INFLUENCE OF STUDENTS SELF-CONCEPT ON ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS IN MERU SOUTH SUB-COUNTY, KENYA

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ABSTRACT
Mathematics has become the backbone for prosperity in almost all field of Life. Secondary school mathematics education lays a strong foundation for all types of learning at the secondary school level and more so at higher levels of learning. Thus, mathematics is a prerequisite for better achievement at higher stage. Developing individuals with strong self-concept do contribute significantly to their performance. Studies on self-concept and their impacts on academic performance have predominantly focused on teachers' specific instructional methods. Students believe knowing mathematics is about remembering and applying certain rules correctively in a problem and that the only correct answer is the one given by the teacher. Most research into factors that influence academic performance mainly focus on cognitive domains but less on affective domains of learning. Students Self-concept has been linked to academic achievement, social adjustment, healthy behaviour and positive employment outcomes. Thus, there is comparatively little self-concepts research examining influence of students' self- concept construct (academic effort, family background, students' perception and number of contact hours of the teacher) on academic performance. The researcher used a quantitative approach using correlational design was utilized. Constructs of self-concept were hypothesized to influence academic performance. This design allows the understanding of important phenomena through the identification of relationship among variables. Simple random sampling was carried out in select Coeducational schools. The study population was all Form two students in Kitui County. The sample size was 277 Form two students in Meru South Sub- County, Kenya. The instrument for data collection was self-description questionnaire. Students completed self-concepts scales and the data was recorded. Students' average marks were collected and then analyzed to observe whether there was a trend between high self-concept and higher academic performance. Quantitative data collected was analyzed using mean, standard deviation, a one way ANOVA with the help of Statistical Package of Social Scientists (SPSS) version 22.0. Cronbach alpha was used to test reliability of the research instrument. The reliability was found to be 0.84. The study revealed a strong relationship between students self – concept and academic performance. On students effort and students family background, girls recorded higher variability on interest in learning, Self-concept is perceived positively by students; however this does not affect directly students' mathematical performance but does so when students put less efforts in solving problem on what has been taught to them previously. The researcher recommends that teachers and all stakeholders should take it as their responsibility to develop students' positive self-concept when interacting with them.
Keywords: Effect, Self-concept, academic performance, student perception, family background, contact hours

INTRODUCTION

Kenyan government recognizes that education is a human right as ensilaged in the Kenya Constitution (2010). Measures has been put in place both legislative and in policy framework to ensure that the basic education is available to all and is free to all (Basic Education Act, 2013).The main goal is to achieve Vision 2013 and the big four government agenda. Through ministry of Education in corroboration with Kenya National Examination Council (KNEC) has ensured quality curriculum delivery and administration of National exams that are free from cheating. Over the recent years, many candidates have performed poorly (KNEC, 2017). Mathematics is one of the subject that performance has been below D+ over the last three years (KNEC, 2016, 2017 & 2018) examination reports.

When students ask questions, the problems they have might be unclear. This causes errors in basic mathematics procedures. Mathematics subject become like a Puzzle, which makes the learning environment with less interest. Students become bashful and shy from asking questions and they think they have no ability in mathematics. They lose their self-confidence. The poor performance in mathematics has been attributed to several factors which include teachers professional teaching experience, teaching approaches, teaching and learning resources and the abstract

nature of mathematics(Githua, 2013).There is inadequate research conducted in Kenya on the influence of students self – concept on academic performance in secondary school students. Self-concept is conceptualized as how a student views his/her academic ability when compared with other students (Cooley, 2000 as cited in Ekow, 2014). According to Cooley (2000), academically successful individuals must be identified with domain of academics. Academics must be part of their self-concept more specifically they must have a positive academic self-concept. Three different aspects of self-concepts incudes; self-image, or how ones see himself or herself. It is a mixture of

