RANKING SECONDARY SCHOOLS AND STUDENTS IN NATIONAL EXAMINATIONS: THE EFFECT ON PROMOTION RATES AND PERFORMANCE TRENDS IN SCHOOLS IN KENYA

Maurice Amadalo, Julius Maiyo, Jane Amunga
Masinde Muliro University of Science and Technology, Kenya
E-mail: maiyokip2004@yahoo.com, jnamunga@yahoo.com

Abstract

This study sought to investigate the effect of ranking upper secondary schools and students in national examinations on students' promotion rates and on the schools' performance trends. A descriptive survey design was used and secondary schools in Kakamega south district formed the study population. The study sample consisted of 75 secondary schools stratified according to performance into low, average and top ranked categories. The sample size consisted of 36 schools (12 from each performance category) selected by simple random sampling. Reliability was established by use of test retest technique. Data on promotion rates revealed that, the low ranked schools had promotion rates of 0.990 for form I-II, 0.997 for form II-III and 0.958 for form III-IV. The average ranked schools had promotion rates of 0.984 for form I-II, 0.981 for form II-III and 0.959 while the top ranked schools had promotion rates of 1.00 for form I-II, 0.967 for form II-III and 0.882 for form III-IV. On performance trends, there was no significant difference in the performance of individual schools during the four years but there was significant difference in performance among the different categories of schools.
Key words: *ranking, promotion rates and performance trends.*

Background

Ranking in Kenyan education history started after the establishment of Local Native Council (LNC) and independent schools. These schools were ranked alongside the existing missionary schools and by the early 1940s; their performance was way above that of missionary schools. Ranking was also done among the Government African Schools (GAS) whose first batch of pupils sat the Primary School Examinations (PSE) in 1938. However, examinations had the effect of undermining the progression of Africans to higher levels of education. Pruning started at standard IV with Common Entrance Examination (CEE) being the basis for entry to STD V. Kenya African Preliminary Examination (KAPE) provided the selection criteria for secondary education. This pruning continued at intervals of two years up to Cambridge School Certificate Examinations (CSCE). For example in 1948, 6,983 African pupils sat for Primary School Examinations (PSE), 2,204 for KAPE, 192 for Kenya African Secondary School Examination (KASSE) and 39 for CSCE (Bogonko, 1992).

With the introduction of 8-4-4 system of education, Certificate of Primary Education (CPE) was replaced by KCPE from 1984. The Kenya Junior Secondary Examination (KJSE), Kenya Certificate

of Education (KCE) Examination and Kenya Advanced Certificate of Education (KACE) Examination were also phased out in 1985, 1987 and 1989 in that order (Eshiwani, 1993). This was followed by a radical change in the ranking of schools according to a performance index. Up to 2007, there have been seven categories of ranking examination results at the secondary school level used. These are: the overall, National schools, Provincial schools, District schools, Private schools, most improved schools and Students' categories. The publication of mean performance statistics for the top schools in the respective categories and top students in the nation and provinces was meant to make it possible for schools to compare their performance with other schools. This form of ranking has been strictly based on students' academic performance in national examinations unlike the criteria used in other countries that looks at other factors which contribute to an all round student.

The posting of examination outcomes was meant to hold schools and teachers accountable for the performance. Yet this exam publication impacts on education in schools in various ways. Wastage has been high as schools compete to maintain a performance index through selective admission, compulsory discontinuation or repetition of weak students. This has been resulting in low completion rates and a lot of wastage of human resources where children are declared failures when in actual fact they have the potential for further education (Kivilu, 2004). In secondary schools, an example is stated for the 1978/82 cohort that indicates an accumulated drop-out rate of 0.3% and 0.5% and the accumulated enrolment loss of 8% and 19% for the first and second year of secondary schooling respectively, (Eshiwani, 1993).

