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RELATIONSHIP BETWEEN ACADEMIC SELF-CONCEPT AND ACADEMIC ACHIEVEMENT AMONG SECONDARY SCHOOL STUDENTS IN KIRINYAGA COUNTY, KENYA

Ndungu, Rahab Wanjiru[1i],
Samuel M. Mutweleli[2]
[1]Department of Educational Psychology,
Kenyatta University,
Kenya
[2]Lecturer,
Department of Educational Psychology,
Kenyatta University,
Kenya

Abstract:
Low academic achievement may negatively impact on learners' psychological well-being and cause substantial stress on parents, who may subsequently pressure their children to perform. There are many aspects that might be associated with low academic achievement, including environmental, pedagogical, and psychological factors. This study focused on one psychological factor, namely academic self-concept (ASC) among learners in secondary schools. The purpose therefore was to determine the relationship between academic self-concept and academic achievement among secondary school learners in Kirinyaga East sub-county, Kirinyaga County. The study was founded on Rogers' (1959) self-concept theory. Using correlational research design, the researcher aimed to draw inferences from a population of 2,500 students in form three across all public secondary schools in Kirinyaga East sub-county. Three hundred and eighty students from 12 schools were selected through proportionate, purposive, stratified, and stratified random sampling techniques. A questionnaire incorporating an adapted ASCA scale, as well as end-of-term examination records were used as instruments. Central tendency, frequency counts, and distribution variability were utilised as descriptive statistics, and correlation coefficient as inferential statistics. The results indicated that a significant positive relationship was established between ASC and learners' scores on academic achievement (r (359) = .14, p< 0.01). Motivation, and creativity as domains of ASC were significantly correlated with scores on academic achievement. The study recommended that there was a need for the education ministry through its training and capacity-building institutions to equip teachers with skills aimed at developing key components of ASC. The study further recommended that schools ought to promote

[i] Correspondence: email rahab2wanjiru@gmail.com

instructional strategies aimed at enhancing components of ASC found to have been strongly linked to academic achievement.

Keywords: academic self-concept, academic achievement, teachers' capacity building, student learning motivation, academic abilities

1. Introduction

Education is deemed to be the cornerstone of economic and social development globally on the basis that it improves the social and economic productivity of society. As the world grows increasingly competitive, educational performance has become a key factor for individual progress, making parents to do all they can to support and also demand the academic achievement of their children. Academic achievement represents learning outcomes that reveal how students have managed to accomplish specific goals and objectives that have been the basis for instructional activities (Steinmayr *et al.*, 2014).

Existing empirical evidence associates academic achievement with positive outcomes in various domains. Ali and Jalal (2018) assert that in India, individuals who attain high educational levels are likely to find stable employment opportunities, earn higher salaries, and most likely meet the criteria for health insurance among other benefits, compared to those who are less educated. The desire for academic achievement also leads to huge amounts of resources being channeled towards education. However, Al-Samarrai *et al.* (2019) in an article prepared for the World Bank on the trends of global spending on education in various developing countries including the African region notes that even with such commitments, students' education outcomes have largely remained unchanged. The slow progress in raising students' academic achievement continues to raise fundamental questions for educational research. What are the deep-seated factors that may promote students' academic achievement? How far do divergent factors contribute to students' academic achievement?

Nationally, academic achievement has for a long time been assessed through students' grades during end-of-term examinations. Although this system has been widely accepted, there is a shortage of scientific evidence about its usefulness in motivating students toward academic achievement in Kenya. Students' learning outcomes have largely been found to depend on psychological, and student-related factors, such as learning abilities, willingness to learn, and individual student's intelligence quotient (IQ), as well as teacher-related factors, such as instructional methods among others (Oyoo *et al.*, 2019).

In Kenya, Obura (2019) suggests that teachers can help students attain better academic outcomes by focusing on achievement goals that can motivate them to demonstrate competence. However, student learning outcomes as well as overall institutional performance have not been consistent with educational goals for a number of years. This challenge has been attributed to various factors, including learners'

absenteeism, lack of motivation, poor facilities, understaffing, and lack of role models among others (Kithokoo, 2011).

