IOSR Journal of Research & Method in Education (IOSR-JRME)
e-ISSN: 2320–7388, p- ISSN: 2320-737x Volume 13, Issue 6 Ser. II (Nov. – Dec. 2023), 01-07
www.iosrjournals.org

Self-Regulated Learning As A Correlate Of Academic Achievement Among Form Three Students In Trans-Nzoia County, Kenya

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Abstract
Background*: A majority of secondary school students' score has been usually below the set pass mark in their final national examinations. As a result, this low achievement hinders individuals from pursuing careers that they desire as well as contribute to lack of enough work forces in key sectors of the economy. Studies on academic achievement have been conducted on different psychological variables but very few have been done on self-regulated learning in Kenya. Therefore, this study sought to examine self-regulated learning as a correlate of academic achievement of secondary school students.*
Materials and Methods*: This correlational research was conducted in Kwanza Sub-County of Trans-Nzoia County and was guided by the Social Cognitive Theory of Self-Regulation. The target population consisted of Form three public school students aged 15-20 years. The sample size was determined using purposeful sampling, stratified random sampling, and simple random sampling procedures. The sample size was 365 people (182 boys and 183 girls). Information was gathered using the Academic Self-regulated Learning Scale. At the end of the term, the schools provided a record of student academic achievement. Data evaluation entailed Pearson's Product Moment Correlation Coefficient and multiple regression analysis.*
Results*: The findings showed that academic achievement and self-regulated learning had a positive and moderately significant correlation, r (351) =.25, p =.00. Each of the self-regulated learning subdomains has a strong correlation with academic success. About 23% of the variation in students' academic achievement was explained by self-regulated learning.*
Conclusion: *In order to improve academic achievement, the study concluded that educators and other stakeholders in education will have to offer assistance to students formulating and adopting more self-regulated learning strategies. To increase learners' academic achievement, parents and educators should be urged to create a supportive environment at home and at school that will support self-regulated learning techniques.*
Key word*: Self-regulated learning; Academic Achievement*

Date of Submission: 13-11-2023 Date of Acceptance: 23-11-2023

I. Introduction

Globally, attending school is connected with building a foundation that benefits both the individual and the community, and academic success is measured by school performance, particularly test scores. This justifies the expectation in society that students would achieve academic success, or high marks, throughout their school careers. As a result, the rivalry for high marks became more legitimate, and students who achieved high marks were given preference for higher education training and jobs. Students with poor exam scores, on the other hand, rarely have access to training and job prospects (Ireri, 2015).

According to Crocker et al. (2003), students use their school grades to gauge and share their academic achievement within the class. For other students, though, this could be dangerous because they see their scores as a reflection of their value as people. This is particularly true given how highly society values academic achievemente. Because academic grades are so important, academic achievement trends and the factors that affect students' academic achievement are of interest to educational researchers and other stakeholders. For this reason, the current study evaluated how self-regulated learning and educational attainment are correlated among learners in secondary schools.

Underachievement is largely caused by a lack of self-regulated learning (SRL), which is described as a student's capacity to independently generate ideas, feelings, and actions for goal performance (Dembo & Eaton, 2000). Mutweleli (2014) claims that the student's SRL techniques for maximizing learning include organizing,

transforming, and rehearsing. They further comprise of memorizing, goal setting, and planning, self-evaluation, environmental structuring and learning responsibility.

When examining how success in mathematics and SRL are related in India, Lawrence and Saileella (2019) discovered a favorable correlation between secondary school students' arithmetic achievement and SRL. Academic achievement continues to be a major source of worry locally. Scholars such as Njoki et al. (2017) examined how the attainment of the desired grades among primary school pupils in Ruiru, Kenya is influenced by self-regulated learning, and found the two factors were related.

Kenya has achieved a notable percentage of secondary school completion, yet many of its students continue to demonstrate low academic achievement. The number of candidates who have taken the Kenya Certificate of Secondary Examination (KCSE) has risen over the past eight years, rising from 354,341 in 2010 to 660,204 in 2018 and 699745 in 2019 (Wanzala, 2019). There were 196,208 more male candidates than female candidates. A total of 125,746 candidates met the minimal requirement for university admission of a C+ or higher in the 2019 KCSE exam. This indicates that of the KCSE results for 2019, only roughly 27% were eligible for admission to tertiary institutions, with the other students being excluded (Oduor, 2018).

