

**INFLUENCE OF TEACHER TRAINING ON THE  
PERFORMANCE OF STUDENTS IN MIXED SECONDARY  
SCHOOLS IN GEM DISTRICT, KENYA**

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**A Research Project Submitted in Partial Fulfillment of the  
Requirements for the Award of the Degree of Master of Business  
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## DECLARATION

This management research project is my original work and has not been presented for award of a degree in any other university.

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D61/61941/2010

This research project has been submitted for examination with my approval as university supervisor.

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This research project is dedicated to the Almighty God;

My beloved wife, Emily Mahulo;

Dear sons: Ryanne Kelly and Rayne Kelsey.

Mum Brigit Mahulo

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Francisca Okumu

Patrick Kearney

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## **ABBREVIATIONS AND ACRONYMS**

<b>CDF</b>	Constituency Development Fund
<b>DQASO</b>	District Quality Assurance and Standards Officer
<b>GOK</b>	Government of Kenya
<b>KCPE</b>	Kenya Certificate of Primary Education
<b>KCSE</b>	Kenya Certificate of Secondary Education
<b>KESI</b>	Kenya Education Staff Institute
<b>KNEC</b>	Kenya National Examination Council
<b>NCTAF</b>	National Commission on Teaching and America's Future
<b>SMASSE</b>	Strengthening of Mathematics and Sciences in Secondary Education
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization

## **ABSTRACT**

The Kenyan system of education has become mainly examination oriented. This has made the education managers to be result-oriented in their management styles. After pre-service training, teachers have gone for various training programs. These have enhanced their effectiveness and improved student academic achievement. These are witnessed in the students' achievements in terms of their performance. Many studies have shown a relationship between teacher training and their productivity. However they have not shown whether in actual sense teacher training influences students' academic performance in KCSE examinations. This research project therefore aimed at establishing the influence teacher training has on students' academic achievements in mixed public secondary schools in Gem District, Kenya.

The general objective of this research project was to establish the influence teacher training has on students' academic performance in mixed public secondary schools in Gem District, Kenya. The study employed descriptive survey design. The population of the study consisted of 107 teachers drawn from 20 schools. The study sampled these through stratified random sampling technique. There were two strata, namely, purely day and boarding cum day.

The study largely used secondary data from the DQASO offices with some primary data collected from three schools whose records could not be traced. The performance indices were analyzed using descriptive statistics, including the mean scores and standard deviations for both trained and untrained teachers. The sample consisted of 58 trained and 49 untrained teachers, giving a total of 107. The study showed that training alone does

not contribute much to the performance of students in Gem District. It confirmed that there are many untrained teachers in the district handling KCSE examination classes. The research project showed that there were high rates of teacher turnover. It was anticipated that the study findings will be significant to policy makers, school administrators, head teachers and assistant teachers in the district, Kenya and the world as a whole, by shedding light on the influence of training which can enhance students' academic achievement. The findings may also form baseline information for future and further research.

The study recommends that teachers should be professionally trained to enhance their productivity. This must not necessarily be at university and college levels. Teacher retention in a particular school is also necessary as frequent movement destabilizes the flow of study for students. More studies should be done on influence of teacher motivation on performance and how socio-economic, environmental and cultural factors affect performance.

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# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the study

The education system of Kenya has become mainly examination oriented. This is because of the cumulative benefits that the graduates get after school (UNESCO, 2005). The government of Kenya (GOK) has considered the significance of teachers' training not only as a requisite for pre-entry qualification to the teaching profession, but also as critical criteria for upward mobility for serving teachers (GOK, 1999). It is worth noting that training programs (the general approaches to professional advancement in skills and knowledge) in Kenyan secondary schools have been tailored to suit student academic achievement by many government policy documents. Education researchers such as Ngala (1997) and Oriosky (1984) observed that Kenyan secondary teachers participate in them for anticipated social mobility associated with improved financial gains, among others. However Kenyan education system being mainly examination oriented, many teachers look at training as an avenue to enhance their effectiveness in instructional duties (Orora, 1988).

Teachers' productivity has generally been seen as a correlation between teacher training and student academic achievement in examinations, and most importantly, Kenya Certificate of Secondary Education (K.C.S.E.) examination. Some researches on performance have also associated student academic achievement with teachers' effectiveness in teaching. For example, Muya (1994), Karugu (1982), Sayer (1989), Shiundu & Omulando (1986) observed that there exist many teacher instructional

malpractices in Kenya as a result of inadequate or lack of training skills. Generally training involves the development of human resource skills leading to better performance (GOK, 2009). Effective training focuses on the knowledge, skills and attitudes required by the teachers so that all students can learn and perform at high levels (Clifford, 2006). Research has shown that there are several effects of teacher training. For instance Gamoran (2006) observed that teacher training led to better content delivery in classroom which consequently enhances student achievement. Dove (1998) observed that through training of the teachers, there is good use of the teaching and learning resources. This leads to proper understanding by the students who then perform well in examinations. Gurskey (2000) noted that teacher training has a positive influence on time management, evaluation methods and practices and feedback given on the ability of the students.