In the United States, there is evidence that agencies alter the timing of their actions and engage in cream skimming in response to specific performance measures (Hickman, Henrick & Smith, 2002). They exclude weak students from sitting for examinations. Bradley & Taylor (2000) found that results of other schools had a significant but negligible influence on the performance of each school because a 1% increase in the examination results of other schools resulted in a 0.3% increase in a schools' own performance. In England, performance trends indicated a widening gap between the performance of pupils in the highest and lowest ranked schools (OFSTED, 1999). Whilst the average GCSE point score increased from 33.1 to 35.9 between 1993-1997, the top 10% of the cohort of pupils experienced an increase of 4.4 and the bottom 10% of the cohort declined from 0.8 to 0.7(West & Pennel, 2000). A study carried out in Tanzania by Lassibille et al. (1998) found that analysis of the value added by the schools between form 2 and form 4 showed that the gap between the best and the worst schools had widened.

Statement of the Problem

Education is about enrichment in the process and outcome of learning experience. It should produce all-round individuals who can fit in society. Ranking of schools and students was meant to disseminate information on students' performance and increase competition between schools which would motivate teachers to change their instructional practices. However, this publication of results has had a number of effects. It has led to change of content to which students are exposed and emphasis of short-term or superficial strategies like memorization, rote-learning and rehearsing. There is a devotion of a significant amount of time to test preparation activities and a focus on students who are more likely to succeed at the expense of the weak. Schools have also been blamed for resorting to unorthodox means like forced repetition or discontinuation of weak students in order to improve their ranking in local league tables. Therefore, it is against this background that this study intended to investigate how ranking schools and students in national examinations affects students' promotion rates and performance trends in schools.

The object of this research was:

1. To establish the effect of the ranking on students' promotion rates.
2. To establish the effect of ranking on schools' performance trends between 2003-2006.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 15, 2009

Methodology of Research

Research Design

The study was a descriptive survey design. Descriptive research is concerned with conditions or relationships that exist, practices that prevail, processes that are on going, attitudes that are held or trends that are developing (Best, 1970). This design was deemed most ideal for this study because the study covered the 2003-2006 period, during which the effects of ranking on promotion rates and performance trends were still being felt. The design therefore facilitated the collection of information on how the current practice of ranking schools and students affected promotion rates and performance trends.

The Research Instrument

The main data collection instrument was the researcher generated questionnaires. The Head teachers' questionnaire was the primary tool administered to all the school heads. It was divided into two parts; part I and part II. Part I upon which this data is derived required the head teachers to provide general information of the school. This included the school category, number of streams, enrolment per class per year from 2003-2006 and mean scores during the same period. The instrument was piloted in three secondary schools from Kakamega South District. These schools did not participate in the final study. Reliability of the instruments was thus established by computing a test–retest reliability coefficient. It yielded a Correlation Coefficient of 0.96.

Participants

To obtain a representative sample, the 75 schools in Kenya's Kakamega South District were stratified into three categories of 25 schools each. The schools were ranked from the best to the last and divided into three even categories of 25 schools each. This stratification was based on mean performance in Kenya Certificate of Secondary Education (KCSE) examination results between 2003-2006. A total of 12 schools were randomly selected from each of the categories. This sample of 36 schools comprising 48% of the target population was considered neither too small nor too big for the study (Mulusa, 1990; Cohen *et al,* 2000 and Polland, 2005).

Statistical Analysis

One-Way Analysis of Variance (ANOVA) was used to determine whether there was any significant difference in the performance of each of the schools during the four years. It was also used to determine if there was any significant difference in performance among the different categories of schools during the four years. Student promotion rates were calculated using the Crude Grade Survival Rate formula (Appendix 6) which shows student movement from a previous grade in a previous year to a subsequent grade in a subsequent year. This information was presented in tabular form.

Results of Research

The Crude Grade Survival Rate (CGSR) was used in order to get a picture of the general promotion trends in the different categories of schools (formula provided in Appendix 6). To achieve this aim, head teachers were asked to complete a table showing the enrolment in their schools in form I, II, III and IV during 2003-2006. This information was compiled and used to calculate the Crude Grade Survival Rates. The findings are presented at four levels: overall promotion rates, promotion rates in the low ranked schools' category, promotion rates in the average ranked schools' category and promotion rates in the top ranked schools' category. Table1 below shows the overall promotion rate as a fraction of 1.000

Table 1. Overall promotion rates.