attributes such as physical characteristic, personality traits, and social roles. Self-esteem or how much you value yourself can be influenced by how others respond to the one likely to develop negative self-esteem when he or she compares himself or herself lacking and positive self-esteem when people respond positively. Ideal self, or how ones wish one to be. The way you see yourself and how you would like to see yourself do not match up. Chetri (2014) views self-concept as those perceptions, beliefs, feelings, attitudes and values an individual perceives about his or her abilities and his status in the outer world. According to Chetri (2014), an individual with good self- concept tend to more accepting than of others. Building student cognitive and affective self- concept has positive influence on academic performance of the students. Our self-concept is not always aligned with reality. Some students believe they are great academician but their results reports otherwise (congruence). From childhood parents have placed conditions on their affection for their children through certain behaviour. The formation of self-esteem is fueled by the family dynamics. This becomes the first social group where interactions determines who we are (Lead, 2010). It is the responsibility of the parents to make sure there is affection, security and attention. They should supply vital encouragement and drive which will make us to walk through this world feeling that they are valuable people.

Research work conducted on 98 first year engineering students at city university of New York by Gerardi (2009) found that academic self-concept was the best predictor of academic success. Konnor and Nixon (2010) also examined students' perception on self-concepts and the relationship between self-concept academic performances in the University of Wisconsin. The findings of the study were that students perceived self-concept positively. Crawford (2013) found out that students self – concept influence their academic performance; however, the level of effort exerted by the student in learning largely contributes significantly to students' self-concept in boosting their academic performance. Development of students' self-concept need to be put into consideration as this will be consequential as it is this entire system of helping build around the importance of the self in human personality and personal adjustment. These studies focused on University students and the present study examined secondary school students who have not excelled academically.

Arefi, Naghibzadeh and Baloki, (2014), studies on relationship between self- concept and academic achievement on Iranian high school students reported that there is a mutually reinforcing relationship between academic self - concept and attachment with the parents and an academic achievement but no relationship with the peer interactions. Understanding family background of the learner is crucial for successful learning. Improving students' self- concept especially for low achievers has significance importance. Marsh and Craven (2006), found out that self-concept and achievement to be reciprocally related sharing the domain causal relationship. Most research work have either put more emphasis on competence or combined competence with affect aspect (Jansen et al., 2014).

Hoge, Smit and Crist (2012) also conducted a two-year longitudinal study of 322 sixth and seventh graders that compared the three levels of self-concept (high, middle and low) and studied the influences of self-concept on achievement. The findings were that achievement on self-concept had influences of self-concept on grades were weak but grades had a modest influence on subsequent discipline-specific self-concept. The researchers concluded that past correlation studies have overstate the influence of self-concept on grades and of grades on self-concept. Self-concept is frequently positively correlated with academic performance, but it appears to be a consequence rather than a cause of high achievement (Baumeister, Campbell, Krueger & Vohs, 2012).

A study was conducted on relationship between self-concept and academic achievement in Saudi girls aged 8 – 10 with learning disabilities. It was a descriptive study where Tennessee self-concept scale with six domains (physical, moral, personal, family, social and academic) were measured. Academic achievement was measured by considering the final marks in academic year. The results revealed that academic self-concept is affected by learning disability but not general self-concept. Similar results were also found by Al Zyoudi (2010). Steinke (2010) noted that pupils who possess a good self-concept are actively involved in school, which leads them to be more successful. When students possess weak or negative self- appraisal they are likely to view themselves as incapable of success. Our perception of ourselves does not develop spontaneously but develop overtime due to interactions with others and environment (Steinke, 2010). The present study examined students in inclusive classroom.