The research study established that teachers' skills acquired through training programs influence student academic performances and achievements in mixed secondary schools of Gem district, Kenya. Consequently, the GOK (1999) noted that the best way that one can show that quality education is being provided is by producing many students who qualify to join university. It is by examination achievements that Kenyan universities and tertiary colleges select their students for admission in various disciplines (Atsenga, 2002). In Kenya, secondary school graduates qualify to join universities by excelling in KCSE examinations. Teachers are evaluated depending on their subject results hence promotion, demotion or social respect (Orora, 1988). Porter (2002) proposed that education managers must ensure that the teaching practice is geared towards producing excellent results in schools which can be achieved through teacher training.

### **1.1.1 Teacher Training**

In the world training arena, a survey in the USA revealed that 60% of the teachers under study continue to upgrade their skills through training (National Commission on Teaching and America's Future, 1996). The government of Kenya has made tremendous strides in the provision of teacher training. This can be witnessed in the continual upgrading, expansion and at the same time establishment of new university colleges to provide teacher training services in their faculties of education (Daily Nation, Thursday, March 15, 2012). The Government in conjunction with Japanese government provides teachers with in-service course for the strengthening of mathematics and sciences in secondary education (SMASSE).

At school level, publishers like Macmillan, Oxford and Longhorn organize and offer in-service courses for teachers in all subject areas especially on the current difficulties faced by students in the specific subjects. DQASO liaise with the government and take teachers for courses that improve their skills and consequently students' performance in the subjects' they teach. Sponsors of respective schools have risen to the occasion and organized for workshops for teachers. In addition, some teachers go for Kenya Education Staff Institute (KESI) courses which are offered during school holidays. Individual schools also invite KNEC officers who give training to teachers on new examination trends and rules in specific subjects. This is to make sure that teachers impart updated knowledge to the students so that they can perform well in terminal examinations (DQASO report, 2010)

### **1.1.2 Students Performance**

In the national perspective the general students' academic performance is on the upward trend since 2006 with an exception of 2008 where the post election violence nearly brought the education standards to its knees. This can be illustrated as in appendix iii, table 7. It is worth noting that the general academic performance of students in the schools under study in Gem had been on an upward trend. This was attributed to the continuous engagement of trained and qualified teachers, improved infrastructure as well as the efforts made by the students, among other reasons. This performance is shown in appendix iii, table 8

### **1.1.3 Teacher Training and Students' Performance**

It is assumed that a well trained teacher will deliver the subject content professionally and effectively. This should be a reality by all manners of fairness though studies show that apart from the acquired skills by these teachers, factors such as environmental, economic and socio-cultural, among others, also play a major part in determining the students' performance in examinations (Jackson & Davis, 2000). For better grades to be attained in schools there is need for proper linkages amongst these factors (Paauwe, 2004). A trained teacher usually analyses these factors and in cooperates them in the teaching practices. That is the reason for emphasizing the emerging issues at the end of every topic in the secondary syllabus.

### **1.1.4 Mixed Secondary Schools in Gem District**

Gem is a new district created from the greater Siaya district. It has a total of 41 secondary schools of which 34 are mixed day, one is mixed day cum boarding while 6 are girls day, boarding or purely boys boarding (DQASO report, January, 2012). They are government sponsored and categorized under the district schools. This implies that majority of their students are admitted from the district with average marks at KCPE level lower than the county and national average. At present the ratio of trained teachers to the untrained in Gem district is approximately three to one, gender notwithstanding. This proportion of the untrained teachers is so high and with the low performance rate compared to the national and county schools, there is need to establish a correlation between training and performance.

The rationale for choosing mixed secondary schools is because of the very likelihood of getting majority of the untrained teachers in these schools as compared to the purely boarding secondary schools where many of the teachers are professionally trained. The reason for this disparity is because majority of these schools were established after the introduction of the CDF necessitating the employment of these untrained teachers by the respective board of governors to fill the gap of inadequacy of teachers because the government had not prepared adequately for the trained teachers to be deployed in such schools.