Class	2003-2004	2004-2005	2005-2006	Average
Form I-II	0.995	0.986	0.985	0.989
Form II-III	0.978	0.992	0.975	0.982
Form III-IV	0.946	0.962	0.891	0.963

There was a very high promotion rate between Form I-II during the four year period of the study averaging at 0.989. The promotion rate at Form II-III was lower with an average of 0.982 while Form III-IV had the promotion rate of an average of 0.963. Of all the promotion rates, Form III-IV had the lowest average promotion rate having lost 0.037 of the students (Table 1). This could be attributed to drop-out or discontinuation of schooling.

The table below shows the promotion rate in the low ranked category of schools. The figures are presented as a fraction of 1.000

Table 2. Promotion rates in the low ranked category of schools.

Class	2003-2004	2004-2005	2005-2006	Average
Form I-II	0.996	0.965	0.985	0.990
Form II-III	1.000	1.000	0.990	0.997
FormIII-IV	0.997	0.976	0.901	0.958

For this category of schools, promotion rates between Form I-II were slightly low averaging at 0.990 during the four years. This could be attributed to the fact that there might have been some drop-outs at this level. A plausible explanation is that some students may have enrolled in these schools in form I as they waited for vacancies in better schools, then transferred out in the second year. This trend changed during the transition between form II and III when promotion rates improved to an average of 0.997 .This could be attributed to the fact that all those in form II moved on to form III. Promotion rates between form III and form IV dropped slightly to a mean of 0.958. This could indicate that some students repeated the previous class or dropped out of school. In total, this category of schools experienced an enrolment loss of 0.055 during the four years (between form I-IV, Table 2).This translates into 469 students of the total 8,521 who went through these schools (Appendix 1).

The table below shows the promotion rate in the average ranked category of schools. The figures are presented as a fraction of 1.000

Table 3. Promotion rates in the average ranked category of schools.

Class	2003-2004	2004-2005	2005-2006	Average
Form I-II	0.989	0.992	0.970	0.984
Form II-III	0.964	1.000	0.979	0.981
Form III-IV	0.952	0.982	0.942	0.959

Promotion rates between all the grades in this category of schools were higher between 2004 and 2005. Form I-II had a rate of 0.992, form II-III had 1.000 and form III-IV had 0.982. Generally, form I-II had a higher average promotion rate of 0.984; followed by form II-III with a rate of 0.981 while form III-IV had the lowest promotion rate of 0.959. Thus promotion rates decreased as

students progressed to senior classes. Compared to the low ranked schools, this category of schools had lower promotion rates between form I-II and form II-III, but higher promotion rates in form III-IV. This category of schools experienced an enrolment loss of 0.076 during the four years (between form I-IV, Table 3). This translates into 1,016 students of the total 13,571 who went through these schools (Appendix 1).

The table below shows the promotion rate in the top ranked category of schools. The figures are presented as a fraction of 1.000.

Table 4. Promotion rates in the top ranked category of schools.

Class	2003-2004	2004-2005	2005-2006	Average
Form I-II	1.000	1.000	1.000	1.000
Form II-III	0.971	0.975	0.955	0.967
Form III-IV	0.887	0.928	0.830	0.882

There was a high promotion rate between Form I-II during the four year period. It is important to note that of all the categories of schools, the top ranked schools had the highest promotion rate between forms I and form II averaging at 1.000. This could be due to high demand for form I places in these schools; there was hardly repetition at form I since students had to move as a block to create room for new entrants. The high numbers in form II could be attributed to repeaters swelling up the number of those in this class making the form III class to shrink. It has been observed that since the Ministry of Education has been keen on returns for the form III enrolment in all schools, most repetitions are now enforced at the form II level which might give the false impression of 100% promotion rate. It is equally notable that average promotion rates between forms II - III, forms III - IV were the lowest compared to other categories of schools. This may not just be attributed to dropouts since form II-III promotion experienced a loss of 0.033 while form III-IV experienced a loss of 1.18 during the four years (table 4). This category of schools experienced a cumulative enrolment loss of 15.1% during the four years (Table 4). This translates into 4,829 students of the total 31,978 who went through these schools (Appendix 1).

