

Type of school and the level of students' academic achievement in Marakwet East Sub County

ABSTRACT

Aims: The major purpose of this study was to assess the effect of type of school and the level of students' academic achievement in Marakwet East Sub County

Study Design: The study utilized the Causal comparative approach.

Place and Duration of Study: The study was undertaken in Public Secondary Schools in Marakwet East, Elgeyo County Kenya between January 2021 to February 2021.

Methodology: Purposive, stratified and simple random sampling was used to sample 280 respondents. The study included 280 respondents of which 152 were males and 128 females with an age range of 35 – 56 years.

Results: This study targeted 140 secondary school teachers employed by the Teachers Service Commission (TSC), 41 females and 99 males, 18 secondary school Principals and 18 Directors of Studies. Findings showed the one-way between groups analysis of variance was $F(2, 7) = 10.936, p.05$. As a result, the null hypothesis which was stated as that there is no link between school type and academic achievement was rejected.

Conclusion: The present study rejected the null hypothesis and concludes that the relationship is statistically significant. The sample data support the notion that the relationship between the independent variable and dependent variable exists in the population of secondary schools in Marakwet East. Thus the hypothesis (H_{01}) was rejected. There was a link between academic achievement and the type of school. Boys' and girls' schools, in particular, performed better than mixed schools.

Key Words: Type of school, level of students' academic achievement

1. INTRODUCTION

Aspects surrounding learners' academic achievement have been the subject of ongoing debate among the educators, academicians and policy makers. It is in light of this that the present study attempts to examine the effect of the type of school and academic achievement in Marakwet East. According to a study by Lin, and Tsai (2011), academic achievement referred to the status of the subject matter, the knowledge gained and skills acquired by a student at one point in time that is measured by a standardized test. In this study academic achievement referred to the cognitive scores and grades a student in a secondary school attains at the end of four years in secondary school as measured by the Kenya National Examinations Council (KNEC) results in Kenya. Students' academic achievements according to the study are the grades, marks or scores earned by a secondary school student after sitting for the Kenya Certificate of Secondary Examinations (KCSE). The degree to which a student or institution has met their short or long-term educational objectives is known as academic achievement or successes. Exams or continuous tests are widely used to evaluate students' academic progress.

Ministry of Education, Science and Technology performed a research that found that secondary education was defined by poor performance in national tests, particularly in core areas like Mathematics and Sciences. The report also pointed that some teacher factors like being pedagogically unskilled as well as textbook ratio imbalances could be the reason for poor academic achievement especially in rural areas. While girls were doing quite well and even dominating in the languages nationally, those girls

exiting from secondary schools in Marakwet East were still very insignificant in number. The neighbouring sub counties had a sizeable number of both boys and girls doing well that cannot be compared with the numbers from the area of study. Thus the need to carry out this study to establish the effects of the type of school on the secondary school students' academic achievement especially in national examinations, Kenya Certificate of Secondary Examinations (KCSE).

Academic achievements in day secondary schools and some few girls' schools have remained low. Records indicate that Marakwet East Sub-County has remained low. For example, only 12 students met the requirements for university admission in 2019, compared to only 10 students in 2018, and 38 students in 2017. In Marakwet East Sub-County, school means and grades have similarly remained low. The schools' mean grade has remained a D+ in the years 2019, 2018, 2017, 2016, 2015, 2014, and 2013 (MOE Report, 2019). There were also noted disparities in performances between male and female students.

Several studies on student academic accomplishment have been undertaken, including Kiptum's study of the influence of school physical environment on teachers' satisfaction in selected public primary schools in Elgeyo Marakwet County (2018); Lulley (2018) studied the effects of social tensions on teaching and learning in public primary schools in Elgeyo Marakwet County, and Chebii (2018) studied the factors impacting pupil performance in the KCPE in Kapsowar Division (2014). Though these studies showed relationships between school physical environment and teachers' satisfaction, none of them had conducted a study on effects of type of school on students' academic achievement in public secondary schools in Marakwet East Sub County.

