reason I am in school is because I have nothing better to do.				
2	I am not sure what job I want after secondary school and I do not think much about it.				
3	I don't worry about my marks and I don't set academic goals for myself.				

Statement		SD	D	A	SA
4	If I were to pay my own fees, I probably wouldn't be in school even if I had the money.				
5	In class my mind often wanders and often I wish I were not in school.				
6	A major reason to be in school is to be with other students and make friends.				
7	If a lesson is very difficult I usually give up and ignore the content.				
8	I don't have clear priorities for school and life. I am easily influenced by others.				
9	Even when I lack time to study, I cannot fail to meet my friends and have fun.				
10	Most of the material I am asked to learn in my classes is not interesting.				

II) Foreclosed Academic Identity Status

Statement		SD	D	A	SA
1	I always wish to get good marks to make my parents happy.				
2	I already know my career choice mainly from the guidance I receive from my family.				
3	I've never made my own decisions about school, I just do what my friends and family expect me to do.				
4	My priorities for school come from my previous experiences. I usually just accept what is expected of me.				
5	How I do in school is important to me because many people expect I do well.				
6	An important reason I chose to go to secondary school was because my family wanted me to go.				
7	I feel I have to attend every school lesson; otherwise my parents would be angry.				
8	I try to write down everything the teachers say but I rarely think about how I can apply what I learn.				
9	If a subject is very difficult I start to read more seriously so that I don't disappoint other people.				
10	When I do poorly on an examination I get upset and worry what my friends and family might think of me.				

III) Moratorium Academic Identity Status

Statement		SD	D	A	SA
1	I want to join university but I am not sure I can do the hard work it requires.				
2	Although I am keen about good marks and studying, at times I feel lazy and don't care about them.				

	Statement	SD	D	A	SA
3	Sometimes I feel responsible for my own studies but other times I feel it is beyond my control.				
4	Some days I am excited and happy learning but other days I don't really care.				
5	My priorities in school keep changing, some days I am serious while other days I have other priorities.				
6	I always want to complete my classwork but I often don't get time to finish it.				
7	Sometimes I feel confident I know what I want from my education but other days I'm not so sure.				
8	Sometimes I feel upset when I fail my exams, while other times I just forget and carry on with studies.				
9	When a subject is challenging, my first reaction is to work harder but sometimes I give up.				
10	Sometimes I am interested in what is being discussed in class but other days I am bored.				

IV) Achieved Academic Identity Status

	Statement	SD	D	A	SA
1	University education is a high priority for me and I am willing do everything in order to achieve it.				
2	I have considered my college courses and I have decided which one is best for me.				
3	When a subject is important to me, I pay attention even when the teacher or the topic is boring.				
4	I feel proud being responsible for my own education and learning.				
5	When I do poorly in an examination, I think of what I did wrong and try to do corrections.				
6	I find most of the class topics interesting so I don't get bored in class.				
7	Although I have many priorities, learning in school is always one of my most important goals.				
8	I know why I am in school and I have clear goals that I want to achieve.				
9	When school is challenging, I find a way to learn and even try new ways to study.				
10	Finding time to study may be difficult so I set aside time to complete my school work.				

THANK YOU FOR YOUR PARTICIPATION

Appendix C

Pro Forma Summary of Students' Examination Results

Participant's Code number----------

Student's Academic Achievement in Form Three Examinations

Examination	Total Points	Mean score
Mid Term One 2015		
End of Term One 2015		

Appendix D

Interview Schedule

Part I: Interview Consent Form

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

Name---------- Signature----------Date----/---/2015

Part II: Semi Structured Interview Schedule

General questions

i. In addition to three compulsory subjects, what subjects are you taking in form three?

ii. Why did you choose those subjects?

iii. Did you discuss your subject selection with your parents? Yes/No? Why---?

iv. How do you rate your performance in your selected subjects? High or low--?

v. What are your plans after secondary education?

vi. When you make mistakes in school, what do you do?---- Why?

vii. When you come across new topics in school, what do you do?

viii. What do you do when confronted with difficulties when studying?

ix. What career(s) do you intend to get into after completing your education?

For achievement goal orientation

i. Remember a time at school when you performed below expectations or received marks you were not happy with.

   A. What did you feel about yourself as a student?

   B. Is the memory important to you as a student? Why?

   C. How does the memory make you feel about yourself in school?

ii. Which of the following descriptions best suits you in all academic activities in school?

   A. I am very curious and I like learning new material. A lot of my school subjects interest me. Although I feel good when I get a good grade, I find mastering the content more important to me.

B. In order to show my abilities, I want to receive good grades. I engage in learning because I want to receive higher grades than my classmates. I feel good when I am doing better than others. I think it is not so important to understand the material as long as I get good grades.

C. I think it is important to avoid looking stupid. Therefore, I worry when answering questions in class and I worry when making mistakes. I want to avoid others thinking of me that I don't understand the material.

D. I want to perform better on exams in this class than I have done in the past. My interpretation of doing well in this class is based on what I have been doing in the previous classes.