To assess the effect of ranking on performance trends, head teachers were asked to complete a section of the questionnaire by filling in their schools' mean scores in 2003, 2004, 2005 and 2006. The data was used to determine whether ranking of schools in national examinations affected the general performance trends of individual schools or particular categories of schools. Table 5 shows the means for the different categories of schools during the four years. From the information gathered from the sample schools, the mean performance index for the four years was 5.16.

Table 5. Kenya Certificate of Secondary Education (KCSE) performance means for the different categories of schools.

School performance category	2003	2004	2005	2006	Mean 2003-2006
Low ranked	3.85	4.05	4.03	3.81	3.94
Average	4.99	5.04	5.09	4.65	4.94
Top ranked	6.56	6.73	6.53	6.64	6.62
Mean	5.13	5.27	5.22	5.03	5.16

Source: Field data

General performance trends for the four –year period indicate that there was improved performance during 2003-2004. All the categories of schools contributed to this improvement because they

all registered a positive index during this period. There was a slight drop in 2005 probably caused by low and top ranked schools whose mean scores dropped. Performance in the district took a nose dive in 2006 when the mean score was the lowest in the four years. This was as a result of negative performance index realised by the low and average ranked schools. These trends are further clarified by the table of mean summaries and individual performance category graphs (Appendix 3, 4 and 5)

It can be deduced from table 5 that, the highest mean score realized was 5.27 in 2004, the lowest was 5.03 in 2006. Table 6 presents the Analysis of Variance on individual schools' mean performance trends for each of the four years.

Table 6. ANOVA table on school performance and year.

	Sum squares	df	Mean squares	F	sig
Between groups	1.175	3	0.392	0.230	0.875
Within groups	238.042	140	1.700		
Total	239.217	143			

Analysis by ANOVA confirms that there was no significant difference in the overall mean performance index of each of the schools during each of the four years (p value 0.875, at 0.05 level of confidence, Table 16). The calculated F value of 0.230 is less than the critical value of 2.60. Schools remained static in their performance during the four years. Table 7 presents the Analysis of Variance on mean performance trends for the different categories of schools.

Table 7. ANOVA table on performance and school rank categories.

	Sum squares	df	Mean squares	F	sig
Between groups	51.071	2	25.535	65.997	0.0001
Within groups	12.768	33	0.387		
Total	63.839	35			

Performance during the four year period shows overall mean score of 3.94, 4.94 and 6.62 for the low, average and top ranked schools respectively (Table 5). Further analysis by ANOVA shows that there was a significant difference in mean performance index among the three categories during the four years (p value 0.0001, at 0.05 level of confidence, Table 7). The F statistic of 65.997 is greater than the critical value of 3.23.

Appendix 3 and Table 5 show the performance of the low ranked schools during 2003-2006. During the four year period, trends in mean score were as follows: 3.85, 4.05, 4.03 and 3.81 for years 2003, 2004, 2005 and 2006 respectively. All the schools in this category had fluctuations in performance (Appendix 3). Except for two schools which maintained an upward trend, all the others had unpredictable performance patterns and were bound to either improve or drop. The highest mean score for this category of schools was 4.05 in 2004 while the lowest was 3.81 in 2006. With mean scores of 3.85, 4.05, 4.03 and 3.81 for years 2003, 2004, 2005 and 2006 respectively, there was hardly any difference in performance during the four years. This implies that ranking of schools in national examinations hardly improved the performance of schools in this category all of which remained poor performing.

Appendix 4 and Table 5 show the average ranked schools performance data for the four years. During the four year period, trends in mean score were as follows: 4.99, 5.04, 5.09 and 4.64 for the years 2003, 2004, 2005 and 2006 respectively. These schools remained average as indicated by the mean scores 4.99, 5.04, 5.09 and 4.64 for the years 2003, 2004, 2005 and 2006 respectively. Only one school maintained a positive performance index while the others experienced constant fluctuations (Appendix 4).