This trend has also been replicated in Kirinyaga East, where a report obtained from the sub-county education office as shown in Table 1 indicates that the performance of learners in secondary schools remained within a mean grade of four to five points in the last four years.

Table 1: Kirinyaga East 3 Year KCSE Performance Trend

Year	Entry	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	MSS
2020	3384	5	42	112	164	245	347	443	511	452	487	526	48	5.050
2019	3185	5	32	133	233	263	311	379	411	469	543	374	25	5.252
2018	3045	0	25	72	144	229	275	294	370	455	596	543	42	4.728
2017	2878	0	6	44	112	178	223	276	354	395	578	658	54	4.381

Source: Kirinyaga East Sub-County Education Office.

While students' learning outcomes may depend on diverse factors, there is a need to have a better understanding of the relationship between students' academic self-concept (ASC) and their achievement in education. Generally, self-concept entails the image that individuals have about themselves, ideally how one perceives their personal abilities, behaviour, and unique characteristics. During the developmental stage, the self-concept of an individual tends to be more malleable as opposed to the maturity stage when people hold solid perceptions about who they are and what is important to them (Cherry, 2021).

The term self-concept originated from the work of a humanistic psychologist, Carl Rogers (1902-1987) in the late 1950s, in which the term self was categorized into two parts, that is the ideal self, as one, and the real self as the other. Rogers argued that the ideal self entails what an individual desires to become, while the real self, or who a person really is, epitomizes the awareness of such an individual's desire to grow towards achieving their goals.

Academic self-concept (ASC) represents the set of personal beliefs that a student holds regarding their academic skills or abilities, which are also influenced by early educators and parenting styles (Benner & Mistry, 2007). During the developmental structure, a learner's self-concept does not remain static but is dynamically influenced by the interactions between peers and other people (Gage & Lierheimer, 2012). The aspects of students' ASC in this study include general intellectual abilities, self-image, self-esteem, self-regulation or management, creativity, motivation, and attitude.

Although self-concept begins to develop early during the stages of human development, research indicates that the development of positive self-concept during the learning stage can positively affect the social and emotional situations of students resulting in successful educational environments. Given that self-concept entails how individuals feel about themselves, the assessment of self can either be positive or negative and once established in the subconscious mind, can affect the individual's consciousness towards acting positively or negatively (Iftayani & Nurhidayati, 2016).

Positive academic self-concept is seen as important in determining students' learning outcomes, skills, or abilities and is usually developed through a learner's experience and in the manner in which learners perceive and interpret their learning environment (Marsh & Martin, 2011). The interest of this work was to establish the relationship that the psychological concept of ASC would have on academic achievement among learners at the secondary level in Kirinyaga East. The domains of self-concept include self-regulation, general intellectual abilities, creativity, and motivation.

2. Literature Review

In recent times, research related to ASC has attracted considerable interest among educational psychology researchers and educationists. While there is a considerable extent of research exploring on mutual dependence of learning achievement and self-concept, few studies have particularly explored on the nexus between the components of ASC of learners and how such learners fare in educational achievement. In a study carried out In Iowa, United States, Bacon (2011) targeting African American learners who had recently migrated from urban to rural areas and enrolled in schools in Iowa State for more or less than two years investigated possible association between their ASC levels and consequent achievement in academics.

The authors were interested in finding out how the geographical relocation of the school environment impacted on student self-concept and learning outcomes. Based on the scores from the Iowa Test of Basic Skills (ITBS) and cumulative grade point average (GPA), the findings pointed to a strong association between learners' ASC and their educational achievement. It turned out that some components of self-concept were related to each other as well as academic achievement. For instance, learners' motivation about school and their thoughts about academic skills were associated with their beliefs about their intellectual abilities. However, the study fell short of reporting any relationship between other components of students' self-concept such as self-regulation and creativity a gap that the present study strove to address.

In yet another study, Veas *et al.* (2016) examined the possible relationship between a number of variables, including students' self-concept, motivation, self-regulation, intellectual abilities, and educational outcomes. The sample comprised of 1,398 students at the junior high school level in 8 centers in Alicante, Spain. The findings revealed that all the variables had a predictive effect on learners' educational achievement. Specifically, the component of students' intellectual abilities was reported to show strong predictive effect on learning attainment. The study however did not divulge the predictive factor of other domains of students' self-concept such as creativity and self-regulation. Further, the study sample involved learners in early adolescence at the age of twelve and a half years from mostly developed Alicante Municipality and the results may not be generalised for students in a rural setting such as Kirinyaga East in Kenya.