Ju, Zhang and Katsiyanmis (2013) investigated the reciprocal causal relationship between academic achievement and academic self-concept domains (self- image, social, and academic). Johnson III test and students concept scale. Parents' involvement was measured in terms of school and home involvement. It was found that parents' involvement was very important predictor factor of academic achievement and self-concept. A longitudinal Study by Dalun, *et al.*, (2011) on the level of parents engagement in school and home settings with elementary students with

special needs and the relationship of this engagement to students achievement. They found parents' involvement is positively linked to higher performance. The reviewed literature supports the proposition that there was significant relationship between various construct of self-concept and academic achievement and those learners who have a positive self-concept do improve significantly (Schutte *et al*, 2017). According to Williams and William (2010), students' beliefs influence students' performance on choice of activity, amount of effort, level of perseverance the type of learning strategies. When students have positive academic self-concepts, it affects their academic behaviour, academic choices, educational aspirations and subsequent academic performance (Scales, 2006).

In Kenya, performance among students at the KCSE mathematics examinations has been poor for many years (Githua, 2015). Declining trend in mathematics has raised many concerns among parents, educational providers and other educational stakeholders in light of heavy investment placed in the education sector by the Kenyan government. Kinyua (2014) identified poverty and unskilled employment of parents as obstacles to academic performance of Girls and boys in Naivasha Sub County. Cecilia (2016) conducted a study in Kericho County on the influence of self-esteem on academic performance. The results revealed that mothers employ their feelings when handling children's resulting to creation of a suitable work environment at home to do their schoolwork. In Meru South, Tharaka- Nithi County the situation is not different. The mean scores over a period of three years has been below 5.00 as shown in Table 1. Despite the effort by Ministry of Education introducing programs such as Strengthening of Mathematics and Sciences in Secondary Education (SMASSE) project and institution organizing extra classes for students and extra tuition at homes for day scholar's, performance is still below average. The table 1 shows mathematics performance for the last three years in KCSE examination.

Table 1. Candidate Overall Performance in Mathematics in Meru South Sub County

YEAR	ENROLL	M/S	M/G
2016	4364	2.821	D
2017	2653	2.996	D
2018	3244	3.134	D

Source: Adopted from Sub County Director of Education (Annual Report 2017, 2018).

Student self -concept could be enhanced by constant feedbacks and interaction in classes by providing basis for reinforcement, verification and reinforcement of learnt ideas. One of the most important factor responsible for student academic performance is influenced by constructs of self- concept (Ekow, 2019). Incidentally, most of the research work has focused on relationships among the constructs of self- concept from western cultural background, which may be slightly different from Kenyan situation.

Statement of the Problem

Students, Parents, and teachers are attempting in Kenya among others in effort to ensure many students do perform well in their final Kenya Certificate of Secondary Education (KCSE). one of these attempts incudes; acts of organizing extra remedial classes for the weak students by teachers, parents spending extra monies on children education, and Government increasing teachers' salaries in order to motivate teachers to give off their best. Notwithstanding these, it still appears most students continue to perform below average in Secondary schools in Kenya. Most research into self-concept and relationship on academic achievement has focused on cognitive domains but less on affective domains. Thus, the present study seeks to fill the gap created in previous research by examining the influence of self-concept on academic performance of Students in Meru South Sub County, Kenya.

Purpose and Objective of the Study

The purpose of this study was to investigate the influence of students' self-concept on academic performance in mathematics in secondary schools of Meru South Sub – County, Kenya.

To find out the influence of constructs that form student's self-concept on academic performance in mathematics.

Research Questions

(i) Is there any relationship between students' effort and their academic performance?
(ii) Does students family background influence their performance in mathematics?
(iii) Is there any relationship between student perception and their academic performance?
(iv) Is there any relationship between contact hours by the teacher influence academic performance?

METHODOLOGY

Research Design

A correlational research design was utilized in this quantitative research. This design allows collecting data to test the relationship between the set of variables. The study design allows clarification and understanding of important phenomena through identification of relationship among variables without any manipulation (Gall; Borg & Gall 1996; Orodho, 2000).