On Academic Identity Status

i. What would you say is the source of your priorities for school?

ii. From where did you get these priorities?

iii. Is your performance in school important? Why?

iv. Some of your classmates in primary school never came to secondary school. Some of your classmates in secondary school may have dropped out before getting to form three. What makes you to continue with secondary education?

v. How often do you attend your school lessons? Why?

vi. Do you find some subjects difficult? Yes/No. What do you do when reading such subjects?

vii. How do you feel when you do well in examinations? Why?

viii. Which of the following gives the best description of how you view yourself while in form three?

A. At times I am keen about good marks and at other times I don't care about what I get in exams. Sometimes I feel in control of my studies while at other times I feel it is beyond my control. My priorities keep on changing. Sometimes I am serious, at other times I am not. Although I try, I find myself lacking time to finish my classwork. Sometimes I know what I want from education, but on other occasions I keep wondering why I am in school.

B. Secondary school education is a high priority for me and I am willing to do everything in order to achieve it. I know why I am in school and I have clear goals that I want to achieve. When school is challenging, I find a way to learn even if I have to try new ways to study. Finding time to study may be hard, so I set aside time to complete my school work. For those subjects I consider important to me, I can concentrate in class even when the teacher or the topic is boring. I feel proud of being responsible for my own education and learning.

C. My parents have already advised me on the college I should join and I wish to make them happy by getting good grades. My performance in school is important to me because my friends and family members expect that I do well. I find myself reading very hard in the difficult subjects to avoid disappointing others. In fact, when I do poorly in an exam, I get upset and worry about what my friends and family might think of me.

D. A lot of the material we learn in class is not interesting. Sometimes I think the reason I am in school is because I have nothing better to do. I don't know the

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kind of a job I want after school and I do not think much about it. I don't worry about marks and I am only in this school because my parents paid the school fees. Often I wish I were not in school and when the lesson is difficult I find myself giving up.

THANK YOU FOR YOUR PARTICIPATION

Appendix E

Descriptive Statistics of the Study Measures

Table E.1

Descriptive Statistics for Achievement Goal Orientation Questionnaire Items

Item	Range		Mean	*SD*	*Sk*	*Kur*
	Potential	Actual				
APAGO1	1-5	1-5	4.41	0.94	-1.89	3.26
APAGO2	1-5	1-5	4.11	1.20	-1.33	0.64
APAGO3	1-5	1-5	4.62	0.82	-2.62	6.90
APAGO4	1-5	1-5	4.08	1.12	-1.09	0.13
APAGO5	1-5	1-5	3.78	1.27	-0.69	-0.88
APAGO6	1-5	1-5	3.90	1.22	-1.03	0.02
APAGO7	1-5	1-5	3.80	1.32	-0.74	-0.81
APAGO8	1-5	1-5	4.51	0.91	-2.29	5.12
APAGO9	1-5	1-5	4.23	1.06	-1.70	2.35
AVAGO1	1-5	1-5	3.72	1.36	-0.86	-0.60
AVAGO2	1-5	1-5	4.27	1.16	-1.74	2.00
AVAGO3	1-5	1-5	4.35	1.08	-1.88	2.76
AVAGO4	1-5	1-5	2.17	1.28	0.98	-0.20
AVAGO5	1-5	1-5	2.89	1.30	0.10	-1.22
AVAGO6	1-5	1-5	3.10	1.28	-0.07	-1.18
AVAGO7	1-5	1-5	3.76	1.26	-0.73	-0.63
AVAG08	1-5	1-5	3.56	1.28	-0.57	-0.82
AVAGO9	1-5	1-5	2.58	1.44	0.44	-1.24

Note. $N = 385$. APAGO = Approach achievement goal orientation; AVAGO = Avoidance achievement goal orientation; *Sk* = skewness; *Kur* = kurtosis.

Table E.2

Item Means and Factor Structure of Students Achievement Goal Orientation by Sex

AGO items	Boys				Girls			
	Mean (*SD*)	Est.	APAGO	AVAGO	Mean (*SD*)	Estimate	APAGO	AVAGO
APAGO1	4.28 (1.03)	.36	**.55**	-.24	4.55 (0.81)	.25	**.47**	.18
APAGO 2	3.92 (1.27)	.26	**.49**	-.17	4.31 (1.09)	.20	**.44**	.01
APAGO3	4.44 (0.98)	.35	**.58**	-.08	4.81 (0.56)	.29	**.54**	.04
APAGO4	3.88 (1.15)	.36	**.60**	-.07	4.29 (1.05)	.57	**.75**	.06
APAGO5	3.57 (1.31)	.35	**.59**	.01	4.00 (1.20)	.34	**.58**	.01
APAGO6	3.67 (1.28)	.46	**.66**	.14	4.15 (1.10)	.57	**.75**	.00
APAGO7	3.54 (1.36)	.37	**.59**	.17	4.07 (1.22)	.57	**.75**	.02
APAGO8	4.34 (1.02)	.38	**.61**	-.05	4.68 (0.74)	.31	**.55**	-.02
APAGO9	4.16 (1.09)	.35	**.59**	.04	4.31 (1.03)	.30	**.55**	.06
AVAGO1	3.74 (1.30)	.44	.40	.53	3.71 (1.42)	.49	.40	**.57**
AVAGO2	4.21 (1.17)	.30	.09	**.54**	4.34 (1.15)	.36	.26	**.54**
AVAGO3	4.29 (1.09)	.27	.02	**.52**	4.42 (1.07)	.43	.31	**.57**
AVAGO4	2.28 (1.32)	.41	-.21	**.60**	2.05 (1.22)	.18	-.02	**.43**
AVAGO5	2.94 (1.32)	.54	.10	**.72**	2.84 (1.29)	.33	.08	**.57**
AVAGO6	3.15 (1.32)	.47	.03	**.68**	3.06 (1.24)	.35	.19	**.56**
AVAGO7	3.75 (1.31)	.42	-.12	**.63**	3.77 (1.21)	.40	-.14	**.62**
AVAGO8	3.62 (1.28)	.32	-.11	**.55**	3.49 (1.27)	.32	-.34	**.46**
AVAGO9	2.60 (1.48)	.28	-.13	**.52**	2.56 (1.40)	.14	-.12	**.35**
Variance Explained			19.09	18.08			22.78	12.72
Total Variance explained			35.50%				37.13%	

