

Collaboration, benchmarking and secondary schools' mean scores in the Western region, Kenya: An analytical investigation

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Abstract

In order to meet the heightened multiple expectations now placed on schools to have engaged teachers and students, schools have turned to collaboration and benchmarking. The problem is that, despite adoption of these techniques in the Western region, academic performance remains dismal. The main objective of this study was therefore, to establish the effect of collaboration and benchmarking on secondary schools' mean scores in the Western Region. The study adopted a descriptive survey design and targeted 137 schools out of which 41 schools representing 30% were randomly selected. Findings revealed that, schools involved in both practices had above average mean scores (8.480) during the five year period and performed above the provincial mean score compared to those engaged in neither practice which had below average means (4.644), and performed below the provincial mean score. It was therefore recommended that, schools should adopt a three pronged collaboration and benchmarking process that involved schools, departments and subjects in order to maximize the benefits of the two practices.

Key Words: Collaboration, benchmarking, dismal and academic performance.

1. Background

In order to meet the heightened multiple expectations placed on schools to have engaged teachers and students, schools have turned to collaboration and benchmarking. Collaboration is a process in which people work together on a practical or academic effort. Suntasukwongchote (2004) discloses that the word “collaboration” has its origin in Latin where the word “com” and “laborate” recommend a mode of working together. According to Cook and Friend (1991), the evolution of collaborative practice in education began in the mid-seventies as a form of consultation process through which one professional would assist another in problem solving.

Benchmarking as defined today was developed in the early 1980s at the Rank Xerox Corporation in response to increased competition and a rapidly declining market share (Magutu, Mbeche, Nyamwange & Nyaoga, 2011). Dervitsiotis, (2000) stated that, benchmarking was a process of comparing company’s performance to that of another, in order to determine which inputs, processes, output systems and functions were significantly different from those of their competitors. The ability to learn and study how others did things has been adopted in education and has become an important part of continuous improvement. Collaboration and benchmarking are some of the Total Quality Management (TQM) principles that many educational institutions have recently turned to in order to meet current needs of society in a better way (Nabitz, Severens, Win Van Den Brink & Jansen, 2001; Steed, Maslow, Mazaletskaya, 2005; Svenson and Klefsjo, 2006).

Literature review on the relationship between school change and school improvement in education and professional learning communities revealed that, professional learning communities could be a significant force for empowering staff that led to school change and improvement as well as increased student outcomes (Hord’s, 1997). In addition, Goddard and Goddard (2007) found that, students performed better on tests of mathematics and reading when they attended schools characterized by high levels of teacher collaboration creating a tipping point for sustained turn-around. This conclusion arose out of a study they carried out to empirically test the relationship between theoretically driven measure of teacher collaboration for school improvement and student achievement. They used a sample of 47 schools with 452 teachers and 2,536 fourth grade students. Their findings showed that, fourth grade students had a higher achievement in mathematics and reading when they attended such schools that were characterized by high levels of teacher collaboration for school improvement. Teacher collaboration was found to have a statistically significant effect on student achievement on standardized tests as schools with one standard deviation increase in teacher collaboration showed a 0.7- 0.8 standard deviation increase in fourth grade test scores.

In San Diego, it was reported that, the Unified School District (elementary, middle and high school), three community partners and a higher education partner worked collaboratively and this collaboration had shown tremendous success in improving students’ achievement scores. This was evidenced by the elementary schools whose target annual improvement was 17 points but the schools documented an improvement of 82 points (Mastro & Jallo, 2005). In California, at the school-school level, the California Academic Partnership Programme (CAPP) grant provided time for teachers at Farmersville High School (FHS) and Farmersville Junior High School (FJHS) to meet regularly and establish a collegial relationship. Longitudinal analysis of the 10th grade

California High School Exit Examination (CHSEE) pass rates revealed that, the project made considerable progress toward the goal of preparing all students to pass CHSEE at the end of 10th grade (Holmes & Aronson, 2008). The 10th graders made larger gains in CHSEE pass rates in both English and math. In 2001-2002, the 10th grade pass rate was 30% and it increased by 30 points to 60% in 2007-2008. The math pass rate was 12% in 2001-2002 and it increased to 70% in 2007-2008 registering a 58 point increase (*ibid*). In addition, Farmsville High School Academic Performance Index (API) increased from 483 in 2000-2001 when the project began to 624 in 2006-2007 at the end of the project.

Benchmarking was another strategy that institutions employed to make further improvements in their performance because learning from others' experiences involved seeking information on best practices from other institutions through carefully planned study tours and benchmarking (Dill, 1999). In Kenya, Ambula (2006) carried out a study to document the extent to which secondary schools established benchmarking and determine whether it had led to improved performance in the Kenya Certificate of Secondary Education (KCSE). The findings showed that, schools which used benchmarking had realized improved performance from 5.633 to 6.379.

