ACADEMIC MINDSETS AS PREDICTORS OF ACADEMIC ACHIEVEMENT AMONG PUBLIC SECONDARY SCHOOL STUDENTS IN NAIROBI COUNTY, KENYA

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Abstract

In spite of the importance attached to education, poor academic achievement has continued in Kenya especially in public secondary schools. It affects the life prospects of students and also poses a challenge to parents and the society. Therefore, this study sought to establish how academic mindsets predict academic achievement among public secondary school students in Nairobi County, Kenya. The study was guided by Social Cognitive Theory of Motivation and Personality. Explanatory sequential mixed methods design was adopted. A sample of 488 participants was selected from 10 public secondary schools. Quantitative data were collected through adapted scale for Academic Mindsets and analyzed using Pearson's Product Moment Correlation Coefficient and multiple regression. Academic achievement was inferred from student's academic records. Qualitative data were collected through interviews and analyzed thematically. Results revealed a non-significant positive correlation between students' academic mindsets and academic achievement (r (486) = .05, p = .27). The individual subscales of academic mindsets were significant predictors of academic achievement (F (2, 485) = 241.08, $p < 0.5$). The qualitative findings confirmed the obtained quantitative findings. The study has implications for teachers, parents and all stakeholders in education in developing a malleable academic mindset in learners' right from pre-school through primary to secondary school to enhance academic achievement.

Keywords: Academic Mindsets; Academic Achievement; Fixed Academic Mindset, Malleable Academic Mindset, Secondary School Students.

Background

Worldwide, education has always emphasized on academic achievement which, in most cases, is seen by many as the key determinant of success. No country can achieve sustainable economic development without substantial investment in human capital. Education is also expected to provide an all-round development of its recipients to enable them overcome prevailing challenges and therefore play effective roles in their immediate society (Education Sector Report, 2016). However, according to Matseke (2011), when learners do not obtain the cut-off grade for admission to join colleges and higher institutions of learning, there is always disappointment and frustration. Parents suffer a lot of stress and the number of the unemployed in the society also increases. In support of

this, Uys (2011) adds that under-achievement has various implications for adolescents like, school dropout, loss of focus and hope.

In spite of these consequences of underachievement, poor academic achievement is an issue of concern in the whole world. In the United States of America, McWilliams (2015) reported that, despite the many initiatives and reform measures the government and schools take, a great number of students does not achieve to expected standard. The study further reported that, among the factors that may influence academic achievement of learners include student self-belief systems, classroom management and relationships with teachers and peers. Similarly, Obrentz (2012) asserted that, although studied for decades, factors predicting academic achievement require continuous research because student populations are constantly changing and the criteria for academic success also varies from institution to institution. In the same vein, P'Pool (2012) stressed on the importance of identifying specific factors that contribute to student academic achievement in order to assist educators in creating and utilizing effective teaching methods which will consequently enhance academic achievement.

In Africa, poor academic achievement has been reported in many countries. For instance, in Nigeria, Nuze (2011) reported that, there was a general worry about the poor quality of education outputs at all levels. More specifically the study reported that, the educational system in Nigeria was far from achieving the desired educational goals and objectives as there were noticeable evidences of decline in the standard and quality of students especially at the secondary school level. In South Africa, Matseke (2011) stated that, the search for factors that could improve the low academic achievement by learners and the declining standards in institutions of learning was necessary. In addition, Robertson (2012) argued that, the knowledge of factors that influence and predict academic achievement of learners had powerful implications for their academic success.

In Kenya, a report by Education Overview Centre for Education Innovations (2014) indicated that, more than 50% of the pupils had failed in the 2013 KCPE examinations due to problems of overcrowded classrooms, low teaching standards, and substandard examination content. Similar problems were also reported about KCSE examinations results. Although the number of students taking these examinations had increased, there was poor academic achievement, with only 28% achieving a C+ or above, the minimum requirement for university entrance. This report was consistent with the Annual report by UNESCO (2014) on the educational status in the country.