Jaiswal and Choudhuri (2017) set out to explore what parallels would be drawn between ASC and educational attainment among learners in senior high school levels

across Varanasi city in India. Academic self-concept was assessed in various subscales including students' academic abilities, academic interests, academic efforts, curriculum, interaction, and academic future. A positive relationship was reported between the two variables. Inferences were made that students' beliefs about their abilities and competencies were important factors for their achievement in education. However, this study did not delve into specific components of self-concept like students' general intellectual abilities, creativity, motivation, and self-regulation, which the present study investigated.

Despite the shortage of research in the African continent on ASC and academic achievement, a few recent studies have focused on this topic and reported varying findings. Dambudzo (2014) explored possible correlation of self-concept and educational achievement among senior high scholars based on school type, location, and attendance. The study sampled 1,281 adolescents drawn from various secondary schools including government, non-government, urban, and those based in rural areas from ten locations in Zimbabwe. The specific domains of self-concept measured were social and cognitive self-concepts, as well as emotional, and physical self-concepts.

The study reported significant correlations between learning achievement and all four domains of learners' self-concept, based on the type and location of school. In general, the findings showed that students' self-concept development was dependent upon the type of school and that such school type or location factor influenced academic achievement. Despite positive correlations reported, the study primarily focused on school category and general development of self-concept. The assessment of academic achievement was obscure, given that the study only relied on self-description tools whose outcomes were not mirrored in student grades or any other form of academic achievement. The present study used students' end-of-term grades to measure academic achievement.

Several researchers in Kenya have explored the impact of some specific domains of self-concept on students' learning outcomes. For instance, Gachigi *et al.* (2019) from Nairobi City County looked into the possibility of an association between learners' academic self-concept and mathematics outcomes. The study sampled 500 form 3 students drawn from Nairobi City's public schools. The study strongly associated learners' self-concept with their learning outcomes in mathematics.

Multiple linear regression results revealed that the specific domains used to measure self-concept were confidence and effort and that only confidence showed a statistically significant relationship with achievement in mathematics. The present study involved different domains of academic self-concept, that is, self-regulation or self-management, motivation, creativity, and general intellectual abilities. Further, the study only assessed the relationship possibility between self-concept of learners and learning outcomes in mathematics. This gap was addressed in the present study by employing a more comprehensive and multidimensional approach to establish academic achievement in all examinable subjects.

3. Materials and Methods

The objective of the study was to establish the relationship between academic self-concept and academic achievement among secondary school students in Kirinyaga County. The study was guided by Rogers' (1959) self-concept theory. A correlational research design was used. The target population included 2,500 form-three students in public secondary schools in the Kirinyaga East sub-county. Yamane's (1967) formula, as cited in Israel (1992) was used to compute a sample of 380 students, 228 girls, and 152 boys. Proportionate, purposive, stratified, and stratified random sampling techniques were used to select the participants from 12 schools.

Data was collected through the Academic Self-concept Scale for Adolescents (ASCA) scale by Ordaz-Villegas *et al.* (2013), and end-of-term examination records. Initial testing for accuracy was done by its authors and a score of 47% was obtained on all four factors of self-regulation, creativity, motivation, and general intellectual abilities, in addition to Cronbach's alpha value of .83 (Ordaz-Villegas *et al.*, 2013). Since the tool was being administered to different populations, further reliability test was conducted before its use in the present study. A Cronbach alpha of .76 was established.

The instruments were successfully administered to 361 participants, that is, 220 girls, and 141 boys constituting a response rate of 95 percent. Descriptive statistics of frequency counts, central tendency, and distribution variability were utilised. Pearson's correlation coefficient (r) was used for inferential statistics and testing of the hypothesis.