Population and Sampling

Accessible population of the study was all Form two students in secondary school in Meru South. The target population comprised of all Form two students in coeducational secondary schools in Meru South Sub-County in Kenya. Form two was selected because it was considered to have stayed in school for a longer period, that Form three, and four are examination classes. The unit of sampling were schools and not participants. There are 37 coeducational secondary schools in Meru South Sub County. Simple random sampling was used to select 10 schools. A total number 450 both boys and girls was targeted however only 277 students participated in the study from these secondary schools. The instrument for data collection was self-description 18 item questionnaires adopted from Beatton and Frijters (2012). In this Study the selected dimension of self-concept was; students effort, students perception, family background and contact hours by the teacher. The dimensions were treated as independent variables while academic performance as dependent variable.

Instrumentation

The present study adopted was self-description questionnaire to measure the level of self –concept of the participant. The questionnaire consisted of 18 items that are self- rated on a 5 point rikert scale 1 – 5 with responses ranging from Strongly agree(SA),agree(A), undecided(U) disagree(D) and strongly disagree(SD). Five represents the strongest agreements to the issues while one represents the least agreements to the issues. All items in the questionnaire obtained exclusively background information about the subjects. Question one included gender while question two focused on average score performance in midterm and end of term exam. The subsequent sections considered, students personal effort, the family background, one's perception and contact hours self -concept respectively of the respondents. Question 4 comprised of 8 items. (a, e) were on students effort;(b,f) on family issues; (c, g) students perception and (d e, h) were on contact hours with the teacher. With regard to the academic performance of students, the students' average scores for the midterm exam and end of term one exam 2019 was used. The scores were put in five-point scale to match with that of the self-concept scale in other to have uniformity regarding the measurements of the items. This makes it easier for inferential analysis. The questionnaire was pre- tested at secondary school with similar characteristic as that sample outside the sub county. The questionnaire was tested for its internal consistency using Cronbach's alpha with a reliability coefficient of 0.84. This according to Malhotra and Birks (2007) is high and satisfactory.

Data Analysis

The data was collected from the accessible population through questionnaire. Both descriptive and inferential statistics was used to analyze Data. Descriptive was used to show how items related the influence of how various dimensions of self self- concept was analyzed by one-way ANOVA and Linear regression. It was screened, coded and keyed for analysis with help of statistical package of social sciences version 22.0. Mathematics scores were put in five-point scale to match with that of the self-concept scale in order to have uniformity regarding the measurements of the items. Multiple regression analysis was used to determine whether the self -concepts constructs variables predicted academic performance.

RESULTS AND DISCUSSION

Data was analyzed by using the frequencies, mean and standard deviation of responses falling in each of the 5- point Likert scale. The conclusion made in this study is based on the majority of students' responses in the strongly disagree (SD); disagree (D); strongly agree (SA); undecided (U) and agree (A) category. A consensus's response was found on a number of questionnaire items. It was defined by over 70% agreement or disagreement in responses on the items in the questionnaires. The results of students in questionnaire is shown in Table 2. The finding shows that the performance of the most student was below average (2.16) rated as 2. Student effort (SA); Student perception (A); number of contact hours (A). Further analysis was conducted to compare frequencies, means and standard deviation of each self-concept construct. Research question one sought to find out the influence of students effort to their academic performance.

Table 2: The mean and standard deviation of the responses

Item response	Mean	S.d	N
Performance	2.16	.890	276
Students effort	1.67	.970	271
Student perception	2.47	1.228	249
Number of contact hours	2.31	1.195	270

Table 3. Results on Items Sought Information on Student's effort in Learning Mathematics

Item response	Freq.	Percentage	Mean	Standard deviation
5	145	52.7	2.29	.816
4	101	36.5	2.12	.952
3	1	4.0	2.0	.00
2	14	5.1	1.79	.893
1	9	3.2	1.11`	.333
Total	270	97.8	1.67	0.97

This illustrates that 52.7% of respondents strongly agree and 36.5% agree that student personal effort influence performance in mathematics. The mean of 1.67 falls in the range of strongly disagreement that student effort does not influence academic performance. These results are in consistent with Crawford (2013) who shows that the level of effort exerted by the student in learning is likely to result to development of self - concept leading to higher academic achievement. Higher levels of intrusive self-concept, higher student productivity, greater student engagement in problem solving and through consultation from peers' and teachers, and an improved sense of self- competences enhance students' self-concept. To test whether there was significant difference in the means, one way ANOVA was carried out and the results are presented in Table 4