In the years 2014, 2015 and 2016, there has also been increase in candidature in the KCSE examinations from 486412 to 577253. The number of female candidates increased from 225,139 to 274,502 while males increased from 261273 to 302751. Despite this increase in candidature, poor academic achievement has been registered, with the highest drop noted in those who had obtained between grade D and E rising from 25.62 % in 2015 to 51.73% in 2016. This implied that, more than half of the candidates (51.7%) scored grades of D and below. Among the 47 Counties in Kenya, Nairobi County is one of the Counties that have taken the same downward trend in academic achievement (Ministry of Education, State Department of Basic Education, 2017). Over the years 2014 and 2015, Nairobi County registered a mean of 5 points respectively in the KCSE examinations while in 2016 this mean went down to 4 points. In addition, the overall performance of students obtaining below C+ in 2014 and 2015 was 68.62% and 67.79% respectively, while 2016 had the highest number of students (79.63%) obtaining below C+. Moreover, those who obtained between D and E in Nairobi County increased from 35.88% from 2015 to 58.09% in 2016. This

increase in the number of those who obtain low grades would trigger the question, what makes some students perform well while others do not. Is it something to do with the students themselves, or is it the school, the home or the government? Owing to the many causes of poor academic achievement, this study mainly focused on academic mindsets as a motivational factor of the learner that may influence academic achievement.

According to Dweck, Walton and Cohen (2011), students have a very important role in learning. More specifically, they emphasize on the motivation that students carry with them in the form of mindsets and skills. People may have different mindsets in different domains but this study specifically focused on mindsets as they relate to intelligence and academic achievement. Academic mindsets are beliefs or ways of perceiving oneself in relation to learning and academic achievement (Farrington et al., 2012). Moreover, Dweck et al. (2011) asserts that, the most important concern about students' belief in their ability is the sustainability of their self-efficacy and especially when they encounter inevitable challenges and setbacks in schools. Therefore, the major issue in this study is not just the self-efficacy belief but how sustainable is this self-efficacy and this is the student's mindset about intelligence (Dweck & Leggett, 1988).

According to Dweck (2000), for students to be successful, they must love learning, seek challenges, value effort, and persist in the face of obstacles. Therefore, when one encounters challenges, his or her mindset determines their level of persistence. Dweck identifies two types of mindsets in relation to intelligence. They include fixed and malleable mindsets. With fixed mindset, intelligence is a constant, an inherent trait, and nothing can be done about it. Fixed mindset is also referred to as entity theory. With malleable mindsets, while intelligence may be naturally different among individuals, it can be developed through learning. Malleable mindset is also referred to as growth mindsets or incremental theory (Dweck, 2000). In Kenya, there are no empirical studies that have directly investigated how students' academic mindsets predict academic achievement. Majority of the related studies have investigated learner factors like: academic resilience, academic anxiety (Mwangi, 2015; Mukholwe, 2015). Therefore, this study specifically focused on how academic mindsets predict academic achievement among public secondary schools in Nairobi County, Kenya.

Purpose and Objectives of the Study
The main purpose of this study was to establish the extent to which academic mindsets predict academic achievement.

Objectives of the study
 i.   Determine the relationship between academic mindsets and academic achievement.
 ii. Establish the extent to which academic mindsets predict academic achievement.

Theoretical Framework
This study was guided by Social Cognitive Theory of Motivation and Personality (Dweck & Leggett, 1988). This model comprises beliefs (Implicit theories) that learners hold on the nature of intelligence and learners' goal orientation. The current study was based on the implicit theory of intelligence which is the specific belief in one's intelligence. This model (Dweck & Leggett, 1988; Dweck, 1999) asserts that, students may hold different theories about the nature of their intelligence. There are those who believe that intelligence is more of an unchangeable, uncontrollable, inherent or fixed trait and nothing can be done to it. This is also called entity theory