## **1.2 Research Problem**

Harrison (1999) defined training as a process of assisting a person to enhance his efficiency and effectiveness to a particular work area by getting more knowledge and skills through practice. Academic performance is the attachment and rating assigned to students after examinations at a given time period (Costine & Heraty, 2000). Cumulative academic performance analysis leads to the establishment of academic achievements. These achievements are both qualitative and quantitative values students get as feedback in examinations (Harrison, 2000). The performance and the general academic achievement in schools is the main concern of school administrators. As Becker and Gerhart (1996) and Den Hartog and Verburg (2004) observed, when other factors are maintained constant, motivated and competent teachers are more effective and productive than apathetic and incompetent ones. This research study borrowed from the expectancy theory (MacDuffie, 1995) which assumes that productivity of the employee depends entirely on three variables: competence, motivation and role clarity. These three variables are majorly got as a result of training.

As has been noted earlier, most schools in Gem district are mixed day. Despite the fact that mixed secondary school teachers in Gem district may have access to many training programs geared towards improving students' academic achievement, better results may still not be forthcoming. In fact, a number of schools are unable to make even a single student qualify for admission to the universities, that is, through direct entry. This low level of performance compared to the county and national schools is a great concern to the respective schools stakeholders.



Performance in schools is attributed to various aspects of training. These may be in terms of content delivery, time management and use of resources among many others. Teachers who are well prepared and trained are more effective in the content delivery in classroom and therefore have the greatest influence on the student learning (Killion, 1999). A study by Atsenga (2002) revealed that teacher training improves teaching methods which positively influences learning. Atsenga also noted that effective teaching methods impact on teachers' roles efficiently and effectively. A separate study carried out in Texas by National Education Goals Panel (1998), found large gains on time management since the early 1990's in the proportion of beginning teachers receiving mentoring from expert veterans. In Kenya, Wanzare and Ward (2000) noted that there was lack of effective induction of new teachers which led to their time wastage in the process of catching up with their actual duties. A study carried out in Los Angeles by Brannigan (2002) reported that teachers who are well prepared and trained are more effective in the use of resources in the classroom and therefore have the greater influence on student learning. He further said that teacher training makes teachers use resource well thus creates energy that really boosts students' learning.

Byrne, Costine and Heraty (1983) summarized the results of thirty studies relating to teachers' subject matter knowledge gained through teacher training to student achievement. Out of these, 17 showed positive correlation while 13 had no relations. However, there was variability. Ashton and Crocker (1987) found that only 5 of 14 studies they reviewed exhibited a positive relationship between measures of subject matter knowledge of the teacher and student academic performance. The studies mentioned above did not clarify the chain of causal factors and their inter linkages in

influencing performance. At the same time the performance indices for both the trained and untrained teachers were not compared to ascertain the variability. This research study took into account the conceptual frameworks of Guest (1997) and Paauwe (1998). The framework maintained that a trained teacher teaches effectively because he/she is motivated, has positive attitude and role clarity. This promotes intense effort in teaching leading to a positive influence on the students consequently enhancing better performance. The converse may not be true for an untrained teacher. This conceptual framework is just an expansion of McDuffie theory. The research study was guided by the following research question in relation to teaching and learning processes; what is the influence of teachers' training on students' academic achievement in mixed secondary schools in Gem district?

### **1.3 Research objective**

To establish the influence teachers' training has on students' academic performance in mixed public secondary schools in Gem District, Kenya.

### **1.4 Value of the study**

The findings of the study are valuable to policy makers and school managers in revising the existing guidelines on training programs for teachers to enhance student academic achievement. Since academic achievement is the major concern of the sponsors of these schools, it would be imperative to provide feedback of the influence training has on the students' academic performance.

The findings assist head teachers and teachers in general to evaluate and revise guidelines on teaching pedagogies in their schools. As had been established there was a significant influence of training on students' performance hence more emphasis should be put on training to enhance better performance. This helps in setting strategies to counter the challenges faced during involvement in educational development and enhance student academic performance in schools.

The findings are appropriate in further research by providing baseline information relating to training. The research findings established that there are some loopholes and weaknesses of training in influencing students' academic performance because only two variables were considered. Other variables need to be subjected in further research to ascertain any correlation between teacher training and students' academic performance.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Teacher training**

Teacher training is a continuous process worldwide. It is intended to provide the teachers with the skills and knowledge necessary for the provision of education to students. As had been stated earlier Kenya strives to provide trained teachers to her schools for better performance in the terminal examinations more importantly the KCSE at secondary level. This research proposal considered the influence of teachers' training on the students' performance under four causative aspects:

### **2.2 The influence of Teacher Training on Content Delivery**

Teacher training is organized world over for teachers. Several studies have shown that teacher training affects the content delivery of the teacher in classroom. A study by Gamoran (2006) in the University of Wisconsin, indicated that teacher training enhanced student learning through its effects on teaching practices like content delivery. In addition, a study by Jackson and Davis (2000), on educating adolescents in New York, reported that teacher training improved teaching skills and knowledge thus enhancing their content delivery. This study was done in high performing middle grade schools.