Note. N = 385. AGO = achievement goal orientation; APAGO = approach achievement goal orientation; AVAGO = avoidance achievement goal orientation.

Table E.3

Factor Structure Coefficients for the Academic Identity Measure

AIM Item	Communality estimate[a]	Item/Component Loadings			
		1	2	3	4
DAIS1	.17	-.09	-.08	**.36**	.16
DAIS2	.29	.24	-.13	**.42**	-.19
DAIS3	.31	.06	-.04	**.54**	-.07
DAIS4	.24	.16	-.07	**.44**	.11
DAIS5	.43	.23	-.01	**.61**	.09
DAIS6	.33	.05	.02	**.56**	.11
DAIS7	.46	.42	-.02	**.51**	-.16
DAIS8	.50	.03	-.21	**.67**	.03
DAIS9	.49	.22	-.01	**.67**	.50
DAIS10	.29	.23	-.02	**.47**	.10
FAIS1	.36	-.01	-.02	.08	**.60**
FAIS2	.28	-.11	.13	-.09	**.49**
FAIS3	.27	.21	-.23	.25	**.34**
FAIS4	.24	.25	.11	.01	**.40**
FAIS5	.31	.11	.10	-.01	**.54**
FAIS6	.26	.10	-.22	.24	**.38**
FAIS7	.31	.02	-.08	.27	**.48**
FAIS8	.24	.13	-.07	.18	**.43**
FAIS9	.32	-.08	.00	.03	**.56**
FAIS10	.35	.29	-.11	.11	**.49**
MAIS1	.22	**.42**	-.18	.09	-.05
MAIS2	.45	**.61**	-.12	.24	-.03
MAIS3	.40	**.61**	-.08	.11	.07
MAIS4	.57	**.70**	-.08	.26	.08
MAIS5	.49	**.67**	-.07	.16	.10
MAIS6	.29	**.51**	-.10	.03	.13
MAIS7	.45	**.64**	-.10	.17	-.06
MAIS8	.29	**.53**	.02	.01	-.06
MAIS9	.46	**.67**	-.11	.03	-.03
MAIS10	.51	**.68**	-.06	.10	.17
ACHAIS1	.48	**.10**	**.69**	.01	.03
ACHAIS2	.21	-.11	**.40**	-.15	.10
ACHAIS3	.38	.01	**.58**	-.20	.06
ACHAIS4	.44	-.13	**.64**	-.01	-.11
ACHAIS5	.39	-.22	**.57**	-.13	-.04
ACHAIS6	.35	-.30	**.47**	-.09	.19
ACHAIS7	.36	-.07	**.60**	-.03	.01
ACHAIS8	.42	-.13	**.63**	-.09	-.04
ACHAIS9	.45	-.21	**.62**	-.12	.02
ACHAIS10	.25	.04	**.48**	.13	-.06

Variance explained[b]	12.04	7.41	5.71	5.00
Total variance explained[c]	35.71			

Note. AIM = academic identity measure; DAIS = diffused academic identity status; FAIS = foreclosed academic identity status; MAIS = moratorium academic identity status; ACHAIS = achieved academic identity status. **Bold type** indicates item/factor loading.

[a]Sum of squared loadings for this four-factor solution.

[b]Percentage of variance explained by each factor.

[c]Percentage of variance explained by the four factor solution.

Table E.4

Factor Structure Coefficients Achievement Goal Orientation Questionnaire Items

AGQ Items	Communality estimate[a]	Item/Component loadings	
		I	II
APAGO 1	.31	**.56**	-.11
APAGO 2	.24	**.49**	-.10
APAGO 3	.35	**.59**	-.08
APAGO 4	.47	**.69**	-.04
APAGO 5	.36	**.60**	-.01
APAGO 6	.50	**.70**	.06
APAGO 7	.45	**.66**	.09
APAGO 8	.37	**.61**	-.06
APAGO 9	.32	**.57**	.04
AVAGO 1	.45	.44	**.51**
AVAGO 2	.33	-.03	**.47**
AVAGO 3	.33	.30	**.49**
AVAGO 4	.33	-.03	**.57**
AVAGO 5	.45	.22	**.64**
AVAGO 6	.42	.22	**.61**
AVAGO 7	.38	.02	**.62**
AVAGO 8	.29	-.10	**.53**
AVAGO 9	.23	.31	**.48**
Variance explained[b]		20.46	16.18
Total variance explained[c]		36.34	

Note. APAGO = approach goal orientation; AVAGO = avoidance goal orientation.
Bold type indicates item/factor loading.
[a]Sum of squared loadings for this two-factor solution.
[b]Percentage of variance explained by each factor.
[c]Percentage of variance explained by the two factor solution.