The KCSE results for Trans-Nzoia County likewise exhibit a decline in performance since 2015. Trans-Nzoia County's mean was 3.717 in 2018, 4.11 in 2017, 4.66 in 2016, and 4.44 in 2015. The findings reflect these trends. There are five sub-counties in Trans-Nzoia County, but this study was executed in Kwanza Sub-County. The five sub-counties that make up Trans-Nzoia County (Saboti, Kiminini, Kwanza, Cherangany, and Endebes) reported the mean scores of below 6.00 in the 2019 examinations. Kwanza Sub-county recorded similar low scores in KCSE. A very small percentage of the learners from the region joined universities. However, as indicated by the Trans-Nzoia County Education Office (2020), most of the form four school leavers pursued their further education through technical and vocational educational and training (TVET) institutions.

Njiru (2014) claims that the Kenyan educational system highly regards excellent performance in academics as the ideal basis for promotion. Results on learners' performance are used as a measure of accountability in providing the right quality of education, according to the Minister of Education, who made this statement when announcing the 2017 K.C.S.E. results (Wanzala, 2017). The question of why some students do well on exams while others do not has consumed researchers for decades, but their research has produced no clear answers.

Researchers have conducted studies on academic achievement in light of the importance of educational achievement in society. The purpose of the current study was to determine how SRL and educational performance are correlated, particularly among high school learners in Kwanza Sub-County. The problem deserved investigation because most previous studies were conducted in countries other than Kenya. Additionally, most of the previous inquiries entailed elementary or university levels, thus creating significant gaps in terms of age and culture. The investigation was also necessary, given the latest decreasing trend in the academic success of students in the high school level.

II. Material and Methods

A correlational research design was adopted in executing this inquiry, which was conducted in Kwanza Sub-County of Trans-Nzoia County. The target group consisted of form three students in public schools, aged 15 to 20. Multiple sampling approaches including probability methods such simple random and stratified, as well as, non-probability methods, particularly purposive sampling were applied in sample size determination. There were 365 respondents in the sample (182 boys and 183 girls).

Study Design: A correlational research design.

Study Location: This was a secondary school students study done on form three students aged between 15-20 years in government-funded schools in Kwanza Sub-County of Trans-Nzoia County.

Study Duration: January 2022 to April 2022

Sample size: 365 students.

Sample size calculation: A combination of sampling techniques, purposive, stratified random, proportionate, and simple random were employed in the determination of the number of respondents that were studied. Specifically, for the study, Kwanza Sub County, public secondary schools, and form three students were deliberately selected for this inquiry. The inclusion or exclusion some schools were executed through a stratified random sampling approach.

Table 1
Sampling Frame

Type of School		Population		Sample Size		
	Schools	Students Boys	Girls	Schools	Students Boys	Girls
Boys Schools	6	393	-	1	71	-
Girls' Schools	6	-	365	1	-	66
Co-educational Schools	35	613	645	5	111	117
Total	47	1006(49)	1010(51%)	7	182(49%)	183(51%)
		2016			**365**	

Source: Trans-Nzoia County Education Office (2020)

Subjects & selection method: Form three students between the ages of 15 and 20 in publicly-funded schools located in Kwanza Sub-County, Trans-Nzoia County, were chosen through the utilization of the simple random sampling technique. The schools under consideration were divided into three strata, comprising boys' schools, girls' schools, and co-educational schools. Subsequently, a proportionate sampling method was employed to choose schools from every stratum for participation in the inquiry.

Inclusion criteria:
- Form three public secondary school students
- Either sex
- Aged 15-20 years,

Exclusion criteria:
Private secondary school students

Procedure methodology

The Academic Self-regulated Learning Scale was utilized in the gathering of information. This was done after the respondents had handed in formal consent forms in writing. Every participant student's academic record was acquired from the schools at the conclusion of each term. Social and demographic information like age, gender, and admissions number were included in the questionnaire.

After requesting and receiving permission from the author, SRL was assessed using the Magno (2010) Academic Self-Regulated Learning Scale (A-SRL-S). The 54 items that make up the A-SRL-S scale are divided into seven levels, each of which has five subscales: memory strategy (14 items), goal-setting (5 items), assistance seeking (8 items), environmental structuring (5 items), self-evaluation (12 items), responsible learning (5 items), and planning and organizing (5 items). A four-point metric was used to evaluate SRL, with 1 denoting "strongly disagree" and 4 representing "strongly agree. A minimum of 54 and a maximum of 216 were the typical scores for academic SRL. A subscale's high score indicated how frequently a certain strategy is employed.