Table 4. Analysis of Variance (ANOVA) for the self- construct of effort

Performance * Students Effort		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	14.497	4	3.624	4.859	.001
	Linearity	13.182	1	13.182	17.674	.000
	Deviation from Linearity	1.315	3	.438	.588	.624
Within Groups		197.655	265	.746		
Total		212.152	269			

The results shows F (4,265) = 4.859, P< 0.05, this shows the level of students effort contribute to academic performance. The results of association between the variable is presented in Table 5

Table 5. Measures of Association of the variables

	R	R Squared	Eta	Eta Squared
performance * effort	-.249	.062	.261	.068

Table five shows that R square = 0.062. This shows that 6.2% of performance is influenced by students' effort in academic and 93.8% is influenced by other factors outside this model.

Research question two sought to find out the influence of students family background to their performance in mathematics. The results are shown in Table 6.

Table 6. Results on Items Sought Information on Student's family background

Item response	Freq.	Percentage	Mean	S.D
5	37	13.4	2.05	.664
4	105	37.9	2.33	1.025
3	34	12.3	2.09	.755
2	42	15.2	2.07	.835
1	39	14.4	1.95	.793
Total	257		2.16	1.335

The items sought information family background information such as conflicts and education level of the parents. The three items each was used to elicit data on these self-concept which were later pooled together to form each of the sub self-concept for descriptive analysis. However, the items were measured with five-point Likert scale type as indicated earlier.

The results presented in Table 6 show that 51.3% of respondents are in agreement that self - concept of family influences academic performance while 29.6% of the respondents disagree that self- concept of family does not influence academic performance. A mean of 2.09 was obtained which falls on respondents that were undecided. Their results shows how family self -construct may influence performance of mathematics but further analysis of variance was carried out to find whether the differences of means were statistically significant. The results are shown in Table 7.

Table 7. Analysis of Variance (ANOVA) of family Self -concept construct

			Sum of Squares	d.f	Mean Square	F	Sig.
performance * family	Between Groups	(Combined)	5.815	4	1.454	1.863	.117
		Linearity	2.139	1	2.139	2.741	.099
		Deviation from Linearity	3.677	3	1.226	1.571	.197
	Within Groups		196.644	252	.780		
	Total		202.459	256			

F (4, 252) = 1.863; P> 0.05; this shows the there is no statistically significance difference in the performance of students as influenced by family background. Table 8 presents the association of the variables.

Table 8. Measures of Association

	R	R Squared	Eta	Eta Squared
performance * family	-.103	.011	.169	.029

R Squared = 0.11; this means only 1.11% of students performance is influenced by self - concept of family and 98.99% is influenced by other factors. The Study findings of Chiu and Klassen (2010) conflicts with these findings since they found out for students from a culture, which tolerates more uncertainty, do influence mathematics achievement. The results also conflict with studies carried out by on Hong Kong parents that Excellent examination results are considered representative of the status and good reputation of the family(Lau, Yu, Lee, So & Sung, 2004). According to Tabone(2011), self-appraisal is created through interactions with one's environment and the influence of others. How students identify with the community, political movement or religion many not necessary reflect their performance.

Research question three sought to establish whether student perception influences their mathematical performance. The results are indicated in table 9.