of intelligence or the fixed mindset (Dweck, 2008). However, there are those students who believe that intelligence is an increasable, controllable quality and through effort or hard work it can be developed. This is also called the incremental theory of intelligence or malleable or growth mindset (Dweck, 2008). According to Dweck and Leggett (1988), implicit theories of intelligence influence the way students approach learning and achievement situations, the kind of goals they adopt, their effort and persistence and their achievement. Those students with fixed mindsets mainly focus on obtaining good grades in order to document to themselves or others the adequacy of their ability. Such students pursue performance goals which lead them to minimize their effort expenditure, to give up easily when faced with challenges or setbacks, and generally to avoid difficult tasks. Conversely, those with malleable mindsets mainly focus on improving their competence and acquiring new knowledge. They pursue mastery goals which lead them to expend more effort, seek challenging tasks and to persist whenever they encounter setbacks. This theory was used by McWilliams (2015) who conducted an exploratory study to find out whether low academic achievement among the ninth grade students was a consequence of self-efficacy, implicit theory of intelligence and goal orientation. Results revealed that, the beliefs that students held influenced their academic achievement. Consistent findings were reported by Blackwell, Trensniewski, and Dweck (2007) who reported a significant relationship between theories of intelligence and academic achievement. On the other hand, different findings were reported by P'pool (2012) who used Dweck's theory of motivation to determine how a student's view of intelligence affects their overall academic achievement in a school located in the South Central Region of the United States. Results revealed that there was no significant evidence between fixed and malleable mindset students in regard to academic achievement. Similar findings were reported by Rudig (2014) who used Dweck's theory to examine implicit theories of intelligence and learning mathematics. Results revealed that, participants' incremental or entity theories of intelligence did not elicit different patterns of studying behavior in learning a new mathematics task. These studies reported mixed findings and were conducted in the USA and Asia and mainly with college students. Therefore, there is a need to conduct a local study in Kenya using Dweck's implicit theory of intelligence to compare the findings.

Review of Related Literature
Empirical research has produced mixed results on the relationship between students' academic mindsets and academic achievement. Blackwell et al. (2007) conducted a longitudinal study on whether implicit theories of intelligence predict academic achievement among public secondary school students in New York City. This study followed four waves of students entering junior high school and measured their implicit theories and then assessed their achievement outcomes for four years. The sample was 373 students (198 females, 175 males) in one public secondary school. The participants filled a motivational questionnaire which assessed theory of intelligence, goals, beliefs about effort, and learning versus mastery oriented responses to failure at the beginning and end of every year for four years.

Results revealed that students who endorsed a fixed academic mindset did not show improvement in grades. On the contrary, those who endorsed a malleable mindset showed great improvement in grades over the four years. This Longitudinal study was conducted in the USA, a different context from that of Kenya and in one public secondary school. The researchers suggested a further study to be conducted across schools as results of one study could not be generalized to other schools. This was addressed in the current study using explanatory sequential mixed method design and public secondary schools in Kenya to find out how academic mindsets predict academic achievement.

Similarly, Chen and Wong (2015) conducted a study on Chinese Students academic mindset. Specifically the study examined the relationship between theories of intelligence and goal orientations, and academic achievement. The study utilized a correlational research design and a sample of 418 (192 males, 226 females) university students in Hong Kong. Data were collected through a survey and analyzed using structural equation modeling. Results revealed that malleable academic mindset was associated with high academic achievement and such students endorsed more mastery goals and performance approach goals than their fixed mindset counterparts. The researchers suggested a further study with high school students in a different setting to find out if there was a relationship between academic mindsets and academic achievement. This study addressed this by using public secondary school students in Nairobi County Kenya to compare the results.

In another study, Lackey (2014) carried out an exploratory study to find out how motivation, self-efficacy, mindsets, attributions, and learning strategies influence academic achievement at Illinois State University. One of the objectives of the study was to find out if there were significant correlations between motivation, self- efficacy, mindsets, attributions, learning strategies and academic achievement. Using a sample of 153 (103 females, 50 males) education students, results revealed that, there was a significant relationship between academic mindsets and academic achievement. Furthermore, the study found that those students with malleable mindsets had high opinions of their academic potential and performed better than those who endorsed a fixed mindset. The researcher suggested a further exploration of the variables using open ended questions, interviews, and focus groups; arguing that this would give a deeper understanding of the relationships between the variables. The current study used questionnaires to collect quantitative data in the first phase of the study and then used interviews in the second phase to explain in depth the quantitative results.

Further, Aditomo (2015) conducted a study on students' response to setbacks in a university in Indonesia. The study utilized a correlational research design and a sample of 123 (100 females, 23 males) university students. A path analysis indicated that, malleable mindset students adopted mastery of goals and effort attribution, which buffered against demotivation in the face of academic set back, which in turn led to higher academic achievement. In relation to this, Shen, Miele, and Vasilyeva (2016) argued that, when fixed mindset students experience difficulties or receive a negative feedback about their performance, they interpret this experience as an indication that they lack the ability needed to be successful. And, because they believe their intelligence is fixed, hard work to them is a waste of time and may lead to further embarrassment. On the other hand, those with a malleable mindset interpret difficulties or negative feedback as a need for them to work even harder. The more time and effort they spend, the more their ability will improve.