In Toronto USA, Bascia (2014), did a study titled, 'How School Environments Shape Students' Opportunities to Learn' and reported that interactions within the school helped reform schools, modify and made learning flexible and support students' learning and achievement. The study used a qualitative design. This study is different with the study at hand in so many facets. First, it was done in the city in the most developed country, USA and the two studies used different designs; qualitative research design for the former and mixed methods approach in the later. Secondly, the reviewed study examined How School Environment Shape Student Opportunities to Learn, while the later looked at Effects of Learning Environment and gender on Public Secondary School Students' Academic Performance in Marakwet East Sub County, in Kenya besides being done in a rural setup in an African country. The US study used only two variables school environment and student opportunities as opposed to the current that had three variables learning environment, principal's gender and academic achievement. Nevertheless, the two studies advanced knowledge on the importance of learning environments in students' academic performance.

Ogunlana and Promkuntong (2016) in Thailand conducted a study on construction of physical development in public schools. This was in light of concern that physical infrastructural development was delayed tremendously. The researchers also observed the shortage of infrastructure facilities such as sufficient classrooms, latrines, hostels, and laboratories as a source of great concern in public secondary schools. The study employed causal comparative research design. The target population included all the public schools in Thailand. According to the findings, bad physical environments in schools have reduced the role of schools in achieving their intended aims and overall quality performance in national tests.

The study also established that with more and more students seeking educational services in public schools in Thailand, overstretching and overcrowding in the available facilities such as classrooms, latrines, hostels and laboratories was evident. This had contributed to depilated conditions of the physical infrastructures affecting the morale of students and teachers and consequently resulting in poor achievement of the educational goals.

In Nigeria, Koroye and Jasper (2020) looked into the impact of the physical environment on secondary school pupils' academic performance. To do so, four hypotheses were developed to guide and lead the investigation. The hypotheses were designed to determine the impact of the school's visual appeal,

infrastructure, school equipment and teaching materials, and location on students' academic achievement. The study used an ex-post facto research design. The sample for this study comprised 1620 JS3 students specially crafted from secondary schools in Bayelsa State using multistage random sampling approaches.

Student academic achievement and a set of questionnaire were employed as data collection instruments. The information gathered from the surveys was properly coded and statistically analyzed using simple percentages and independent t-tests (t). The study found that the school's visual beauty and infrastructural facilities had a substantial impact on pupils' academic achievement. Additionally, educational facilities and learning materials, as well as the location of the school, have a direct impact on students' academic success. It was proposed that the state and government provided sufficient school physical facilities in all secondary schools in Bayelsa State. This would aid in the students' participation in meaningful events.

The study was however conducted in Nigeria while the current study was conducted in Kenya. The reviewed study focused on the effect of physical environment with focus on aesthetic beauty, location and availability of instructional materials on student's academic achievement while the current study focused on the effect of physical environment with focus to size of class, ventilation and lighting on student's academic achievement. The reviewed study employed student's achievement test and questionnaire as data collection instruments while the current study employed observation checklist, document analysis, questionnaire and interview schedules as data collection instruments. Both education stakeholders should aim to make school environments healthy, attractive, and pleasant in order to boost teaching and learning and teacher productivity, according to the report. The value of the current research stems from the fact that stakeholders were well informed about school safety through studies on the subject. The Nigerian school climate was dangerous and depressing because, many school children studied under the shade of trees, while others sit on the floor in their classrooms. Many schools lacked sufficient physical facilities, as well as sports and leisure opportunities.

Marishane (2018), of South Africa carried out a qualitative study that investigated the management of school infrastructure in rural South African schools in the context of a no-fee school policy: lessons from the field. The management of school facilities is examined in the light of the South African education delivery system's "no-fee colleges" scheme. The research, which focused on four rural schools, used a qualitative approach that included observations of infrastructure conditions at four schools and in-depth interviews with their principals. According to the report, although the no-fee policy relieved poor parents of the burden of paying school fees, it did not assist schools in meeting their infrastructural needs.