Table E.5

Descriptive Statistics for Academic Identity Measure Items

Item	Range		*M*	*SD*	*Sk*	*Kur*	Item	Range		*M*	*SD*	*Sk*	*Kur*
	Ptl	Atl						Ptl	Atl				
D1	1-4	1-4	1.30	0.69	2.57	6.42	M1	1-4	1-4	1.95	0.95	0.68	-0.54
D2	1-4	1-4	1.47	0.77	1.78	2.82	M2	1-4	1-4	1.87	0.85	0.63	-0.45
D3	1-4	1-3	1.13	0.36	2.66	6.57	M3	1-4	1-4	2.55	0.90	-0.23	-0.73
D4	1-4	1-4	1.37	0.74	2.17	4.12	M4	1-4	1-4	2.19	0.92	0.25	-0.85
D5	1-4	1-4	1.39	0.70	1.87	3.13	M5	1-4	1-4	2.35	0.97	0.04	-1.03
D6	1-4	1-3	1.20	0.43	2.01	3.22	M6	1-4	1-4	2.35	0.94	0.12	-0.88
D7	1-4	1-4	1.46	0.74	1.77	2.95	M7	1-4	1-4	2.39	0.96	0.02	-0.98
D8	1-4	1-3	1.17	0.41	2.18	4.00	M8	1-4	1-4	2.62	0.98	-0.22	-0.94
D9	1-4	1-4	1.47	0.72	1.52	1.84	M9	1-4	1-4	2.48	0.96	-0.06	-0.94
D10	1-4	1-4	1.55	0.75	1.46	2.03	M10	1-4	1-4	2.43	0.97	0.03	-0.97
F1	1-4	1-4	2.54	0.98	0.01	-1.02	A1	1-4	1-4	3.75	0.60	-2.79	8.36
F2	1-4	1-4	2.63	0.99	-0.10	-1.05	A2	1-4	1-4	3.15	0.91	-0.77	-0.37
F3	1-4	1-4	1.36	0.64	1.92	3.73	A3	1-4	1-4	3.57	0.67	-1.61	2.35
F4	1-4	1-4	2.39	1.00	0.06	-1.08	A4	1-4	1-4	3.62	0.66	-1.96	4.11
F5	1-4	1-4	2.87	1.00	-0.50	-0.80	A5	1-4	1-4	3.47	0.73	-1.36	1.57
F6	1-4	1-4	1.38	0.64	1.92	4.24	A6	1-4	1-4	3.02	0.87	-0.60	-0.34
F7	1-4	1-4	1.74	0.87	1.04	0.28	A7	1-4	1-4	3.36	0.76	-1.04	0.57
F8	1-4	1-4	1.94	0.98	0.72	-0.58	A8	1-4	1-4	3.71	0.59	-2.45	6.82
F9	1-4	1-4	2.34	0.99	0.23	-0.97	A9	1-4	1-4	3.50	0.72	-1.55	2.32
F10	1-4	1-4	2.55	1.04	-0.14	-1.14	A10	1-4	1-4	3.11	0.89	-0.81	-0.07

Note. $N = 385$. Ptl = Potential; Actl = actual; *Sk* = skewness; *Kur* = kurtosis; D = diffused academic identity status; F = foreclosed academic identity status; M = moratorium academic identity status; A = achieved academic identity status.

Appendix F

Linearity Plots

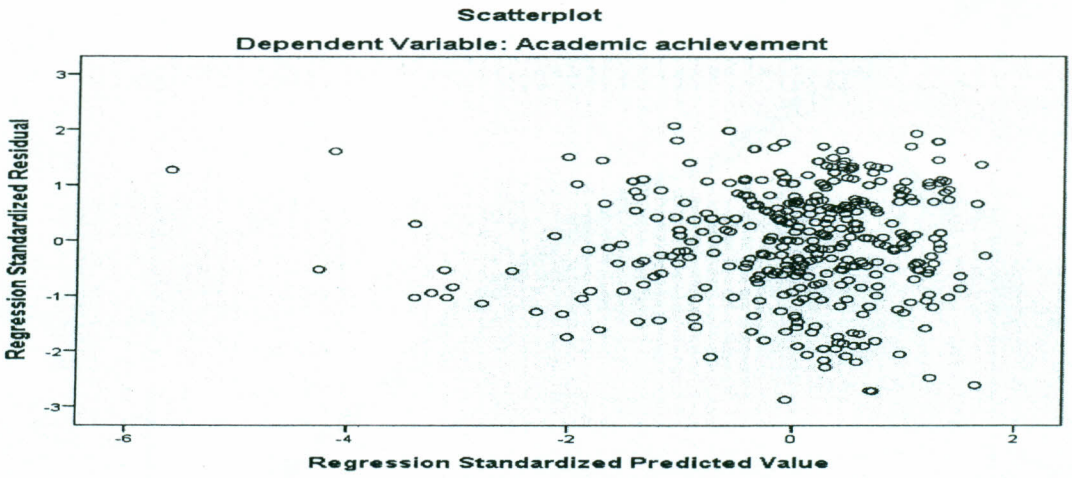


Figure F.1. Scatterplot for academic identity status prediction model.