1.1 Study Hypothesis

The is no significant difference in the means scores of secondary schools in the Western Region as a result of collaboration and benchmarking.

2. Method

2.1 Participants

To obtain a representative sample, the 137 public secondary schools formally classified as provincial schools in the region, were stratified into four categories using the school mapping data. These were: schools involved in both collaboration and benchmarking, schools that had only collaborated, those that had only benchmarked and those that had done neither. A total of 41 schools representing 30% of the target schools were then used in the study (Gay, 1983; O'Connor, 2011). All Directors of studies from the 41 schools took part in study because they were the custodians of the schools' academic affairs and they provided information on academic performance (mean scores) over the five year period (The highest mean score is 12 while the lowest is 1). The sample also included 9 (30%) of the District Education officers who were randomly sampled.

2.2 Instrument

An in-depth interview was held with the District Education Officers (DEOs). The researcher sought information on the DEOs' perceptions of the effect of collaboration and benchmarking activities in their districts on secondary schools' academic performance. From schools, information on academic performance was obtained from Directors of Studies who filled in a table indicating the candidature in their respective schools and mean scores between 2007-2011. Documents were also used in this study. They provided data already collected on schools' performance over the years, analysed and archived for future reference and comparison. The documents used were school records like the Kenya Certificate of Secondary Education analysis files kept by the schools and the Provincial

Education office for corroboration. The information was used to check the authenticity of the information that was provided by the Directors of Studies.

2.3 Data Analysis

Data on school mean scores was tabulated for the five year period and the average means per year were computed and tabulated. The difference in the means and percentage pass grades for the four categories of schools was statistically established using One- way Analysis of Variance (ANOVA) ($\alpha=0.05$) and the statistical significance was assessed by the F-ratio. A follow up post hoc sheffes's test was used to determine which means were significantly different from each other. All interviews with the DEOs were auto taped and transcribed. A qualitative thematic strategy of data analysis was employed. The information was summarized under common themes and used in the triangulation of study findings.

3. Results

To establish the effect of collaboration and benchmarking on secondary schools mean scores, Directors of Studies from sampled schools were asked to fill a table showing their candidature during 2007-2011. In addition they also provided information on the mean scores attained during each of the five years. This information was corroborated with similar information obtained from the records and the Examinations department at the Provincial Director of Education's Office in order to ascertain its authenticity.

The means posted by each school in the different categories during the five years are summarized and presented to three decimal places in table 1.

Table 1: Mean scores in the four categories of schools (2007-2011)

School category	Number	2007	2008	2009	2010	2011	Average
Collaborating and benchmarking	12	8.160	8.487	8.312	8.541	8.902	8.480
Collaborating only	11	6.822	6.781	6.923	6.936	7.443	6.981
Benchmarking only	08	5.596	5.536	5.681	5.776	6.110	5.740
Neither	10	4.319	4.299	4.587	5.009	5.074	4.644

Source: Field Data

The findings indicated better performance by schools involved in both practices of collaboration and benchmarking which averaged at 8.480 (B-) during the five year period. This was due to the fact that these schools had the advantage of reaping the best out of the two practices so they realized above average performance. In addition, respondents from these schools also indicated that, they collaborated and benchmarked at several levels (School, Departmental and Subject). Schools

engaged in collaboration only averaged at 6.981 (C+) and those engaged in benchmarking only averaged at 5.740 (C) (which is merely average performance) while those that neither collaborated nor benchmarked averaged at 4.644 (C-) which is below average performance.

To statistically establish if there were differences in the means of the different categories of schools, one-way Analysis of Variance (ANOVA) (tested at $\alpha=0.05$) was used. The findings are presented in table 2

Table 2: ANOVA on average mean (2007-2011) and school categories

	Sum of Squares	df	Mean Squares	F	Sig
Between Groups	88.233	3	29.411	121.091	.0001
Within groups	8.987	37	.243		
Total	97.220	40			

Source: SPSS output

The results showed a significant difference in the performance means of the different categories of schools. The F value of 121.091 was greater than F-critical value of 4.51 ($p=0.0001$). This led to the rejection of the null hypothesis and prompted a further analysis to determine which means were significantly different from each other using the Post-Hoc Scheffe's test. This involved all the possible combinations of the given means. The findings are presented in table 3.