Gatua (2016), in Nairobi assessed the safety of physical infrastructure (classrooms, dorms, sanitary facilities, laboratories, and kitchens) in public secondary schools in Kenya's Nairobi West Region. This was attributed to the fact that in any region, the protection of students is paramount in the provision of education. Different disasters have continued to strike Kenyan educational institutions, owing to insufficient school physical facilities and other factors. This study evaluated the safety status of physical infrastructure in public secondary schools in Nairobi West Region with the aim of making recommendations about school safety. The study area's 25 administrative districts form, and category categorized public secondary schools. A random sample of 15 schools, 240 students, and 43 teachers was chosen at random. The sample included fifteen head teachers and six education officers on purpose. The research used convergent parallel design to collect data and used both quantitative and qualitative methods. Most schools had not completely enforced Ministry of Education Safety guidelines to ensure the safety of physical facilities, according to the report. Majority of building were found to be unfit for safety of students and the teachers in Nairobi County. There was lack of adequate playing grounds for the study because politicians for their own personal interest had grabbed majority of public schools. Some of the schools lacked pavement that would allow students with special needs to access education.

1.1 Research Questions

This research study was guided by the following research question:

- i. What is the level of academic achievement of public secondary schools in Marakwet East Sub County?
- ii. Is there a relationship between type of secondary school and the level of students' academic achievement in Marakwet East Sub County?

1.2 Research Hypotheses

The following research hypothesis was used to guide the study.

- H₁ There is a relationship between type of school and the level of students' academic achievement in Marakwet East Sub County?

2. MATERIALS AND METHODS

In this study the quantitative approach of data collection was the primary strategy. The study used Causal comparative approach. All the secondary schools, all teachers teaching in public secondary schools within Marakwet East Sub County, all the secondary school principals and all the school Directors of Studies formed the study population. Marakwet East Sub County has 18 public secondary schools. The Sub County has 140 secondary school teachers employed by the Teachers Service Commission (TSC), 41 females and 99 males, 18 secondary school principals and 18 directors of studies. The target population is presented in **Table 1** as shown here below.

Table 1: Target Population

Type of school	Target population	Sample Schools N	Principals		Director of Studies	Number of teachers	
			Males	Females		Male	Females
Boys' Schools	5	3	3	-	3	31	11
Girls' Schools	5	3	-	3	3	24	20
Mixed Schools	8	4	3	1	4	44	10
Total	18	10	6	4	10	99	41

Proportionate sampling was used to select 3 boys', 3 girls' schools and 4 mixed schools. The teachers were selected using proportionate and simple random sampling technique were used to select 30 teachers in boys' school who were picked from a stratum population of 42 teachers, 32 teachers in girls' schools were picked from a stratum population of 44 teachers while 39 teachers were picked from a stratum population of 54 teachers teaching in mixed day secondary schools. A total of 10 Directors of studies were selected; four from mixed day schools and three each from boys' only and girls' secondary schools. A total of 10 Principals whose secondary schools were selected for the study were selected to participate in the study once their secondary schools had been selected. There were six male principals and four female principals took part in the study. Form four KCSE results for the period 2016-2019 were obtained from the Sub County Director of Education (SCDE) Marakwet East Sub County Education head office at Chesoi trading Centre.

The researcher developed and issued 140 questionnaires to the selected secondary school teachers. Questionnaires were appropriate because they are economical and provided considerable research data at relatively low costs. The teachers' questionnaires were divided into parts; Section A carried the background information about the demographic characteristics of the participants. Section B, consisted of information on the school type learning environment.

The investigator analysed documentary records containing previous KCSE exam results for the past 4 years from 2016-2019.

The instruments were pilot-tested before commencement of data collection for purposes of ascertaining study feasibility, clarity and to have meaning. To be accepted as trustworthy, the study was conducted in a precise, consistent, and exhaustive manner through systematizing, and disclosing the methods of analysis. The researcher conducted the study in the natural school setting using non-reactive observation methods. Dependability was ensured by making the research process was logical. A research permit was sought from the NACOSTI then data was collected and confidentiality ensured.

The researcher used the split- half technique to measure reliability of the questionnaires. The scores obtained by administering the two halves were correlated (Kumar, 2011). Reliability was calculated by using the Cronbach alpha coefficient. A correlation coefficient of 0.85 was obtained. This was deemed reliable according to Kumar (2011) who asserts that a correlation coefficient of > 0.8 is acceptable.