3.1 Abbreviations and Acronyms

ASC	Academic Self-concept
ASCA	Academic Self-concept Scale for Adolescents
GIA	General Intellectual Abilities
GPA	Grade Point Average
ITBS	Iowa Test of Basic Skills

4. Results

The study sought to establish the relationship between students' ASC and academic achievement. The ensuing subsections present the results beginning with descriptive statistics, followed by inferential statistics and testing of the hypothesis.

4.1 Descriptive Statistics

The descriptive statistics on learners' ASC scores were performed to describe the lowest and highest values, central tendency, and symmetrical distribution of the scores.

Table 2: Descriptive Statistics of Students' Academic Self-concept Scores (N = 361)

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Academic Self-concept Scores	51.00	129.00	92.68	13.92	.08	.45
Valid N (listwise)						

It is demonstrated through the summarised data in Table 2 that students' ASC scores' minimum value was 51 while the maximum was 129. The scores registered a high mean of 92.68 (*SD*= 13.92) implying that the participants mostly agreed with test items on academic self-concept. A positive skewness value of .08 was recorded, and a kurtosis value of .45 indicated that the data was light-tailed and within normal distribution. The scores were further analysed to categorise ASC levels among the participants.

Table 3: Participants' ASC Levels (N = 361)

		Frequency	Percent (%)
Valid	Low	-	-
	Moderate	223	61.8
	High	138	38.2
	Total	361	100.0

Table 3 demonstrates that the majority, that is to say, 223 (61.8%) of the participants were within moderate levels of academic self-concept in comparison to 138 (38.2%) of those who were categorised as having high levels of ASC. None of the participants were in the low levels category.

Descriptive statistics were also carried out on students' academic achievement scores to describe the lowest and highest values as well as data distribution for both raw and standardised scores. Table 4 summarises the participants' raw scores of academic achievements.

Table 4: Description of Raw Scores of Academic Achievement (N = 361)

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Score	24.00	88.00	45.62	13.37	.61	-.21
Valid N (listwise)						

Table 4 indicates that the minimum value of students' raw scores in academic achievement was 24 while the maximum score was 88. The scores generated a mean of 45.62 (*SD* = 13.37) implying that students had average performance in academic achievement. The scores had a positive skewness value of .61, implying moderate skewness and low scoring, with a negative kurtosis value of -.21.

The scores on students' academic achievement were standardised through conversion to Z-scores and further to T-scores. Table 5 provides the standardised scores as summarised in descriptive statistics.

Table 5: Descriptive Analysis of Standardised Academic Achievement Scores (N = 361)

	Minimum	Maximum	Mean	Std. Deviation	Skew	Kurtosis
Standardised Academic Achievement Scores	34.06	73.70	50.0	10	.09	-.49
Valid N (listwise)						

It is noted from Table 5 that the minimum value of the standardised scores was 34.06, and the maximum value of 73.70. The mean score was 50.00 (*SD*= 10). The scores had a positive skewness value of .09 suggesting that most of the participants' scoring for academic achievement was low, and a negative kurtosis value of .49, suggesting that the distribution was near normal.

Table 6: Academic Achievement Levels (N = 361)

Academic Achievement Levels		Frequency	Percent (%)
Valid	Low Academic Achievement	157	43.5
	Average Academic Achievement	87	24.1
	High Academic Achievement	117	32.4
	Total	361	100.0

Table 6 demonstrates that 157 (43.5%) of learners registered low academic achievement, compared to 117 (32.4%) of those categorised as having high academic achievement. The results further show that 87 (24.1%) of the sampled learners had average levels of academic achievement. It can be observed from the results that although most of the learners were concentrated in average and high levels, a significant number of them had low academic achievement scores. Further analysis was conducted as demonstrated in Table 7 so as to compare the results on learners' academic achievement based on their levels of ASC.

Table 7: ASC Levels and Academic Achievement of Learners (N = 361)

ASC Levels	*N*	Mean	Standard Deviation
Moderate	223	50.98	9.054
High	138	52.57	8.055

Table 7 illustrates that a significant number of students (223) were concentrated in moderate levels of academic self-concept, with a mean score of 50.98 (*SD*= 9.05) in academic achievement. The results further indicate that those within high levels of ASC were 138, with a mean score of 52.57 (*SD*= 8.05) in academic achievement. None of the students were categorised as having low levels of ASC. Students' academic self-concept had four domains, which were, self-regulation, creativity, GIA, and motivation. Further analysis was done with the intent of establishing the association of the aforesaid domains with students' academic achievement. Table 8 summarises the descriptive analysis of the four domains of ASC.