Table 3: Sheffe's test on comparison of means

(I)Sch. category	(J) Sch. category	Mean difference (I-J)	Std Error	Sig	95% confidence interval	
					Lower Bound	Upper Bound
Collaborating and benchmarking	Collaborating only	1.4991318*	.2057202	.000	.896671	2.101593
	Benchmarking only	2.7414500*	.2249466	.000	2.082683	3.400217
	Neither	3.8367800*	.2110186	.000	3.218802	4.454758
Collaborating only	Collaborating only	-1.4991318*	.2057202	.000	2.101593	-.896671
	Benchmarking only	1.2423182*	.2290000	.000	.571681	1.912955
	Neither	2.3376482*	.2153343	.000	1.707031	2.968265

Benchmarking only	Collaborating only	-2.7414500*	.2249466	.000	-3.400217	-2.082683
	Benchmarking only	-1.2423182*	.2290000	.000	-1.912955	-.571681
	Neither	1.0953300*	.2337713	.001	.410720	1.779940
Neither	Collaborating only	-3.8367800*	.2110186	.000	-4.454758	-3.218802
	Benchmarking only	-2.3376482*	.2153343	.000	-2.968265	-1.707031
	Neither	-1.0953300*	.2337713	.001	-1.779940	-.410720

Source: SPSS output * The mean difference is significant at the 0.05 level.

Table 3 shows complex comparison using all possible combinations of means. The table shows a total of 12 mean differences. These findings showed that all the means significantly differed from each other because $p < 0.05$ on all the sets compared. The greatest mean difference was between schools involved in both collaboration and benchmarking and those that were engaged in neither of the techniques (3.83678). The lowest was between schools that only benchmarked and those involved in neither technique (1.09533). The implication was that, involvement in both collaboration and benchmarking enhanced academic performance to a great degree while lack of it created a very large performance disparity between schools involved in both practices and those involved in neither practice.

From interviews with DEOs, they all said that, collaboration and benchmarking had significantly contributed to improvement in academic performance in their respective districts. Schools engaged in both practices had better mean scores because of using the best of the two practices. One DEO remarked that:

Collaboration is bound to enhance improvement in academic performance to a greater degree than benchmarking because it has become a continuous improvement strategy unlike benchmarking which is seasonal. Usually, schools are engaged in joint assessment of students throughout the year. This begins with the form three classes in some schools, but for the majority of schools, joint evaluation targets the candidate class. In addition, collaboration is an easier practice to maintain even with the most immediate neighboring schools, and this in turn enhances resource sharing.

The inferential statistics ($F = 121.091$; $p = 0.0001$) reinforced the finding that, there was a significant difference in secondary schools' mean scores as a result of collaboration and benchmarking. This led to the rejection of the null hypothesis, "There is no significant difference in mean scores of secondary schools in the Western Region as a result of collaboration and benchmarking." Schools engaged in both practices had above average mean scores (8.480) compared to those that were engaged in only one practice. Those that were not involved in any of the practices had below average mean (4.644).

4. Discussion

The findings of this study concurred with those of Goddard and Goddard (2007) which revealed that, teacher collaboration had a statistically significant effect on student achievement on standardized tests as schools with one standard deviation increase in teacher collaboration showed a 0.7-0.8 standard deviation increase in fourth grade test scores. The current study showed that, schools involved in collaboration and benchmarking had average mean of 8.480 and those involved in collaboration only had average mean of 6.981 during the five year period (performing above the dismal provincial mean score) while those that did not collaborate and benchmark averaged at 4.644 (performing below the provincial mean). The better performance realized by schools that collaborated also echoed the situation in San Diego, where a collaboration of the Unified School District (elementary, middle and high school), had tremendous success in improving students' achievement scores as evidenced by the elementary school whose target annual improvement was 17 points but the school documented an improvement of 82 points (Mastro & Jallo, 2005).

The findings of the current study also agreed with those of a study in California, where a collegial relationship led to an improvement in performance (Holmes & Aronson, 2008). In the current study, there was a 0.742 improvement in the mean score of collaborating and benchmarking schools during the five year period from 8.160 in 2007 to 8.902 in 2011; and an improvement of 0.621 in schools involved only in collaborating from 6.822 in 2007 to 7.443 in 2011 which could be attributed to collaboration.

5. Conclusion

The findings indicated that, there were better mean scores in schools involved in both practices of collaboration and benchmarking averaging at 8.840. These schools also performed above the provincial mean. Schools engaged in only one of the practices were fairly average (6.981 for collaborating schools and 5.740 for benchmarking schools) while those not engaged in either collaboration or benchmarking were below average (4.644) and performed way below the provincial mean during the five-year period. This was due to the fact that, schools involved in the two improvement techniques had the advantage of getting the best out of the two practices. This led to the conclusion that, a three pronged collaboration and benchmarking process that involved schools, departments and subjects translated into better mean scores. It was also concluded that, schools involved in neither collaboration nor benchmarking had been responsible for the dismal provincial mean score. These schools eroded the provincial academic gains realized from schools that collaborated and benchmarked.

6. Recommendations

- i. Schools should be encouraged to embrace both collaboration and benchmarking in order to realize improved mean scores and an increased number of quality grades.
- ii. Schools should be encouraged to collaborate and benchmark on multiple levels in order to maximize the benefits of the practices.
- iii. Collaboration and benchmarking were practices should be used to reinforce each other.

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