

The Influence of Primary School Background on Academic Achievement of Students Admitted to Academic Selective National Secondary Schools. A Case of the Alliance High schools, Kenya

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ABSTRACT

This ex post facto research compared the academic achievement of a purposively selected cohort of students who had schooled public and private primary schools as they progressed through their secondary school education. The study established that students who had schooled in private primary schools had been admitted to the academically selective secondary schools with higher end of primary school examination mean scores. This was when compared to their public primary school graduates whose mean scores in secondary school examinations continued to lag behind as they progressed through secondary school education. The continued differences in the two group's secondary school examination mean scores implies that the differences in achievement during admission may not have been due to differences in the school learning environment. Reasons being the two groups of students were learning in the same learning environment unlike in primary schools where private primary school provided a more conducive learning environment.

Key words: Academic achievement; public private schools; School learning environment.

1. Introduction

Primary school pupils in Kenya join secondary schools after completing eight year of primary school education marked by sitting for end of primary school education (KCPE) examination (Lucas and Mbiti (2011). Based on their performance at KCPE examinations, the pupils are admitted to any of the three categories of public secondary schools namely national, county and sub-county secondary schools. National secondary schools are the most popular due to the extemporary performance of their

students in Kenya Certificate of Secondary School Education (KCSE) examination done the end of secondary school education (Lucas & Mbiti, 2011; Oketch & Somerset, 2010). This makes competition to these schools so severe that getting a chance to be admitted to some of these schools has been said to be harder than being admitted to Harvard University (Iraki, 2017). To avoid national secondary schools being dominated by private primary school graduates who perform better than their public primary school graduates at KCPE national examination, Ministry of Education (2011) set criteria for admission to these schools. The admission to these schools is such that the top two KCPE candidates per district of both genders are selected to their national school of choice if there is an allocation for the district in the primary school they registered for KCPE examination. This has resulted in more KCPE candidates who schooled in public primary schools accessing education in national schools though with lower KCPE examination mean scores than their private primary school counterparts. The reasoning of the affirmative action has been that learners from private primary schools perform better than those in public primary schools due to their advantaged social background as well as school learning environment (Hungu, 2011; Wasanga, Wambua & Ogle, 2011). However, critics of this affirmative action policy in admission to national secondary schools argue that the policy does not recognize the importance of merit in accessing the few vacancies at these centers of excellence (Kihuria, 2015; Too, 2016). They argue that learners who excel at KCPE examination do so because of their superior academic ability and not the kind of school they attend.

2. Statement of the Problem

It has not been clearly established whether the differences in KCPE examination mean scores among public and private primary school learners is due to more conducive learning environment in private schools or other factors not within the school. School learning environment as well as home environment factors such as family socio-economic status (SES) has been found to have a positive correlation with academic achievement. Learners in private schools also come from higher SES families than those in public primary schools. It has not been easy therefore to establish which of the two factors; school learning environment and family background has more influence than the other on KCPE examination performance. Yet, students' KCPE examination mean scores are sorely used as basis for admission to the most popular and academically selective national secondary school in Kenya.

3. Objectives of the study

This study purposively selected a cohort of students admitted to two of the most competitive national schools in Kenya and investigated their academic performance in English, Kiswahili and Mathematics which are core subjects in secondary school education. The first objective was to find out whether the KCPE examination means scores of the public and private primary school graduates differed significantly in the three subjects at the point of admission to secondary school. Further, the study investigated whether the differences in the mean scores among the two groups continued as the student progressed through secondary school education. The following two hypotheses were formulated to achieve the stated objectives;

Ho1. There is no statistically significant difference in KCPE examination means score in English, Kiswahili and Mathematics between students who schooled in public primary schools and those who schooled in private primary schools admitted in Alliance national secondary schools.

Ho 2. There is no statistically significant difference in the progressive secondary school examination mean scores in the core subjects between students who schooled in public primary school and those with a private primary school background admitted in Alliance national secondary schools.

4. Review of Related Literature

Among the many public/private school studies done in United States of America, a consistent difference in achievement tests between public and private schools students in favour of private school students has been shown (Carbanaro & Conay, 2008; Coleman & Hoffer, 1987; Lubienski & Lubienski, 2006). Coleman, Hoffer and Kilgore were cited by Jeynes (2008) as the first to identify existence of a difference in academic achievement between students in private and public schools in a study they carried out in 1982. In Canada, private secondary school students have been found to score significantly higher than public high school students on Reading, Mathematics and Science assessments at age 15 and by age 23, they have higher levels of education attainment (Frenette & Chan, 2015).

In other parts of the world, Smithers and Robinson (2008) are among those that reported of students in private schools performing better in achievement tests than their public primary school counterparts. Using year 2000 Programme for International Students Assessment (PISA) Reading test scores, they found students in independent (private) schools better than those in government-run (public) schools in 10 out of 11 countries that participated. In the year 2000, they performed better in Mathematics than those in public schools in six out of nine countries and in 2006 they were again ahead in eight out of 10 countries in Science.