Appendix 5 and Table 5 show the top ranked schools performance data for the four year. During

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 15, 2009

the four year period, trends in mean score were as follows: 6.56, 6.73, 6.53 and 6.64 for the years 2003, 2004, 2005 and 2006 respectively. Information on promotion rates indicates that 2005 had the highest promotion rate between form III and form IV during the four years averaging at 92.8 % (Table 4). The high grade promotion rate means that most schools in this category increased on the number of their candidates by registering most of them including their weak students leading to a lower mean performance index. Therefore unsurprisingly in 2006, enrolment in form IV was low. Similarly the promotion rate between form III and form IV was low and this led to a higher mean performance index.

Discussion

Students' promotion rate refers to their transition from one class to another and was calculated by use of the Crude Grade Survival Rate formula because of the unavailability of data on repeaters. Generally, the lower classes had higher promotion rates while higher classes had lower promotion rates. However, analysis of the promotion rates for the different performance categories of schools revealed that they had different promotion trends. The low ranked schools had a lower average promotion rate for the form I-II suggesting that there were cases of drop out or transfer to other schools. This finding agrees with Eshiwani (1993) that showed that for the 1978/82 cohort there was a drop out rate of 0.3% and 0.5% for the first and second year of secondary schooling in Kenya. There are still indications that, the low promotion rate between form I-II was as a result of some students using such schools as a stepping stone to better schools which was experienced in form II enrolment. The average promotion rate for the form II-III was quite high unlike in the average and top ranked schools. The improvement in the promotion rate at this level can be attributed to the inflow of students from the average and top ranked schools which experienced an enrolment loss at this level and to repetitions given that the form III-IV promotion rate was low.

In an effort to maintain a good performance index, to safeguard their mean scores or improve their ranking in league tables the average and top ranked schools engage in discontinuation of weak students. The very low promotion rate for the form III-IV in top ranked schools conform to findings of Hickman, Henrick & Smith (2002) and Kivilu (2004) that in response to specific performance measures, schools engaged in "cream skimming" by excluding the weak students from sitting for examinations. It's likely that the weak students were discontinued or asked to repeat and the majority could be ending up in the low ranked schools. Of all the categories of schools, the top ranked schools had the highest average promotion rate between form I-II. Since these are schools which are constantly in high demand, the very high promotion rate means that most of the form ones who secured admission in these schools moved as a block to form II irrespective of their academic performance in order to create room for new admissions. Top ranked schools are always in high demand so those who secure places in them do everything to remain enrolled. These schools allow weak students to repeat in form II or III but rarely in form I because of the demand for form I places.

The effect of ranking on the schools' performance trends was determined by obtaining the mean score of each of the schools in the study sample during each of the four years. The ANOVA statistical test was then used to determine if there was any significant difference in the performance of individual schools within each performance category and among the different categories of schools during the four years. The overall mean performance index for all the years during the four years was 5.16. Analysis by ANOVA shows that while there was no significant difference in the general performance of the schools during the four years (Table 6). There was a significant difference in the performance index among the different categories of schools (Table 7). The mean scores were 3.94, 4.94 and 6.62 for the low, average and top ranked schools respectively.

From the findings of this study ranking affected performance trends among the different categories of schools but did not significantly affect the trends of the individual schools. These findings concur with those of Bradley & Taylor (2000). The top ranked schools remained in the high performing category while the low ranked schools remained in the poor performing category thus widening the gap between the high and low achievers. Such findings are also similar to those of Lassabille *et al*. (1998) that showed the gap between the best and worst schools had widened. The same argument is expressed by the office for standards in education (OFSTED, 1999) which found that performance

trends indicated a widening gap between the performance of pupils in the highest and lowest ranked schools. Performance in the low ranked schools declined from 3.85 in 2003 to 3.81 in 2006, while in the top ranked schools the mean performance index improved from 6.56 in 2003 to 6.64 in 2006. West & Pennel (2000) also found that, whilst the average GCSE score increased from 33.1 to 35.9 between 1993-1997, the top 10% of the cohort of pupils experienced an increase of 4.4 and the bottom 10% of the cohort declined from 0.8 to 0.7.