3. RESULTS AND METHODS

a. Effect of School Type and Students' Academic Achievement of Public Secondary Schools in Marakwet East Sub County

The results of the KCSE in schools from 2016 to 2019 were utilized to examine the data. A 12-point scale (1–12) was used to rate the data. This information is presented in Table 2; -

Table 2 Relationship between Type of school and Academic Achievement

	Boys				Girls				Mixed				Overa II			
	n	Mea n	SD	G	n	Mea n	SD	G	N	Mea n	SD	G	N	Mean	SD	G
2016	3	4.53	0.87	C	3	3.3	0.36	D	4	3.15	0.51	D	1	3.66	0.75	D
		2	-				1				1		0		7	
2017	3	4.67	0.93	C	3	3.37	0.36	D	4	3.16	0.57	D	1	3.73	0.81	D
		7	-				3				3		0		8	
2018	3	5.34	1.04	C	3	3.93	0.36	D	4	3.63	0.67	D	1	4.30	0.91	D
				-			6	+			2	+	0		3	+
2019	3	4.89	0.21	C	3	4.97	0.29	C-	4	4.18	0.50	D	1	4.68	0.43	C
			1	-			1				1	+	0		5	
Averag e	3	4.85	.354	C	3	3.89	0.77	D	4	3.53	.487	D	1	4.09	.485	D
		8	2	-		3	1	+			8		0		3	+

Table 2 demonstrates that in 2016 KCSE, boys' schools performed better than girls' schools and mixed schools. The average mean for boys' schools was 4.53, with a variation of 0.872 from the overall mean. The average score for girls was 3.3, while the average score for mixed schools was 3.15. This data demonstrates that boys' schools outperformed girls' schools and mixed schools. In 2017, the difference between the top and bottom achievers was 1.51, as seen in Table 2. Boys' schools (Mean = 4.67) performed better this year, as they did the year before, followed by girls (Mean = 3.37) and finally mixed

schools (Mean = 3.16). It's worth noting that the schools' performance has been improving. According to Table 2, mixed schools had the lowest KCSE scores in 2018, while boys' schools had the highest. Finally, and most crucially, Table 2 in 2019 revealed that females (Mean = 4.97) outperformed boys (Mean = 4.88) and mixed schools (Mean = 4.18).

These findings indicated that boys' schools performed better than the other schools in all the years under study apart from 2019 in which girls' achievement was higher than boys did. Of critical importance is that mixed schools were outsmarted by the other schools in all the years under study. This means that the boys schools will continue dominating in both the social, political and economic life of the community. Statistical tests will be used to determine whether or not the means within the individuals were equal. It's worth noting that the boys were superior from a descriptive standpoint. The significant efforts that the communities have put in place to develop the boy child could be one of the reasons behind this. This occurs against a backdrop of concerted efforts to raise the position of girls in society. The study begs the question of whether efforts to raise the girl child resulted in the girl child remaining in her comfort zone. Furthermore, the boys may have engaged in a heated struggle to challenge the girls as a result of this. Girls' schools scores ranged from 3.3 to 4.9 across the four years studied. In contrast to the boys' schools performance, which did not demonstrate a consistent development, the girls' schools performance showed a steady improvement, which was encouraging. As previously noted, the girls' school performances were lower than the boys' schools but higher than the mixed schools.

Finally, when compared to the boys schools and girls' schools, mixed schools performances were lower. According to previous studies, the majority of these coeducational schools do not perform at the same level as boys' and girls' schools. Similar findings were found in this study, demonstrating low performance as compared to other schools. Due to the fact that most of these schools are day schools, possible reasons include issues of discipline, notably boy-girl relationships, and insufficient supervision.

Oludipe's (2012) research on gender gaps in fundamental science academic achievement among Nigerian junior secondary pupils produced similar results. Using a cooperative learning teaching strategy, the major goal of this study was to determine how schools based on gender affects junior secondary students' academic progress in basic science. The findings of this study revealed that there was no significant difference in academic accomplishment between boys schools and girls school at the pretest, posttest, and delayed posttest stages. According to the findings, in order to draw more girls school into pure sciences and science-oriented courses, programs that focus not just on girls' academic accomplishment but also on how to make science-related employment more appealing for young, high-achieving females are required.

Mburu's (2013) study on the impacts of school type on students' academic performance in Kenya's Kericho and Kipkelion districts aimed to assess the effects of school type on male and female students' academic performance. The study's main findings were that a student's school had an impact on their academic results, as the majority of girls who were eligible to enter a postsecondary institution attended single-sex schools.