The superior performances of learners from private schools have been associated with high SES. High SES that encompasses high income, parental higher education and income and social class has been established as an important determinant of high academic performance in achievement tests (Sirin, 2005; Sparkes, 1999). In his review of studies carried out between 1990 and 2000 and results reported in journal articles, Sirin found relationships that ranged from medium to high between SES and academic achievement. Center on Public Policy (2007) suggest that better home literacy environment found in high SES homes arouse the development of the learners cognitive and language skills. This is as a result of the parents who are more educated getting more involved in activities and practices that have a positive effect on the children's literacy development when compared to parents with low education. Such desirable practices and habits have been found to produce a supportive reading climate that ultimately leads to education success (De Graaf & Kraayhamp, 2000).

Further, more books are available in families of educated parents which lead to learners engaging with them more frequently. This enhances literacy and numeracy skills in children prior to joining primary school education (Gustafsson, Hansen & Rosen, 2011). In addition, Gustafsson et al. suggest that educated parents have higher expectations of their children that are in tandem with the children's performance levels. This is as opposed to low educated parents who have lower expectations of their children or in some instances higher expectations than the children's actual performance. The consequence is better learning among learners who come from middle and high SES families.

However Heyneman and Loxely (1983) in their study among developing countries concluded that SES was a powerful predictor of academic achievement in developed high-income countries but not in low-income countries. In their study, SES explained 35 percent of the total variance in academic achievement among learners in high-income countries and only 18 percent in low-income countries. They thus concluded that school resources matter more than SES in explaining academic achievement

and that the lower the country's income, the higher the school resources explained the variance in academic achievement when compared to SES. This came to be known as the Heyneman-Loxley effect. Using the Trends in International Mathematics and Science Study (TIMSS) data, Bouhlila (2013) also found that the Heyneman-Loxley effect applied in Middle East and Northern Africa (MENA) countries as well in the recent times.

However, research findings reported by Hungi (2011) that involved 61,396 grade six pupils in 2,779 schools in 15 Southern and Eastern African Consortium in Monitoring Education Quality (SACMEQ) school systems cast doubt on the school factors having stronger relationship with academic achievement when compared to SES. The study found family SES to have had significant effect on Reading scores in 14 SACMEQ school. In Mathematics, SES had a significant effect in 13 school systems. This was more than some school variables such as availability of basic learning items to pupils that had significant effect in six SACMEQ school systems in Reading and seven in Mathematics scores. Pupils with sole use of textbooks performed better in Reading and Mathematics in only five of the school systems. The implication of the finding was that SES was after all an important factor in determining education achievement in developing countries as well. It is therefore not clear whether the Heyneman-Loxley effect remains or has been weakening with time. This study investigated influence of schools factors on students' achievement when compared to other factors outside the school.

5. Results

5.1 Comparison of KCPE Examination Mean Scores Between Students who Schooled in Public Primary Schools and those who Schooled in Private Primary Schools.

Analysis of the data on the KCPE examination means in English, Kiswahili and Mathematics among 362 and 344 students who had been admitted from public and private primary schools respectively is shown in Table 1. The data showed that the KCPE examination mean scores in the three subjects were high at above 80 % in all the cases. This was as expected as the students were among the very best in the country among that cohort that sat for KCPE examination together. Further scrutiny of the data show that students who schooled in private primary schools performed better than their counterparts who schooled in public primary school in all the three subjects. To test whether the difference in the KCPE examination mean scores between the two groups were statistically significant, t-test at 0.05 level of significance was carried out. Results of the independent samples t-test computed for KCPE examination mean scores for these two groups of students are shown on Table 2.

The results in the Table 2 show that though the differences in KCPE examination mean scores in the three secondary school core subjects were marginal, they were statistically significant (Mathematics $t(705) = -3.826$, $p = .000$, English $t(705) = -5.695$, $p = .000$ Kiswahili $t(705) = -3.718$, $p = .000$).

Therefore, null hypothesis one that stated that there was no statistically significant difference in KCPE examination mean scores in English, Kiswahili and Mathematics between students who schooled in public primary schools and those who schooled in private primary school that were admitted in Alliance national secondary schools is rejected. This means that students who were graduates of private primary schools as a group had better KCPE examination mean scores than those who schooled in public primary schools. Further, the differences were significant.

Table 1*KCPE Examination Mean Score in Core Subjects of Private and Public Primary School Graduates*

Subject KCPE Examination Mean Score	Category of primary school attended	N	Mean (%)	Mean difference between the two groups	Std. Deviation
Mathematics	Public	362	82.40	1.52	5.081
	Private	344	83.92		4.939
English	Public	362	81.85	2.84	6.634
	Private	344	84.69		5.877
Kiswahili	Public	362	84.11	2.21	7.265
	Private	344	86.32		7.702

*Source: Field Data (2016)***Table 2***KCPE Examination Mean Score in Core Subjects, SD and t Value of Private and Public Primary School Graduates*Students Formerly in Public
Primary Schools (N = 362)Students Formerly in Private
Primary Schools (N = 344)

Subject	Mean	SD	Mean	SD	t	p
Mathematics	82.40	5.08	83.92	4.94	-3.826	.000
English	81.85	6.63	84.69	5.88	-5.695	.000
Kiswahili	84.11	7.27	86.32	7.70	-3.718	.