In a related study, Claro et al. (2016), carried out a study to find out whether effects of poverty had an impact on students' academic mindsets and its relationship with academic achievement. This correlational study comprised all public schools in Chile. Specifically the sample was (168, 203 mathematics and 168,553 language). This represented 75% of all 10th graders and 98% of all 2392 public schools in Chile. One of the objectives of the study was to find out whether academic mindset reliably predicts achievement across a national sample of students. Results revealed that a significant relationship ($r = .343$) existed between academic mindsets and academic achievement which was observed across all students in Chile. Those with malleable mindset achieved at higher levels than those with fixed mindset. Owing to the large sample, and the fact that the study was

done in a Western set up, this local study used a sample selected from Nairobi County to compare the findings.

Locally, studies on the relationship between academic mindsets and academic achievement are not readily available but this can be inferred from related studies. Mwangi (2015) carried out a study on academic resilience among secondary school students in Kiambu County, Kenya. The study aimed to explore both external and internal protective factors that could predict resilience among students in order to survive academic challenges. Using an *ex post facto* research design and a sample of 390 (192 females, 198 boys) form three students, results revealed a positive and significant relationship among the external and internal protective factors and academic resilience. In addition there was a significant and positive relationship between academic resilience and academic achievement. This study utilized an *ex post facto* research design while the current study utilized an explanatory sequential mixed method design to establish whether there was a relationship between academic mindsets and academic achievement.

In another study in Kenya, Mukolwe (2015) carried out a study on some selected correlates of examination anxiety and academic achievement in Khwisero Sub-county in Kakamega County. More specifically, the study sought to find out whether academic procrastination, locus of control and academic resilience had a relationship with examination anxiety and the overall relationship between exam anxiety and academic achievement. Using a correlational research design and a sample of 359 (156 females, 203 males) form four students, results revealed a weak and negative and insignificant correlation between academic resilience and exam anxiety. The researcher further found a positive and insignificant relationship between academic resilience and academic achievement. According to Dweck (2007), academic resilience is a characteristic of a malleable mindset student who in the face of failure increases effort and looks for new learning strategies.

Research Design and Methodology

The researcher adapted an explanatory sequential mixed method design. This design involves two phases. In the first phase, quantitative data was collected and analyzed, with an intention of first addressing the study objective. It was then followed by a second phase which involved collection and analysis of qualitative data in order to explain in more detail the quantitative results (Creswell, 2014). For the quantitative data, the researcher used predictive correlational research design which is a form of correlational research design. This was because according Fraenkel, Wallen, and Hyun (2015), a correlational research design describes the degree to which two or more quantitative variables are related and there is no manipulation of such variables. For the qualitative data, in-depth interviews were conducted on a purposely selected number of participants in order to get personal perspectives of the participants regarding academic mindsets. The purpose of the qualitative phase was to explain further the earlier obtained quantitative results. Therefore, explanatory sequential mixed method research design was considered suitable for this study since it allows the exploration of relationships between variables in depth.

The study involved 488 form three secondary school students (245 boys and 243 girls). The participants' age ranged from 15-23 years which was categorized into three. Majority of the participants were in the age category of between 15 and 17 years (65.1%) while those in the age category of 18 and 20 years were (30.9%). There were only 3.9% participants in the age category of 21 and 23 years. The participants were drawn from 10 public secondary schools in Nairobi County, Kenya.

A questionnaire that comprised two parts was used to collect data. Part I (Items 1-5) were specifically meant to collect students' demographic information while Part II consisted of (items 1-8) adapted from academic mindset questionnaire. This questionnaire comprised (items 1-8) on students' fixed and malleable mindsets. There were four items reflecting student's fixed academic mindset like "I have a certain amount of intelligence and I can't do much to change it". There were also four items reflecting students' malleable academic mindset like, "No matter who I am, I can significantly change my intelligence level". Students' responses were rated on a six point Likert scale ranging from between 1 (Strongly Agree) and 6 (Strongly disagree). Scores from malleable items were reversed so that strongly disagreeing with a fixed mindset item is similar to strongly agreeing with malleable mindset item. The scores ranged from 8 to 48 with a low score indicating strong endorsement of the constructs and high score indicating low endorsement of the constructs. Dweck (2000) reported high internal consistency ranging from (0.94 to 0.98) using Cronbach's' Alpha Values. The pilot study data for the adapted mindset items had an internal consistency of .80 to .85. The overall internal consistency for all the items of the academic mindset questionnaire was .85. Therefore, this internal consistency was considered high enough to adopt the academic mindset questionnaire in the current study. Participants' academic achievement information was obtained from students' academic records. An interview schedule was used on 40 participants who had filled the questionnaire to get an in-depth understanding of the quantitative results.