3.2 Tests of Hypothesis

The following null hypothesis was tested at 0.05 level of significance using a one – way ANOVA to determine the effects of school type on secondary school students' academic achievement:

H_{01} : There is no statistically significant difference between mean academic achievement scores of boys, girls and mixed sex schools.

Table 3 displays the summary of the descriptive statistics.

Table 3: Descriptive Statistics for H_{01}

	N	Mean	Std. Deviation
Boys	3	4.8567	.39929
Girls	3	3.8933	.51733
Mixed	4	3.5300	.21587
Total	10	4.0370	.67492

As shown in Table 3 the students' achievement was examined in the context of ten schools, each of which was subdivided into three groups: boys, girls, and mixed-gender schools. The achievement was for 4.86, SD =.399 in boys' schools, 3.89, SD =.517 in girls' schools, and 3.53, in mixed schools for the dependent variable.

A one way ANOVA was used to test whether there was a statistically significant difference between types of secondary school pupils' and their academic achievement.

Table 4: ANOVA Summary Output for Null Hypothesis Four Type of School and Academic Achievement

Mean	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.106	2	1.553	10.936	0.007
Within Groups	.994	7	.142		
Total	4.100	9			

There is a statistically significant difference between types of secondary school pupils' and their academic achievement, according to a one-way between groups analysis of variance $F(2, 7) = 10.936$, $p.05$. As a result, we reject the null hypothesis that there is no link between school type and academic ability.

The ANOVA proved significant, allowing the null hypothesis to be rejected and demonstrating that there is a statistically meaningful association between students' academic achievement and the type of school. Some scholars in the United States say that males perform better in academics than females, while others argue the contrary. Calsmith (2007, p.75) emphasizes that quantifying the impact of gender on academic success differences is a tough task, and many findings are inconsistent as a result. He highlighted that a significant deal of research has gone into determining the various causes of academic performance gaps between girls and boys in the Social Sciences, and that the results have clearly proven that male students outperform female students in qualitative courses. Ayayo (2007) asserted that male students' performance in general academic attainment demonstrated that males were superior to females in a study covering twelve developed countries. The United States was not alone in its domination. Males outperformed females despite the fact that the standard of education remained unchanged. She ascribed the achievement gap to the school environment and services, and she believed that previous to attending school, females' general intelligence was greater than boys', but that this position gradually flipped with the findings. Gender stereotypes are concentrated on women in most nations, according to a UNESCO assessment from 2000, preventing women from participating in and benefiting from development activities. As a result, female students have reported increased psychological isolation or anxiety (Joel & Aride, 2006). Boys dominate classes in Social Studies, Chemistry, Physics, Mathematics, and Environmental Studies as a result, while girls focus on reading and the arts.

4. CONCLUSION

The KCSE results for the boys', girls and mixed schools for the period between 2016 to 2019 indicated that boys' schools performed better than the girls, and mixed schools. This was indicated by a

performance range that was between 4.6 – 5.3. Girls' scores ranged from 3.3 to 4.9 across the four years studied. Finally, when compared to the boys' and girls' schools, mixed schools performances were lower. A one way ANOVA was used to test whether there was a statistically significant difference between types of secondary school pupils' and their academic achievement. The null hypothesis was to be rejected or accepted at $p < .05$. The result showed that the one-way between groups analysis of variance was $F(2, 7) = 10.936$, $p.05$. As a result, the null hypothesis which was stated as that there is no link between school type and academic achievement was rejected. There was a link between academic achievement and the type of school. Boys' and girls' schools, in particular, performed better than mixed schools.

CONSENT AND ETHICAL APPROVAL

The proposal was presented to The Catholic University of Eastern Africa Kisii University and ethical clearance was obtained. After obtaining the ethical clearance, an application seeking permission to carry out a research was done to National Commission for Science Technology and Innovation and when the permit was granted, I paid a courtesy call to the County Director of Education Uasin Gishu. The introductory letter was provided to the Principals in the TVET institution. Approval from the Principals was given. With the ascent of the administrator, consent was obtained from the respondents by the research assistants under the supervision of the researcher. Only those Principals, Trainers, Industrial Liaisons Officers and Industrial Supervisors who consented to participate took part in the study. The respondents' personal identification information was not recorded for purposes of confidentiality and anonymity.

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