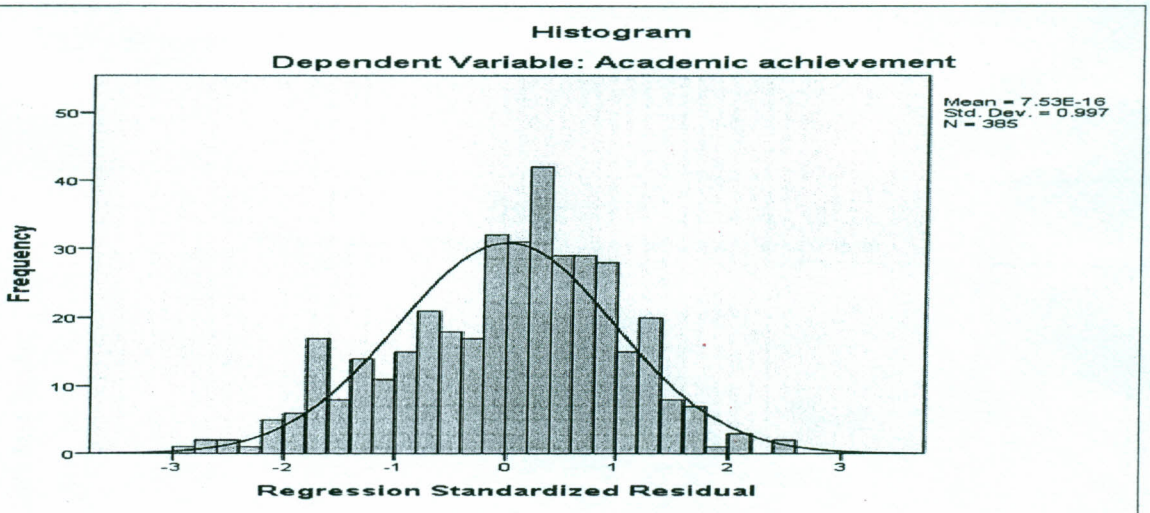


Figure F.2. Histogram for academic identity status model residuals.

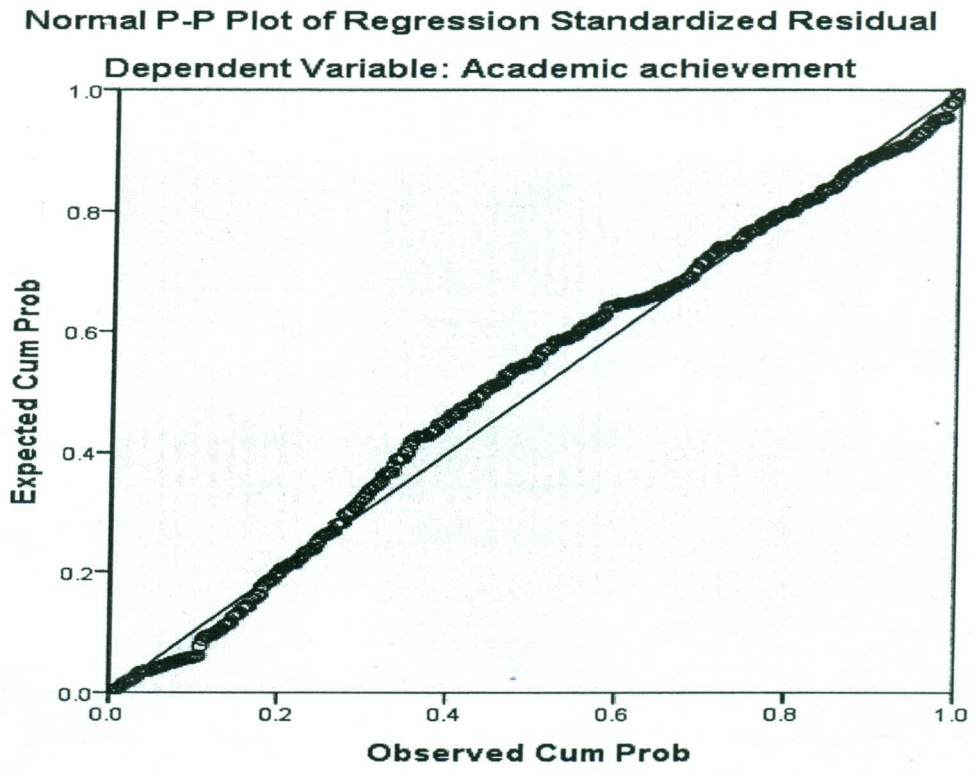


Figure F.3. Normal p-p plot of regression standardized residual for the academic identity status model