Four sampling techniques were used: purposive sampling, stratified sampling, proportionate stratified sampling and simple random sampling. In each of the schools that participated in the study, a written and informed consent was sought from the participants prior to questionnaire administration. They were informed of the main aim of the study and that participation was voluntary. The variables of the study were explained and instructions on how to fill the questionnaire were given. They were also assured of the confidentiality of the information obtained. The participants took 10 to 15 minutes to fill the questionnaire. The researcher then requested for the academic records of end of term one and end of term two 2016 from the respective class teachers. The raw data obtained from the questionnaires was analyzed using Statistical Package for Social Sciences (SPSS) version 20. Pearson product moment correlation coefficient and multiple regression were used to analyze quantitative data while qualitative data was analyzed thematically. Academic achievement results were analyzed through document analysis.

Research Findings
Quantitative Findings
The participants were categorized into low, average or high levels of academic mindsets and academic achievement. Those categorized as low in academic mindset had scores from 8-21. The average category had scores from 21-34 while the highest level had 35-48. The low level of academic achievement had scores between 0-40, the average had 41-59 and the highest level of academic achievement had 60 and above. These results are as presented in Table 1.

Table 1: Levels of Academic Mindsets and Academic Achievement

		Academic Mindsets		Academic Achievement	
		Frequency	Percent	Frequency	Percent
	Low	0.0	0.0	81	16.6
Valid	Average	267	54.7	323	66.2
	High	221	45.3	84	17.2
	Total	488	100.0	488.0	100.0

Note: N = 488.

Results in Table 1 showed that, majority of the participants were average in academic mindsets (54.7%) and academic achievement (66.2%). In order to determine the relationship between students' academic mindsets and academic achievement, a bivariate correlation analysis was performed by computing the Pearson product moment correlation coefficient to test the hypothesis. The results are presented in Table 2.

Table 2: Correlation between Academic mindsets and Academic Achievement

		Academic Achievement
Academic Mindset Score	Pearson Correlation	.05
	Sig. (2-tailed)	.27

Note: N = 488

Results in Table 2 revealed that the relationship between academic mindset scores and academic achievement was positive but not significant (r (486) =.27, p >.05). Therefore, the first null hypothesis was retained. It was therefore concluded that, there was no significant relationship between academic mindsets and academic achievement. These findings prompted the researcher to conduct a further analysis to establish whether the two subscales of academic mindset had a significant relationship with academic achievement when correlated singly. To achieve this, two supplementary null hypotheses were formulated. The first one was: There is no significant relationship between fixed academic mindset and academic achievement while the second was; there is no significant relationship between malleable academic mindset and academic achievement.

To test these hypotheses, academic scores for both fixed and malleable academic mindset were subjected to a bivariate correlational analysis using the Pearson product moment correlation coefficient. The results are as shown in Table 3.

Table 3: Hypotheses Testing of the Two Subscales of Academic Mindset and Academic Achievement

		Academic Achievement
Fixed Academic Mindset	Pearson Correlation	-.56**
	Sig. (2-tailed)	.00
Malleable Academic Mindset	Pearson Correlation	.68**
	Sig. (2-tailed)	.00

Note: N = 488.

Results in Table 3 indicated that, there was a significant negative relationship between fixed academic mindset and academic achievement (r (486) = -.56, p< .01). Therefore, the first supplementary null hypothesis was rejected. It was therefore concluded that, there was a significant relationship between fixed academic mindset and academic achievement. On the other hand, the relationship between malleable academic mindset and academic achievement was found to be positive and significant (r (486) = .68, p> .01). Thus, the second supplementary null hypothesis was rejected. It was therefore concluded that, there was a significant relationship between malleable academic mindset and academic achievement.