Recommendations

1. To improve on the promotion rates, the education office in each district, should closely monitor enrolment returns for all the levels of secondary schooling instead of focussing on the upper classes alone.
2. There is need for the stakeholders in education to reduce the performance gap between the low and top ranked schools through provision of adequate teaching and learning resources in the low ranked schools. In other words the low ranked schools should be heavily favoured in the provision of any kind of support that can improve their performance and thus narrow the gap with the top ranked schools.

Acknowledgements

We thank the Council for Development of Social Science Research in Africa (CODESRIA) for recognizing and funding this study. Special thanks also go the Head teachers, teachers and students of the 36 secondary schools in the district which formed the study sample. Their cooperation in filling the questionnaires is highly appreciated.

References

Best, J. W. (1970). *Research in Education*. Englewood Cliffs, NJ: Prentice-Hall.

Bogonko, S.N. (1992). *A History of Modern Education in Kenya (1895-1991).* Nairobi: Evans Brothers.

Bradley, S. & Taylor, J. (2000). *The effect of the Quasi Market on the Efficiency Equity trade-off in the secondary school sector*; Lancaster University School Discussion Paper Ec9/00.

Cohen, L., Manion, L., & Morrison, K (2000). *Research Methods in Education.* London: Routledge.

Eshiwani, G. (1993). *Education in Kenya since Independence 35-189.* Nairobi: East African Publishers.

Heckman, J., Henrick, C, J. & Smith, J. (2002). The Performance of Performance Standards*. Journal of Human Resources,* 37(4), 778-881.

Kivilu, M. (2004*). Politics of National Examinations in Africa.* The 22nd Annual Conference of the Association of Education. Pretoria: Human Sciences Research Council.

Lassibille, G., Pengtan, J. & Sumra, S. (1998). *Impact of evaluation of education Reforms.* Working Paper No 12 On: Expansion of Private Secondary Education: Experience and Prospects in Tanzania. Dar es Salaam: Development Research Group- The World Bank.

Mulusa, T. (1990). *Evaluation Research for Beginners: A Practical Study Guide*. Bonn: Deutsche Stiftung fur internationale Entwicklung.

OFSTED (1999). *Ofsted Guidance on Inspection of Secondary Schools*. London: HMSO.

Polland, R. J (2005). *Essentials of Education Research and Analysis: Methods for Determining Sample Size. http://www.unf.edu/dept/cirt/workshops/survey/Poland Manual.pdf*

West, A. & Pennel, H. (2000). Publishing School Examination Results in England: Incentives and Consequences. *Educational Studies,* 26(4) 423-436.

PROBLEMS
OF EDUCATION
IN THE 21st CENTURY
Volume 15, 2009

APPENDIX 1. Enrolment in the different categories of schools (2003-2006)

Year	School category			Total
	Low ranked	Average ranked	Top ranked	
2003	2087	3305	7685	13077
2004	2145	3296	7977	13418
2005	2187	3448	8222	13857
2006	2102	3522	8094	13718
Total	8,521	13,571	31,978	54,070

APPENDIX 2. Data for the flow rates

Overall flow rates

Class	Year			
	2003	2004	2005	2006
Form I	3451	3444	3667	3339
Form II	3661	3441	3419	3630
Form III	3223	3565	3389	3302
Form IV	2740	2968	3382	2947

Low ranked schools' flow rates

Class	Year			
	2003	2004	2005	2006
Form I	525	518	602	543
Form II	576	523	500	593
Form III	529	576	523	495
Form IV	457	528	562	471

Average ranked schools' flow rates

Class	Year			
	2003	2004	2005	2006
Form I	882	827	908	1018
Form II	895	872	820	880
Form III	771	863	872	803
Form IV	757	734	848	821