Table 8: Descriptive Analysis of ASC in Self-regulation, GIA, Creativity and Motivation (N = 361)

	Minimum	Maximum	Mean	St. Dev	Skewness	Kurtosis
Self-regulation	14.00	40.00	26.58	4.88	.13	.01
General Intellectual Abilities	11.00	33.00	22.42	4.78	-.12	-.61
Creativity	8.00	35.00	22.65	4.59	.02	.37
Motivation	11.00	30.00	21.01	3.82	-.05	-.42

From Table 8, it is demonstrated that the minimum value of self-regulation scores was 14, while the maximum was 40. The scores generated a mean of 26.58 (*SD* = 4.88), implying that most of the participants had relatively high agreement levels. The scores in this category had a positive skewness of .13, implying that the values were mostly concentrated on the left side of the mean. The data further indicates that the lowest value in the domain of general intellectual abilities was 11, while the highest was 33. The results in this category generated an average score of 22.42 (*SD* = 4.78), and a negative skewness value of -.12, implying that the participants rated themselves high on the scale. The scores had a negative kurtosis value of -.61, implying that the scores were within a near-normal distribution.

With regard to the domain of creativity, the scored lowest value was 8, with the being 35, A mean of 22.65 (*SD*= 4.59) was obtained. The scores had a positive skewness value of .02, and a positive kurtosis of .37, implying that the data was near normal distribution. The data on the motivation domain indicates that the lowest scored value was 11 while the highest was 30. A mean score of 21.01 (*SD* = 3.82) was generated. The scores had a negative skewness of -.05, suggesting that the ratings were slightly high. The scores were further analysed to categorise the subjects based on the levels of the domains of ASC, and how they compared with learners' academic achievement scores. Table 9 summarises the results on ASC levels with regard to the domains of motivation, self-regulation, GIA, and creativity.

Table 9: Levels of ASC in Self-regulation, General Intellectual Abilities, Creativity and Motivation (N = 361)

Category		Frequency	Percent
Self-regulation	Low	130	36.0
	Moderate	138	38.2
	High	93	25.8
	Total	361	100.0
GIA	Low	127	35.2
	Moderate	132	36.6
	High	102	28.2
	Total	361	100.0
Creativity	Low	120	33.2
	Moderate	132	36.6
	High	109	30.2
	Total	361	100.0
Motivation	Low	132	36.6

	High	130	36.0
	Moderate	99	27.4
	Total	361	100.0

From Table 9, the results indicate that 138 (38.2%) of learners had moderate levels of academic self-concept in relation to the domain of self-regulation. while a total of 130 (36.0%) were categorised as having low levels of the same domain. Those categorised as having high levels of ASC with respect to the domain of self-regulation were 93 participants, representing 25.8%. The results further indicate that 132 (36.6%) of learners were categorised as having moderate levels of ASC based on general intellectual abilities, compared to 127 (35.2%) of the participants in the low category. Out of the participants, 102 (28.2%) were grouped as having high levels of ASC from general intellectual abilities.

It is further observed that a total of 132 (36.6%) of the students sampled were classified as having moderate levels of academic self-concept based on creativity, compared to 120 (33.2%) of them who were in the low category. Those characterised as having low levels of ASC with respect to creativity were 109 (30.2%) participants. Lastly, the results indicate that a total of 132 (36.6%) participants were categorised as having low levels of ASC with respect to motivation, while 130 (36.0%) of them had moderate levels. Only 99 (27.4%) of the students reported high levels of ASC as observed through the domain of motivation.

Further analysis was conducted so as to establish the level of students' ASC from each of the four domains on academic achievement scores as summarised in Tables 10, 11, 12, and 13. Expressed through Table 10 are ASC levels with regard to self-regulation on academic achievement scores.

Table 10: Levels of ASC Relating to Self-regulation vs. Academic Achievement Scores (N = 361)

Levels of Academic Self-concept in Self-regulation		***N***	**Mean**	***SD***
Low	AAS	130	51.03	8.67
Moderate	AAS	138	51.76	9.27
High	AAS	93	52.10	7.90

Note: AAS= Academic Achievement Scores, SD = Standard Deviation.