Source: Field Data (2016)**5.2 Academic Performance Trends of Public and Private Primary School Graduates.**

Data on secondary school examination performance was collected at the end of year one, two and three of the students' secondary school education. This enabled the analysis of the students' secondary school examination mean scores in the three subjects over a three year period as they progressed through secondary school education to be carried out. The analysis of the overall mean scores over the three year period revealed that students who schooled in private primary schools continued to outdo those who schooled in public school in all of the three subjects.

ANOVA test was carried out to find out whether the observed differences among the two groups in their secondary school examination mean scores was statistically significant. The ANOVA results are shown in Table 3.

The ANOVA results revealed mix results. Some statistical significant differences emerged in English but not in Mathematics and Kiswahili. However, to test null the hypothesis, the overall combined means score for the three core subjects was used. The results indicated that there was a statistically significant difference in the combined mean scores ($F(1, 689) = 3.989, p = 0.046$). The hypothesis that

stated; There is no statistically significant differences in the progressive secondary school examination mean scores in English, Kiswahili and Mathematics between students who schooled in public primary school and those with a private primary school background admitted at Alliance national schools is therefore rejected since p was less than .05.

Table 3.

One-way ANOVA Test Results for the Progressive English, Kiswahili and Mathematics Secondary School Examination Mean Scores.

Core Subject mean		Sum of Squares	df	Mean Square	F	Sig.
English	Between Groups	1654.68	1	1654.68	14.026	.000
	Within Groups	67481.135	689	117.974		
Kiswahili	Between Groups	61.766	1	61.766	0.752	0.386
	Within Groups	46962.206	689	82.102		
Mathematics	Between Groups	49.862	1	49.862	0.318	0.573
	Within Groups	89585.822	689	156.619		
Mean score for the combined overall for the three core subjects.	Between Groups	343.462	1	343.462	3.989	0.046
	Within Groups	49254.566	689	86.109		

Source: Field Data (2016)

5.2.1 Discussion of the Findings

Differences in KCPE examination mean scores between learners in public and private primary schools have been reported by other studies done in Kenya (Muthee, 2011; Ndirangu et al., 2005; Waweru, 2014,) Ndirangu et al. However, the cited studies compared overall KCPE examination mean scores between the two groups and not specific subjects as in this study. Dixon, Tooley and Schagan (2013) on the other hand used multi-level regression analysis and found a statistically significant relationship between private school attendances and test score in Mathematics and Kiswahili. Their study however used data collected from public and private primary schools attended by low-income families living in slums of Nairobi, Kenya.

Findings of hypothesis one though indicating existence of a statistically significant difference in academic achievement among public and private primary schools learners, does not reveal the possible causes of the differences. The differences could have been as a result of more advantaged school learning environment among private primary school graduates as suggested by Heyneman & Loxely (1983) and Bouhlila (2013) or better family SES that provided a more conducive learning environment and motivation to learn (CEP, 2007; De Graaf & Kraayhamp, 2000; Gustafsson, Hansen & Rosen, 2011; Hungi, 211). Comparing the performance of the two groups when learning under the same most

sought after school environment controlled for the differences in the school environment that could have contributed to the difference in KCPE examination mean scores.

Analysis of data in hypothesis two thus reveals that students from private primary schools continued to perform better than those from public primary schools even when schooling under the same learning environment. The overall differences were significant at 0.5 level. The implication is that the influence of the differences in the primary school learning environment on the variance in KCPE examination means scores among the two groups of students may have been overrated. The difference in the mean scores could have been more as a result of other factors outside the school environment or a combination of those factors and the school learning environment.

However, the differences in the overall mean scores in the three subjects can mask important observation. The differences in Kiswahili and Mathematics KCPE examination mean scores among the public and private primary school graduates in the two sampled national secondary schools were not significant. Therefore the school learning environment may have had an important part to play in the established statistically significant differences in the subjects KCPE examination mean scores among the two groups. However, the differences in secondary school English examinations mean score was large enough to tilt the overall equation and made the differences statistically significant. Caution therefore needs to be exercised when basing decisions on overall academic performance as it may fail to reveal important details unique to specific subjects.

The implication of the findings is that using the differences in the public and private primary school learning environment may not adequately justify the affirmative action in the admission of the public primary school learners to national secondary schools with lower KCPE examination mean scores. This is because other factors appear to have more influence on academic achievement than those within the school.

The study therefore recommend that KCPE examination means scores should not be solely used as a basis of selecting KCPE candidates to join the limited academically selective and elite national secondary schools like the Alliances which are very competitive due to the conducive learning environment they offer. Further, more research need to be done to identify the factors that make the learners who schooled in private school continue to do better than their counterparts who schooled in public primary schools even when learning under the same learning environment.

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