The results of the students' end-of-term exams were acquired from the instructors of each respective class. For cross-school comparability, the results of the students' three consecutive continuous assessment tests were first translated into Z-scores and then into T-scores. Following that, these results were ranked from 20 to 80, with poor performance (20–39), average performance (40–59), and high performance (60–80) on the scale (Regner & Loose, 2006; Mutweleli, 2014; Stephan et al., 2010; Strambler & Weinstein, 2010).

Statistical analysis

Data was analyzed using multiple regression analysis and Pearson's Product Moment Correlation Coefficient. Data analysis was done with SPSS version 22. During the analysis a 0.05 significance level (p) was selected.

III. Results

Demographic Information
Demographic information comprised of gender and age.

Table 1
Gender and Age

		Age in Years		Total
		15-20	More than 20	
Gender	Girl	177 (51.45%)	4 (57.14%)	181
	Boy	167 (48.55%)	3 (42.86%)	170
Total		344 (100.00%)	7 (100.00%)	351

On the basis of Table 1, 177 (51%) of the respondent girls were 15-20 years old, while 167 (49%) of the boys were in the same age group. Four (57%) of the respondents were girls over the age of 20, while three (43% were boys).

Self-Regulated Learning by Gender
The study entailed a determination of gender variations in SRL. Table 3 presents the results.

Table 3
Self-Regulated Learning by Gender

Gender	*N*	Range	*Min*	*Max*	*Mean*	*SD*	*Sk*	*Kur*
Girl	181	93	123	216	166.86	19.91	.38	-.33
Boy	170	100	108	208	168.85	17.90	.03	.18
Total	351	108	108	216	167.89	18.96	.25	-.07

The girls received a score ranging from 123 to 216 at most. Their standard deviation was 19.91 and their mean score was 166.86. In comparison to the girls, the boys' minimum score was 108, which was lower, and their maximum score was 208, which was marginally lower. For the boys, the mean score was 168.85 (SD = 6.236). The mean score clearly shows that the boys' level of self-regulated learning was higher than the girls'.

Hypothesis Testing
The main goal of this section is to determine whether there is a significant correlation between academic achievement. The following hypothesis was tested by the researcher:
H_0: There is no significant relationship between self-regulated learning and academic achievement
A bivariate correlation analysis to achieve this goal. Table 4 shows the results.

Table 4
Correlation Between Self-Regulated Learning and Academic Achievement

		Academic Achievement
SRL	r	.25**
	p	.00
	N	351

As shown in Table 4, the results show a positive and moderately significant correlation between self-regulated learning and academic achievement, r (351) =.25, p =.00. As a result, the null hypothesis was ruled out. The findings suggest that the better the self-regulated learning strategy, the higher the academic achievement. Students who use the best self-regulation strategies perform well academically.

The researcher also investigated the relationship between self-regulated learning subdomains and academic achievement. The aim of the inquiry was to establish the SRL domain with the largest influence on educational success. Table 5 shows the outcomes.

Table 5
Correlation between Self-Regulated Learning Sub Domains and Academic Achievement

		Academic Achievement
Memory strategy	r	.15**
	p	.01
	N	351
Goal setting	r	.21**
	p	.00
	N	351
Self-evaluation	r	.19**
	p	.00
	N	351
Seeking assistance	r	.26**
	p	.00
	N	351

Environmental structuring	r	.25**
	p	.01
	N	351
Learning responsibility	r	.24**
	p	.00
	N	351
Organizing	r	.27***
	p	.01
	N	351

The results in Table 5 indicate that the sub domains of SRL including memory strategy (r (351) =.15, p =.01), goal setting (r (351) =.21, p =.00), self-evaluation (r (351) =.19, p =.00), seeking assistance (r (351) =.26, p =.00), environmental structuring (r (351) =.25, p =.01), learning responsibility (r (351) =.24, p =.00), and organizing (r (351) =.27, p =.01) were all significantly related to academic achievement. Organizing had the highest correlation coefficient while memory strategy had the lowest.

Regression analysis was conducted to determine whether the sub domains of SRL can be used to predict academic achievement. The findings are displayed in tables 6, 7 and 8.