Top ranked schools' flow rates

Class	Year			
	2003	2004	2005	2006
Form I	2044	2099	2157	2278
Form II	2190	2046	2099	2157
Form III	1923	2126	1994	2004
Form IV	1526	1706	1972	1655

APPENDIX 3. Low ranked schools' performance data

Sch. Code No	2003	2004	2005	2006	Mean
1	4.04	4.14	3.92	3.72	3.96
2	3.62	3.76	3.56	3.53	3.62
3	3.68	3.33	3.52	2.63	3.29
4	3.41	4.07	3.77	3.56	3.70
5	3.83	4.58	4.36	3.58	4.09
6	3.50	3.94	4.28	4.52	4.06
7	4.00	4.27	3.92	3.86	4.01
8	3.38	4.42	4.50	4.58	4.22
9	3.76	3.77	4.57	3.52	3.91
10	4.18	4.00	3.82	3.94	3.99
11	4.60	4.05	4.15	3.95	4.19
12	4.24	4.21	4.03	4.31	4.20
Mean	3.85	4.05	4.03	3.81	3.94

APPENDIX 4. Average ranked schools' performance data

Sch. Code No	2003	2004	2005	2006	Mean
1	5.34	5.46	5.25	4.46	5.13
2	5.78	4.94	5.63	3.58	4.98
3	5.20	4.75	4.53	4.47	4.74
4	4.82	6.00	5.99	5.31	5.53
5	4.81	4.63	4.29	3.93	4.41
6	3.92	4.20	4.60	4.61	4.33
7	4.59	4.33	5.49	4.78	4.80
8	5.25	5.76	5.11	4.71	5.21
9	5.13	5.46	4.92	5.59	5.28
10	5.50	5.36	5.31	5.14	5.33
11	4.44	4.61	4.88	4.40	4.58
12	5.04	4.97	5.05	4.77	4.96
Mean	4.99	5.04	5.09	4.64	4.94

APPENDIX 5. Top ranked schools' performance data

Sch. Code No.	2003	2004	2005	2006	Mean
1	6.83	7.17	6.92	6.89	6.95
2	6.36	6.05	5.84	4.71	5.74
3	5.17	5.74	5.10	6.74	5.69
4	6.17	6.53	6.58	6.91	6.55
5	8.17	8.30	7.83	7.72	8.01
6	7.85	7.41	7.51	8.16	7.73
7	5.63	6.25	5.67	5.69	5.81
8	6.02	6.50	6.26	6.05	6.21
9	5.92	6.78	6.65	6.54	6.47
10	6.58	6.16	5.95	5.69	6.10

Sch. Code No.	2003	2004	2005	2006	Mean
11	7.90	8.11	8.04	8.71	8.19
12	6.10	5.74	6.02	5.89	5.94
Mean	6.56	6.73	6.53	6.64	6.62

APPENDIX 6. Formula for promotion/survival rate

$$\text{CGSR} = \frac{N_t^k}{\overline{N_{t+1}^{k+1}}}$$

CGSR = Crude Grade Survival Rate

N_t^k = Enrolment in the initial/previous year, initial/previous grade

N_{t+1}^{k+1} = Enrolment in the subsequent year, subsequent grade

Adviced by Judah Ndiku, Masinde Muliro
University of Science and Technology, Kenya

Amadalo Maurice Musasia Senior Lecturer, Masinde Muliro University of Science and Technology
Department of Science and Mathematics Education, P.O. Box 190, Kakamega, Kenya.
Website: http://www.mmust.ac.ke/

Julius Maiyo Lecturer, Masinde Muliro University of Science and Technology, Department of Educational Planning and Management, P.O. Box 190, Kakamega, Kenya.
E-mail: maiyokip2004@yahoo.com
Website: http://www.mmust.ac.ke/

Jane Amunga Lecturer, Masinde Muliro University of Science and Technology, Department of Educational Planning and Management, P.O. Box 190, Kakamega, Kenya.
E-mail: jnamunga@yahoo.com
Website: http://www.mmust.ac.ke/