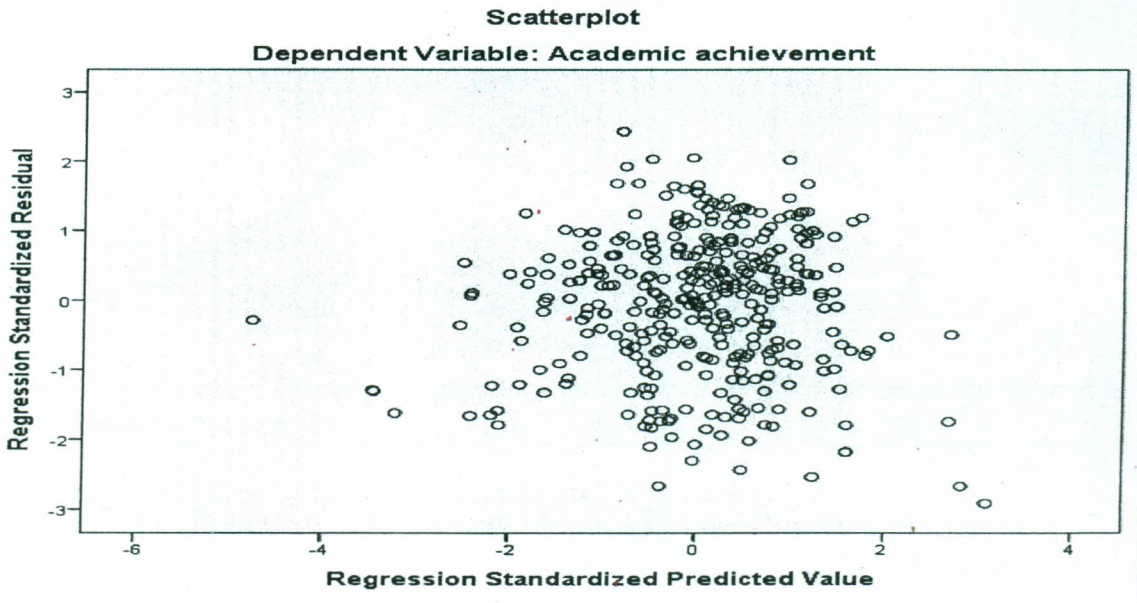


Figure F.4. Scatterplot for the achievement goal orientation prediction model

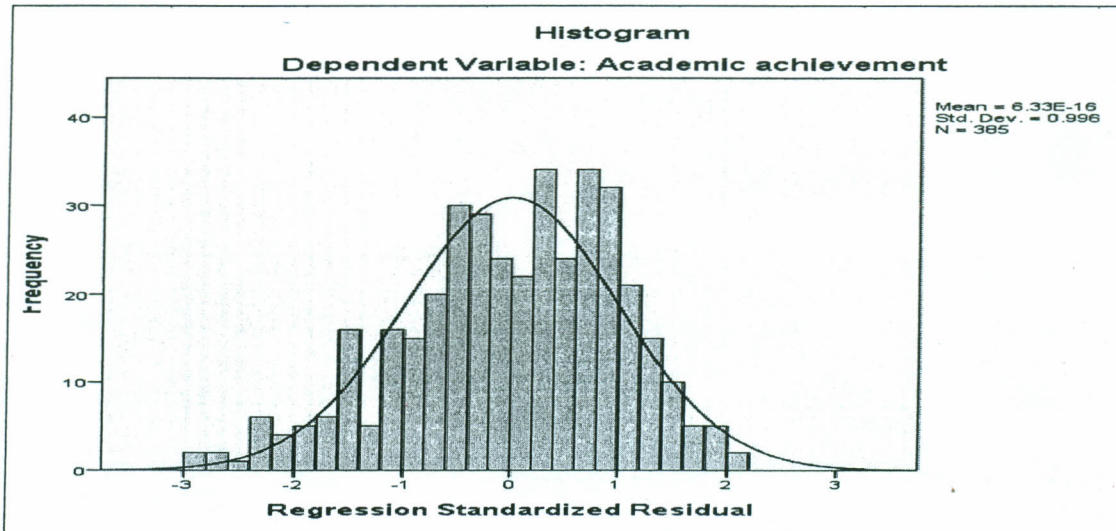


Figure F.5. Histogram of the achievement goal orientation predicted residuals.