From the scores in Table 10, the participants who were grouped at high levels of academic self-concept relating to self-regulation had the highest mean score of academic achievement (M= 52.10, SD = 7.90). It is further observed that learners in the category of moderate levels of ASC in relation to self-regulation had a mean score of 51.76 (SD = 9.27) in academic achievement, while those in the low-level category of ASC in relation to self-regulation had an average score of (M = 51.03, SD = 8.67) in academic achievement.

Table 11: Levels of ASC based on General Intellectual Abilities vs. Academic Achievement (N = 361)

Levels of ASC in General Intellectual Abilities		***N***	**Mean**	***SD***
Low	AAS	127	51.03	8.47
Moderate	AAS	132	51.37	10.02
High	AAS	102	52.54	7.01

Note: AAS = Academic Achievement Scores, *SD* = Standard Deviation.

Table 11 shows that participants with high levels of academic self-concept in relation to general intellectual abilities had the highest mean score of academic achievement 52.54 (*SD* = 7.01). The results further indicate that those in the category of moderate levels of academic self-concept with respect to general intellectual abilities obtained a mean score of 51.37 (*SD* = 10.02), while those in the low category had a mean score of 51.03 (*SD* = 8.47).

Table 12: Levels of ASC Associated with Creativity vs. Academic Achievement Scores (N = 361)

Levels of Academic Self-concept in Creativity		***N***	**Mean**	***SD***
Low	AAS	120	50.15	8.93
Moderate	AAS	132	51.61	8.81
High	AAS	109	53.14	8.12

Note: AAS = Academic Achievement Scores, SD = Standard Deviation.

Based on the data in Table 12, learners who were categorised within high levels of academic self-concept with respect to creativity recorded the highest mean score in academic achievement 53.14 (*SD* = 8.12), in comparison to those in the moderate levels group, who recorded a mean score of 51.61 (*SD* = 8.81) in academic achievement. It can also be observed that the participants who had low levels of ASC relating to creativity obtained the lowest mean score of 50.15 (*SD* = 8.93) in academic achievement.

Table 13: Levels of ASC based on Motivation vs Academic Achievement Scores (N = 361)

Levels of Academic Self-concept in Motivation		**N**	**Mean**	***SD***
Low	AAS	132	49.89	9.13
Moderate	AAS	130	52.09	8.69
High	AAS	99	53.18	7.78

Note: AAS = Academic Achievement Scores, SD = Standard Deviation.

As depicted in Table 13, it is apparent that learners who were categorised as having registered high levels of ASC with respect to motivation registered the highest mean score in academic achievement at 53.18 (*SD* = 7.78). It is further noted that participants who were grouped as having moderate levels of academic self-concept relating to motivation had a mean score of (*M*= 52.09, *SD* = 8.69) in academic achievement. Lastly, learners who were categorised as having reported low levels of academic self-concept relating to motivation registered the least mean score of academic achievement of 49.89 (*SD* = 9.13).

4.2 Inferential Statistics

A null hypothesis was advanced in the following manner for the purpose of testing the relationship between ASC and academic achievement:

H_{01}: There is no significant relationship between student's academic self-concept and academic achievement in secondary schools in Kirinyaga East Sub-County.

Table 14: Correlation between ASC and Academic Achievement (N = 361)

		ASC	Academic Achievement
ASC	Pearson Correlation	1	.14**
	Sig. (2-tailed)		.007
	N	361	361
Academic Achievement	Pearson Correlation	.14**	1
	Sig. (2-tailed)	.007	
	N	361	361

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

As expressed in Table 14, a weak yet positive and significant correlation was established between academic self-concept and academic achievement scores (r (359) = .14, p< 0.01). This implies that learners with high academic self-concept scores were relatively associated with high academic achievement and vice versa. Given that the p-value established in the study was below the level of significance the advanced null hypothesis was rejected, inferring that students' ASC was significantly correlated with their scoring in academic achievement.