Having obtained a significant relationship between the subscales of academic mindsets and academic achievement, a multiple regression analysis of the second null hypotheses; academic

mindsets does not significantly predict academic achievement was performed. The results are presented in Table 4.

Table 4: Model Summary of Students' Academic Mindsets and Academic Achievement

Model	R	R Square	Adj. R^2	SEE
1	.50[a]	.25	.25	9.99

Note. $N = 488$. Adj.R^2 = adjusted r^2; SEE = standard error of the estimate
a. Predictors: (Constant), total mindset score.

Findings in Table 4 indicated that the adjusted R^2 value of academic mindsets was ($R^2 = .25$). This implied that students' academic mindsets explained 25% of the variations in academic achievement. The regression analysis on the extent to which academic mindsets predict academic achievement are presented in Table 5.

Table 5: Regression Analysis of Students' Academic Mindsets on Academic Achievement

Model		SS	df	MS	F	Sig.
	Regression	119.55	1	119.55	1.19	.27[b]
1	Residual	48580.44	486	99.96		
	Total	48700.00	487			

Note. $N = 488$. SS= sum of squares; df = degrees of freedom, MS = mean square; F = critical value of F.
a. Dependent Variable: academic achievement
b. Predictors: (Constant), total academic mindset score

As observed in Table 5, students' academic mindsets were not a significant predictor of academic achievement ($F (1,486) = 1.19$, $p = .27$). This was because, as presented in Table 3, fixed academic mindset had a negative relationship with academic achievement while malleable academic mindset had a positive relationship with academic achievement. Therefore, this inverse correlation could have affected the overall outcome of whether academic mindsets predicted academic achievement. Therefore, the researcher conducted a further regression analysis to establish whether the individual subscales of students' academic mindsets predicted academic achievement or not. The results are presented in Table 6.

Table 6: Regression Analysis of the Subscales of Students' Academic Mindsets on Academic Achievement

Model		SS	df	MS	Adj. R^2	F	Sig.
	Regression	24278.93	2	12139.46	.49	241.08	.00[b]
1	Residual	24421.06	485	50.35			
	Total	48700.00	487				

Note. $N = 488$. SS = sum of the squares; df = degrees of freedom; MS = mean of the squares, Adj.R^2 = Adjusted R squared; F = critical value of F.
a. Dependent Variable: academic achievement
b. Predictors: (Constant), malleable academic mindset, fixed academic mindset.

The results in Table 6 revealed that, the individual subscales of students' academic mindsets were significant predictors of academic achievement (F (2, 485) = 241.08, $p < .05$). The coefficient of determination was $R^2 = .49$. This meant that, the subscales of academic mindsets explained 49% of the variations in academic achievement.

Therefore, based on these results, the second null hypothesis was rejected. It was therefore concluded that, academic mindsets were significant predictors of academic achievement.

Qualitative findings

From the interviews, those participants who endorsed a malleable academic mindset performed better than those who endorsed a fixed academic mindset. This confirmed the quantitative results (Creswell, 2014).

Discussion

These findings corroborate with Dweck and Leggett's (1988) theory of motivation and personality that, when students endorse a malleable academic mindset, their academic achievement improves. On the contrary, when students endorse a fixed academic mindset, there is a decline in academic achievement. Consistent findings were also reported by (Blackwell, et al., 2007; Chen and Wong, 2015; Lackey, 2014; Aditomo, 2015) who reported a significant positive relationship between malleable academic mindset and academic achievement and a significant negative relationship between fixed academic mindset and academic achievement. In the current study, those respondents who rated themselves very highly in malleable academic mindset performed very well, whereas, those who rated themselves very highly in fixed academic mindset performed very poorly. These results were confirmed from the qualitative analysis. The interviewed participants who had fixed academic mindsets performed poorer compared to the malleable mindset participants.

Conclusion

This study sought to establish whether students' academic mindsets predicted academic achievement. Results revealed a positive relationship between students' academic mindsets and academic achievement. More specifically, a significant positive relationship was found between malleable academic mindset and academic achievement while a significant negative relationship was found between fixed academic mindset and academic achievement. This implies that the issue on mindsets does not only affect students in the western oriented cultures but it is also a problem affecting learners in the developing countries like Kenya. Therefore, owing to these findings, academic mindsets of learners needs to be considered when taking learners through the academic ladder to ensure that they are trained on malleable academic mindset and this can lead to higher academic achievement gains.