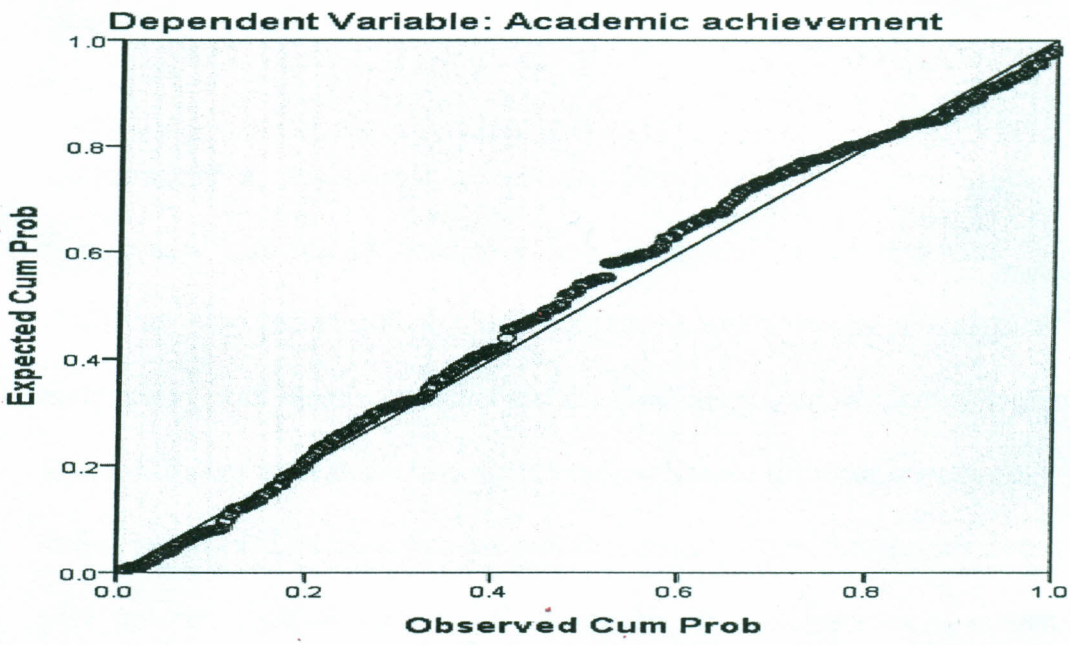


Figure F.6. Normal p-p plot of regression standardized residual for the achievement goal orientation model.

Appendix G

Criteria for Classifying AIM Scores

The criteria for classifying scores on the four AIM sub scales were as follows: Individuals scoring one standard deviation above the mean (or higher) on a given sub scale were classified as being in that identity status if all their scores in the remaining sub scales were below the respective sub scale cut off score. Individuals with scores falling less than one standard deviation above the mean on all four sub scales were scored as 'low profile/undifferentiated' moratorium. Individuals with more than one score above the standard deviation cut offs were scored as being in 'transition status category'. Subjects who scored above three cut-off scores were dropped out the analysis.

Collapsing of the transitional statuses was done using a rank ordering procedure from low to high and by collapsing downwards into less sophisticated statuses. Diffusion was considered the least advanced, followed by foreclosure, and moratorium, with identity achievement the theoretical apex of identity formation. Thus, diffusion transitions like diffusion-foreclosure, diffusion-moratorium, and diffusion-achieved, were collapsed into diffusion. When foreclosure transitions were present, such as foreclosure-moratorium, or foreclosure-achievement the subjects were collapsed into foreclosure. When moratorium-achievement transition was observed, it was collapsed into moratorium. Pure and low profile moratorium were treated as moratorium. The results for the uncollapsed categories of academic identity statuses were presented in Table 4.6.

Appendix H

Research Permit

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 3713

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. ANTHONY MURIITHI IRERI
of KENYATTA UNIVERSITY, 0-100
Nairobi,has been permitted to conduct research in *Embu County*

on the topic: *ACADEMIC IDENTITY STATUS AND ACHIEVEMENT GOAL ORIENTATION AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG FORM THREE STUDENTS IN EMBU COUNTY, KENYA*

for the period ending:
30th April,2015

Permit No : NACOSTI/P/14/5285/4058
Date Of Issue : 24th November,2014
Fee Recieved :Ksh 2,000

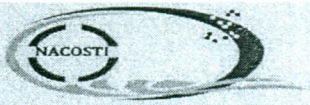


.....
Applicant's Signature

.....
Secretary
National Commission for Science, Technology & Innovation

Appendix I

Research Authorization



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

24th November, 2014

NACOSTI/P/14/5285/4058

Anthony Muriithi Ireri
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Academic identity status and achievement goal orientation as predictors of academic achievement among form three students in Embu County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Embu County** for a period ending **30th April, 2015.**

You are advised to report to **the County Commissioner and the County Director of Education, Embu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the rese.arch report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: SECRETARY/CEO

Copy to:

The County Commissioner
Embu County.

The County Director of Education
Embu County.

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

MINISTRY OF EDUCATION, SCIENCE & TECHNOLOGY

STATE DEPARTMENT OF EDUCATION

Telegrams: "Provedu". Embu
Telephone: Embu 31711
Fax: 30956
E-mail: cde.embu@yahoo.com
When replying please quote:

OFFICE OF THE
COUNTY DIRECTOR OF EDUCATION
EMBU COUNTY
P. O. BOX 123-60100
EMBU

Ref. No: EBC/GA/32/1/151

12th January, 2015

Anthony Murilithi Ireri,
Kenyatta University,
P. O. Box 43844-00100,
NAIROBI.

RE: RESEARCH AUTHORISATION

Reference is made to Ref. NACOSTI/P/14/5285/4058 dated 24th November, 2014. This office acknowledges receipt of your research authorization to carry out research on "**Academic identity status and achievement goal orientation as predictors of academic achievement among form three students in Embu County, Kenya**," for a period ending 30th April, 2015.

This office therefore wishes you success in this undertaking and requests prospective participants/respondents to accord you cooperation or support you may require.