The data was further analysed with the intent of determining the nature of the relationship between the domains of ASC. Guided by the four domains of ASC, four supplementary hypotheses were advanced as follows:

$H_{01.1}$: There is no statistically significant relationship between students' academic self-concept in self-regulation and academic achievement.

$H_{01.2}$: There is no statistically significant relationship between students' academic self-concept in general intellectual abilities and their scores in academic achievement.

$H_{01.3}$: There is no statistically significant relationship between students' academic self-concept in creativity and academic achievement.

$H_{01.4}$: There is no statistically significant relationship between students' academic self-concept in motivation and their scores in academic achievement.

The stated hypotheses were tested by conducting a correlation coefficient analysis in order to establish the inter-relationships among the four ASC domains and academic achievement as summarised in the following correlation matrix.

The correlation matrix expressed in Table 15 demonstrates that a positive and significant correlation was established between all the domains of ASC. The highest correlation was registered between creativity and general intellectual abilities (r (359) = .52, p< 0.05), followed by creativity and motivation (r (359) = .47, p< 0.01), motivation and general intellectual abilities (r (359) = .46, p< 0.01), general intellectual abilities and self-regulation (r (359) = .45, p< 0.01), and creativity and self-regulation (r (359) = .44, p< 0.01),

The least correlation occurred between the domains of motivation and self-regulation (r (359) = .39, p< 0.01).

Table 15: Correlation between the Domains of ASC and Academic Achievement (N = 361)

	ACACH	SELFREG	GENIA	Motivation	Creativity
ACACH	1				
SELFREG	.07	1			
	.14				
GENIA	.09	.45**	1		
	.09	.000			
Motivation	.13*	.39**	.46**	1	
	.011	.000	.000		
Creativity	.15**	.44**	.52*	.47**	1
	.005	.000	.000	.000	
Note: SELFREG = Self=regulation, GENIA = General Intellectual Abilities, ACACH = Academic Achievement *. Correlation is significant at the 0.05 level (2-tailed).					
**. Correlation is significant at the 0.01 level (2-tailed).					

The results also show that a weak but positive and significant correlation was found between two domains of academic self-concept and academic achievement, that is academic self-concept in the domain of creativity and the scores of academic achievement (r (359) = .15, p< 0.01), same as among motivation and academic achievement (r (359) = .13, p< 0.05). There was a weak and non-significant relationship between the domains of general intellectual abilities and academic achievement scores (r (359) = .09, p >0.01), and between self-regulation and academic achievement scores (r (359) = .07, p > 0.01).

Based on the results, the first supplementary hypothesis that there was no statistically significant relationship between students' ASC in self-regulation and academic achievement failed to be rejected. The results indicate that there was no strong evidence to support the assumption of a relationship between ASC based on self-regulation, and academic achievement.

Given that the results also showed no significant association between ASC based on general intellectual abilities and academic achievement, the second supplementary hypothesis also failed to be rejected.

Since a statistically significant relationship was established between academic self-concept with respect to creativity and academic achievement (r (359) = .15, p< 0.01), the third supplementary hypothesis was rejected. It was therefore inferred that an increase in academic self-concept with respect to creativity led to an increase in academic achievement and vice versa. Similarly, since a statistically significant relationship was established between ASC with respect to motivation and academic achievement scores (r (359) = .13, p< 0.05), the fourth supplementary hypothesis that there was no statistically significant relationship between the two variables was rejected. This implied that an improvement in ASC through motivation led to an improvement in academic achievement and vice versa.

5. Discussion of the Results

The descriptive part of the statistics demonstrated that the participants in the group with high ASC levels also registered high achievement levels in education. This was also reflected across the 4 ASC domains, and participants' academic achievement scores. The inferential statistics further revealed that a significant relationship existed between academic self-concept and students' academic achievement scores. The inferential statistics also revealed that two of the domains of ASC, that is academic self-concept with respect to the domain of creativity as well as that of motivation were significantly correlated with academic achievement.

The results by and large agree with the published works linking ASC with improvement in students' learning outcomes. The results for the most part corroborate those of Herrera *et al.* (2020) in Spain, who looked into associations of self-concept and learning achievement among learners from European and North African cultures. The authors observed positive associations between learning outcomes and ASC. Additionally, all the domains of ASC that were under focus in the study, including emotional intelligence and personality were positively correlated with students' learning achievement.