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Appendix A
Questionnaire for Students

Part I: Background Information

Please fill in the blank spaces and put a tick (√)   where appropriate.
1. Code no. _____
2. Gender : Male   (   )   Female   (   )
3. Age in years _____
4. Name of school_____
5. School type
Boys' boarding   (   )   Boys' day   (   )
 Girls' boarding   (   )   Girls' day   (   )
Co-educational day/Mixed day   (   )

Part II: Academic Mindset Questionnaire

The following questions ask about your ideas about intelligence. There are no right or wrong answers, just answer as accurately as possible. Using the scale below, kindly indicate the extent to which you agree or disagree with the given statements. Put a tick (√) against the statement that corresponds to your opinion in the space next to each statement. The responses range from, 1 = *Strongly Agree*, 2 = *Agree*, 3 = *Mostly Agree*, 4 = *Mostly Disagree*, 5 = *Disagree* and, 6 = *Strongly Disagree.*

	STATEMENT		ANSWERS				
		Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree
1	I have a certain amount of intelligence, and there is nothing much I can do to change it.						
2	My intelligence is something about me that I cannot change very much.						
3	No matter who I am, I can significantly change my intelligence level.						

4	To be honest, I cannot really change how intelligent I am.					
5	I can always change how intelligent I am.					

	STATEMENT	ANSWERS					
		Strongly Agree	**Agree**	**Mostly Agree**	**Mostly Disagree**	**Disagree**	**Strongly Disagree**
6	I can learn new things, but I cannot really change my intelligence.						
7	No matter how much intelligence I have, I can always change it quite a bit.						
8	I can change even my basic intelligence level considerably.						

THANK YOU VERY MUCH FOR YOUR TIME AND COOPERATION.

Appendix B
Interview Schedule for Student Interviewees

Part A: Interview Consent Form
I understand the purpose of this interview with Mrs Josephine Mutua is to facilitate her Ph.D study in Educational Psychology at Kenyatta University. I have been informed of what the interview entails and the purpose of the research. I also understand that participation is voluntary and that there are no penalties attached in case I withdraw from the interview at any stage. I have also been assured of the confidentiality in handling all the information shared and my real name will not be used when writing the report. I therefore give consent to participate.
Code Number:_____ Date _____ 2016

Part B: Semi-Structured Interview Schedule
General questions
   a) Generally how do you consider the content covered in form three?
      i)   Easy
      ii)   Very easy
      iii) Challenging
      iv)   Difficult
      v)   Very difficult
   b) What has made you choose your answer in the above question?
   c) What optional subjects are you taking in form three?
   d) What made you choose those subjects?
   e) What role did the teachers play when choosing the subjects to take in form three?
   f) What role did your parents play when choosing your subjects in form three?

   Academic mindset questions
   a) I have always obtained the same grade since I joined form three. Yes/ No? Why?
   b) What do you mainly do when the content in a subject is challenging?
   c) Are there subjects you consider more difficult than others? Which ones? Why?
   d) What have you been doing about those difficult subjects?
   e) How do you feel whenever you don't perform as per your expectation? Why?
   f) What do you do whenever you don't perform well?
   g) What you do whenever you perform well?
   h) Which of the following statements describes you well
      i) In class I work very hard to make sure i compete with my classmates.
      ii) In class I work very hard to make sure I understand the content

THANK YOU VERY MUCH FOR PARTICIPATING IN THIS DISCUSSION.

Appendix C
Summary of Nairobi County KCSE Performance (2014 – 2016)

GRADE	2014 ENTRY (22231)	2015 ENTRY (23307)	2016 ENTRY (25258)
A	465	372	41
A-	1197	1189	622
B+	1240	1341	1025
B	1218	1379	1069
B-	1380	1549	1159
C+	1475	1681	1229
C	1773	1975	1414
C-	2332	2423	1722
D+	2927	3035	2304
D	3693	3916	3712
D-	3832	3811	7744
E	699	636	3217
MEAN SCORE	5.2594	5.3045	4.0078

SOURCE: COUNTY DIRECTOR OF EDUCATION OFFICE, 2017