Table 6

Model for Prediction of Academic Achievement from Self-Regulated Learning Sub domains

Model	R	R Square	Adjusted R Square	SEE
1	.15[a]	.23	.13	2.88
a. Predictors: (Constant), Organizing, Seeking assistance, Memory strategy, Environmental structuring, Goal setting, Learning responsibility, Self-evaluation				
b. Dependent Variable: Academic achievement				

Table 6 shows that there is a weak relationship (R =.15) between the SRL subdomains and academic achievement. SRL subdomains account for approximately 23% of the total variance in students' academic achievement, according to the value of R square. This suggests that SRL subscales can be used to predict academic success.

Table 7 displays the prediction significance of self-regulated learning subdomains. The ANOVA test was used to determine whether the subdomains significantly predict academic achievement. Table 7 displays the findings.

Table 7

ANOVA for the Prediction of Academic Achievement from SRL Sub Scales

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	797.89	7	113.98	1.17	.01[b]
	Residual	33483.05	343	97.62		
	Total	34280.94	350			

The results in Table 7 indicate that SRL sub scales significantly, F (7,343) = 1.17, p < .05. These results are congruent with those in Table 5, which established that there is a relationship between the subdomains of SRL and academic achievement. This implies that the sub domains can be used to predict academic achievement.

IV. Discussion of the Results

The inquiry aimed at assessing how SRL and academic achievement are correlated. As per the findings, a notable connection exists between self-regulated learning (SRL) and the level of success in academics. An evaluation of these results in relation with existing literature provided by other scholars who conducted similar studies previously is carried out. In 2018, Li and others engaged in a research effort in China to assess the connection between self-regulated learning (SRL) and how well students perform academically.

SRL was discovered to be positively related to performance in science subjects by the researchers. On the subdomains of SRL, previous findings indicate that the strategies adopted to complete learning tasks, one's believe in being efficient, and assessment of one's strengths to make improvements are the critical factors that affect how academic attainment is related with self-regulated learning. This implies that students who were able to control their learning strategies outperformed those who were not. The inferences concur with the social cognitive theory of self-regulation put forth by Bandura, whose main assumption is that student strategies aid in the development of social functioning, environmental structuring, and learning responsibility, all of which influence learning outcomes.

Wang et al. (2019) conducted a similar study in China to see if there is a link between SRL and academic outcomes. They discovered that SRL has a noteworthy influence on university students' academic success. According to the findings, learners who have adopted functional SRL tactics exhibit better grades in terms of

academics compared to those whose strategies are not as effective. In Iran, Sahranavard et al. (2018) discovered a link between SRL and academic achievement at private universities. However, when studies on public university students were conducted, they discovered that this relationship is not significant. This suggests that SRL was more effective privately-owned universities than publicly-funded ones. In reference to these findings, Bandura's (1986) social cognitive theory is affirmed because it asserts that an individual's strong belief that they have the capability to achieve what they want has a notable influence on SRL. The environment influences one's conviction in innate strengths, which determines their decisions and next moves in regards to academics.

In Indonesia, Ningrum et al. (2018) studied learner pursuing their first degrees in medicine and discovered a weak positive relationship between SRL and academic performance. This suggests that students with good SRL skills outperformed those without. According to the current study, the majority of the students had average SRL skills. As a noteworthy correlation emerged between SRL and academic success, the prevalent issue of subpar scholastic performance, as determined by this inquiry, may be ascribed to an inadequacy in SRL competencies

Judith et al. (2005) performed a closely related inquiry in Kenya to evaluate how SRL strategies and the grades scored in Chemistry by students are related. They discovered that excellent performers in Chemistry used SRL, which was found to have a positive impact on their performance in Chemistry. SRL's two subdomains were found to predict chemistry performance. This suggests that more effort should be devoted to developing students' SRL skills in order to improve their academic performance.

In the same vein, Mutweleli (2014) conducted a study in Kenya to ascertain the potential predictability of student motivation and SRL can have similar impacts in the context of academic performance of students in government-funded high schools. This study, conducted in Nairobi City County, discovered a link between student motivation, SRL, and academic performance. Mutweleli also discovered that students' SRL significantly predicts academic achievement. This implies that students must be motivated and encouraged to improve their SRL skills through mentorship from peers and teachers in order to improve their academic performance. According to Bandura (1986), effective SRL strategies are critical for improving educational success.

V. Conclusion

The purpose of this research was to discover the link between SRL and academic achievement. Researcher conclude that there is a significant positive correlation between SRL and academic achievement based on the findings of this study. Furthermore, the researcher concludes that SRL can be used to predict academic achievement.

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