The outcomes of the present study have demonstrated that positive, or high ASC results in higher scores in educational achievement. Inferences are also made that increase in ASC results in improved learning outcomes among learners. This implies that students who exhibit high levels of ASC are likely to have constructive perspectives and positive character traits, such as self-regulation, motivation to learn, creativity, and self-esteem among others, that are key in influencing learning inspirations and educational choices toward greater academic achievement.

These results justify Rogers' (1959) views in self-concept theory under which this study is underpinned, that individuals can reach their full potential through the possession of components connected to self-concept, such as unconditional positive regard, self-image, self-worth, and ideal self. Contextually, learners get to improve and achieve their learning goals based on self-concept, which influences the desire of what they want to achieve.

The findings further augment Rogers' (1959) belief that an individual's state of self-concept can enhance the propensity of self-actualisation, and as a result, propel their desire to work harder towards achieving their aspirations. It can thus be implied that learners with strong traits of self-concept are likely to develop a positive structure about who they are, and what they can achieve. This can further reinvigorate their aspirations to learn and remain focused on their studies, resulting in increased educational success.

The findings compare to those of Ajma and Rafique (2018) in respect to ASC being strongly linked to academic achievement among learners. Although the study involved distance learners in post-secondary institutions, some parallels were drawn from both studies, including methods analysis, and demographics of the participants. The outcomes of the present study also corroborate those of Jaiswal and Choudhuri (2017) as discussed

in the literature. Conducted in secondary schools located in India's Varanasi City, the study revealed a positive association of ASC and achievement in educational outcomes.

It was inferred that students' beliefs relating to their intellectual abilities, academic efforts, academic future, and academic interests were positively associated with their educational achievement. The outcomes of the present study complement these results, given that some of the sub-scales of academic self-concept such as general intellectual abilities, and motivation were also positively correlated with a learners' academic achievement.

The reported outcomes in this research project are partly supportive of those of Gachigi *et al.* (2019) in a study carried out in Nairobi, Kenya, which divulged that ASC was strongly linked to positive academic outcomes in mathematics. All the same, out of the sub-scales used to measure students' self-concept, only one had a significant relationship with students' learning achievement. The reported findings contribute new knowledge in the sense that ASC is not only linked to achievement in mathematics but general cognitive learning domain.

6. Recommendations

Based on the findings, the study made the following policy recommendations and suggestions for areas that may require further investigation. The education ministry through its training and capacity-building institutions should prioritise equipping teachers, and teachers' trainers with skills aimed at developing and harnessing key components of the said constructs among students towards improving their learning abilities and outcomes.

There is a need for school leadership to promote environments that are supportive and conducive to positive behavioural development among the learners for enhanced beliefs on learning abilities and educational success. Further, schools should promote instructional strategies aimed at promoting components of ASC found to be strongly linked to academic achievement.

The study was mainly quantitative in nature as it only relied on questionnaires as primary tools of data collection. A similar study with a mixed methods approach, incorporating qualitative instruments such as interviews and focus group discussions may be considered so as to provide deeper insight based on participants' contextual factors and experiences.

7. Conclusion

It was established based on the study outcomes that as hypothesised, a positive association existed between learners' ASC and academic achievement. The findings provided adequate evidence that a positive and significant correlation existed between ASC and students' academic achievement.

On domain specificity, however, it emerged that only two out of the four domains, that is motivation, and creativity had a significant relationship with academic achievement. Inferences were therefore drawn that the higher the levels of motivation and creativity, the greater the ASC, and subsequently the higher the educational achievement grades. Based on the foregoing, teachers need to devise ways that can promote positive learning outcomes among learners by getting the most out of the components of motivation and creativity. Such students need to be exposed to creative thinking activities, as well as motivation-oriented feedback so as to rekindle their strengths and engagement towards achieving their learning goals.

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About the Author(s)
Ndungu, Rahab Wanjiru is a master's student in the Department of Educational Psychology, Kenyatta University, Kenya. She currently works as a secondary school teacher in Kenya.
Dr. Samuel M. Mutweleli is a lecturer in the Department of Educational Psychology, Kenyatta University, Kenya.

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