COUNTY DIRECTOR OF EDUCATION - EMBU COUNTY
P. O. Box 123 - 60100, EMBU

BEN KENYAGA
FOR: COUNTY DIRECTOR OF EDUCATION
EMBU COUNTY

Copy to:

The Principal Secretary,
State Department of Education,
P. O. Box 30040-00100,
NAIROBI.

The Commission Secretary/CEO,
National Commission for Science, Technology and Innovation,
P. O. Box 30623-00100,
NAIROBI.

All Sub-County Directors of Education,
Embu County.

KENYATTA UNIVERSITY LIBRARY

REPUBLIC OF KENYA

THE PRESIDENCY

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

Telephone: Embu 0202310839
FAX 30040
Email: ccembu@gmail.com

COUNTY COMMISSIONER
EMBU COUNTY
P.O.BOX 3-60100
EMBU

When replying please quote

Ref: EBU.CC/ADM/3/37/VOL.I/ (114)

12th January, 2015

The Deputy County Commissioner,
- ✓ Embu East
- ✓ Mbeere South

RE: RESEARCH AUTHORIZATION

Please be informed that **Mr. Anthony Muriithi Ireri, College No. E83/13968/2009** of Kenyatta University has been authorized to carry out research in your Sub County for a period ending 30th April, 2015.

His research is based on **"Academic identity status and achievement goal oriented as predictors of academic achievement among form three students in Embu County"**

Kindly accord him the necessary assistance.

AMBROSE K.NJERU
FOR: COUNTY COMMISSIONER
EMBU COUNTY

CC.
✓ **Mr. Anthony Muriithi Ireri**

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

STATE DEPARTMENT OF EDUCATION

Telegrams: Education
Telephone: Mbeere: 0702671967
Email: dcombeeresouth@gmail.com
Fax:
When replying please quote

District Education Office
Mbeere South District
P.O.Box 227 (60113)
KIRITIRI.

REF: MBRS/EDU/GA/S/14/154

19/01/2015

TO WHOM IT MAY CONCERN

RE: RESEARCH AUTHORIZATION
MR. ANTHONY MURIITHI IRERI: REF: NO. E83/13968/2009

The person referred above has permission to visit Secondary Schools in Mbeere South Sub-County to carry out research on "**Academic identity status and achievements goal oriented as predictors of academic achievement among form three students in Embu County**"

Please accord him the necessary assistance.

GRACE MUTERO
SUB-COUNTY DIRECTOR OF EDUCATION
MBEERE SOUTH

Appendix J

Essential KCSE Statistics for Embu County

Table J.1

Overall KCSE Grade Summary for Embu County from 2012 to 2014

							2012							
SC	ENT	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	MS	PR %
EE	1806	13	58	85	139	168	198	254	281	224	93	3	7	5.26	36.60
EW	1672	2	46	123	168	187	249	228	256	217	145	60	1	6.26	46.35
EN	1396	11	53	94	135	165	129	167	174	192	198	76	0	6.00	42.05
MN	1155	8	30	76	110	133	173	171	163	169	99	21	2	6.24	45.89
MS	1429	0	18	50	83	119	133	170	234	261	226	125	9	5.25	28.20
CT	**7502**	**34**	**205**	**428**	**635**	**772**	**882**	**990**	**1108**	**1063**	**761**	**285**	**19**	**5.82**	**39.40**
							2013							
SC	ENT	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	MS	PR %
EE	1875	9	55	70	115	124	178	246	342	311	269	151	3	5.46	29.39
EW	1753	3	30	86	180	225	250	240	221	221	215	66	0	6.10	44.15
EN	1303	9	54	77	135	132	139	135	163	182	190	79	0	6.00	41.90
MN	1316	1	30	65	98	141	167	194	174	224	171	51	0	5.86	38.15
MS	1593	0	23	65	94	91	129	166	214	300	296	147	8	5.39	25.24
CT	**7840**	**22**	**192**	**363**	**622**	**713**	**863**	**981**	**1114**	**1238**	**1141**	**494**	**11**	**5.71**	**35.40**
							2014							
SC	ENT	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	MS	PR %
EE	1872	10	40	79	150	151	218	268	308	284	233	118	3	5.84	34.62
EW	1796	3	38	104	196	206	279	287	229	201	170	80	3	6.24	45.99
EN	1300	1	46	105	106	159	190	165	166	183	141	32	0	6.27	46.69
MN	1417	0	17	83	142	170	209	206	227	175	131	55	2	6.14	43.82
MS	1735	0	24	62	100	139	163	235	333	309	251	119	2	5.39	28.13
CT	**8120**	**14**	**165**	**433**	**694**	**825**	**1059**	**1161**	**1263**	**1152**	**926**	**404**	**10**	**5.81**	**39.29**

Note. SC = sub county; EE= Embu East; EW = Embu West; EN = Embu North; MN = Mbeere North; MS = Mbeere South; CT = County Total; ENT = entry ; MS = mean score; PR = pass rate (percentage).

Source: Embu County Education Office (2013; 2014; 2015).

Appendix K

Map of Embu County



Figure K.1. Map of Embu County

KENYATTA UNIVERSITY LIBRARY