Table 9. Results on Item on Perception of Students

Item response	Freq	Percentage	Mean	S.D
5	50	18.1	1.46	.579
4	110	39.7	2.12	.825
3	39	14.1	1.85	.779
2	22	7.9	2.91	.294
1	28	10.1	3.0	.903
Total	249	89.9	2.48	1.23

The results portrays 57.8% of respondents agree that students perception do influence academic performance while 19% are in disagreement that students perception not contribute to academic performance. To find out whether there was statically significance difference in means ANOVA was carried out and the results presented in Table 10 while that of association of variables was presented in Table 11

Table 10. ANOVA results of Students Perception Self- Construct

			Sum of squares	d.f	Mean Square	F	Sig.
Performance *perception	Between Groups	(Combined)	60.074	4	15.019	26.685	.000
		Linearity	46.465	1	46.465	82.558	.000
		Deviation from Linearity	13.609	3	4.536	8.060	.000
	Within Groups		136.765	243	.563		
	Total		196.839	247			

Table 11. Measures of Association

	R	R Squared	Eta	Eta Squared
performance * perception	.486	.236	.552	.305

F (4, 243) = 26.685; P< 0.05.This means that students perception self- concept construct was statistically significant. The results of Table 11 shows R squared = 0.236. This means that students perception self-concept constructs are able to predict or explain only 23.6 % of the variance in students' academic performance in the school. It therefore means that besides this self- concept constructs identified, other factors not yet in the model have a chance of contributing or predicting about 76.4% to students' performance in mathematics.

The fourth Research question of the study was to find out whether students contact hours by the teacher influenced their performance in mathematics. The results of respondents are presented in Table 12

Table 12. Students' responses on the number of contact hours

Item response	Freq.	Percentage	Mean	S.d
5	76	27.4	2.39	1.047
4	100	36.1	2.12	.700
3	49	17.7	1.71	.707
2	24	8.7	2.63	.711
1	20	7.6	1.85	.933
Total	269	97.5	2.33	.873

The percentage of students in agreement was 63.5 % while 16.3 % did disagreed that increasing contact hours influences ones performance. Analysis of Variance was conducted and the results are presented in Table 13 while the results of association of variables are indicated in Table 14

Table 13. ANOVA of number of Contact hours self- concept

			Sum of Squares	d.f	Mean Square	F	Sig.
performance * hours	Between Groups	(Combined)	21.159	4	5.290	7.636	.000
		Linearity	3.261	1	3.261	4.707	.031
		Deviation from Linearity	17.898	3	5.966	8.612	.000
	Within Groups		182.893	264	.693		
	Total		204.052	268			

F (4, 264) = 7.636; P < 0.05

Table 14. Measures of Association

	R	R Squared	Eta	Eta Squared
performance * hours	-.126	.016	.322	.104

In the model, the selected self-concept of students were entered as independent variables with students' academic performance in the school operating as dependent variable. The results as shown in Table 13 indicate that the number of contact hours self-concept was statistically significant, F(4, 264); P< 0.05, however R Squared = 0.016.This means that contact hours self-concept constructs are able to predict or explain only 1.6% of the variance in students' academic performance in the school. It therefore means that besides these self- concept constructs

identified, other factors not yet in the model have a chance of contributing or predicting about 98.4% to students' academic performance in the school. The result suggests that students' self-concept constructs alone do not contribute significantly to their academic performance and that they do so when other variables are considered.

CONCLUSION

The findings show there is strong relationship between students' self-concept of academic effort, student perception and number of contact hours on performance in mathematics. There was statistically no significance difference in the level of performance in mathematics due to students' family background. To enhance Students self- concepts, monitoring academic Programme is fundamental in ensuring students efforts are not influenced by their self- concept, which may affect their performance.

RECOMMENDATIONS

Science educators on how science students can achieve better in science and mathematics have carried out several educational researches. The researcher recommends the following

(i) The government and those in educational affairs should encourage teachers who teach mathematics by providing them with materials or items that enhance students' self-concept and put more attention on student self-concept.

(ii) Educators are suggested to incorporate students' perception, values, and beliefs when delivering new mathematical knowledge.

(iii) Educators should encourage students to put a lot of effort to understand and be actively involved in problem solving in class lessons and in group activities. Creation of extra time to carry out mathematics problems need to be put into consideration.

(iv) Similar research on other parts of the Country for the purpose of generalization of findings, such study will help solve cultural and geographical differences.

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