Welsh (2010) and Gurskey (2003) maintain that teachers who are well trained are able to have a strong knowledge and understanding of the subject content they are teaching their students. Such teachers incorporate various teaching methods thus improving their content delivery in the classroom. Recent studies in Dallas, Texas, have also found that

differential teacher effectiveness is a strong determinant of differences in the student academic achievement (Sanders and Rivers, 1996; Wright, Horn and Sanders, 1997; Jordan, Mendero and Weerasinghe, 1997). Students who are assigned to several untrained and ineffective teachers in a row have significantly lower achievement and gains in achievement than those who are assigned to several highly trained and effective teachers in sequence.

Another study by National Staff Development Council (2003) indicated that teacher training improves instructional techniques and ideologies which enhance content delivery. In addition, Morgan (2010), in his study on benefits of professional development, found out that teachers acquire more knowledge which can help them deliver more while in the class. There is supported by a study done by Ferguson and Ladd, (1996). Haycock (1998) indicated that teachers with little training have too little knowledge of the subjects they teach thus denying their students the most basic learning resources. This study was done in Washington D C where the majority of the students are enlightened. The proposed study will be done in a remote and local set up where the respondents may not be well abreast with the outside training environment. It is also known that the best way to increase teachers' effectiveness in the classroom is through regular and high quality teacher training. Teachers themselves report that, the more time they spend in training activities, the more likely they were to indicate that it had improved their instructional skills (National Centre for Education Statistics, 2001). Researchers also agree that the success of content delivery and reform initiatives lies heavily on the qualification and effectiveness of teachers (Garet, Porter, Desmone, Birman and Yoon, 2001).

In a separate study by Wanzare and Ward (2000) on staff training and development in Kenya, it was noted that to improve teacher effectiveness and student learning, there was need to improve the in-service programs for all teachers. Ngala and Odebero (2010) carried out a study on teachers' perception of staff training as it relates to teachers effectiveness in rural primary schools in Kenya. It was discovered that among many other reasons, many teachers always participated in training programs to improve on teaching effectiveness. In this study, the schools were categorized as high and average performing. The respondents were 100 primary school teachers drawn from 100 public primary schools from Nyanza and Rift Valley provinces. It is worth noting that there is no great difference between secondary and primary teacher training needs as they can teach at both levels. Nyangarora (1996) concurred that mastery of content area facilitated effective teaching. This study was carried out on the factors affecting teaching of economics in Nyamira District, Kenya.

Studies done by Brewer and Goldhaber (2000), Monk and King (1994) and Rowan, Chiang and Miller (1997) concur that the effects of teacher training on academic achievement become clearer when the focus becomes subject matter knowledge as opposed to certification. These researches are generally consistent in indication that high school mathematics and science teachers with a major in their field of instruction have higher achieving students than teachers who are teaching out-of-field. These influences become stronger in advanced mathematics and science courses in which the teachers' content knowledge is presumably more critical (Monk, 1994; Chiang, 1996). Rowan (2002) using a different data set found no relationship in elementary school between certification in mathematics and content delivery in the teaching and learning process.

His findings suggest that subject matter knowledge in this area can only be enhanced by teacher training. The research study looked in depth the relationship between the influence of the training skills acquired and the service delivery towards students' performance considering the three compulsory subjects; English, Kiswahili and Mathematics.

### **2.3 Influence of Teacher Training on the Use of Teaching and Learning Resources**

Proper use of resources in the teaching and learning process strongly enhances students understanding. Substantial evidence from research showed that changes in the textbooks and other resources make little difference if teachers do not know how to use them well (Darling-Hammond, 1997). The study continued to add that it is through continued teacher training that proper use of resources can be enhanced. In addition, Rowan (2002) found great significance of teacher training on the use of resources in teaching mathematics and reading in elementary school. Greenwald, Hedges and Laine (1996) in their literature study on school resources, found significant effects of teacher training on the use of school resources.

Studies by Pate & Thomson (2003), Richardson (2003), Shulman (1987) and Sparks & Hirsh (1997) discovered that teacher training provides teachers with opportunities for hands-on work and is integrated into the daily life of the school and has a positive influence on student achievement. In a separate study in the Virginia state, USA, Wenglinsky (1998) assessed the effects of teacher professional development on the use of new technologies in teaching. He found out a greater influence of teacher training on the

use of technological equipment like computers and projectors. Another study by Wekesa (1993) on the influence of teacher leadership on student academic achievement in Columbia, recommended that there was need for more staff training programs to enhance effective use of resources. Since there is no such study done in this area, the research study looked at this and gave a way forward especially considering this region as purely rural with the schools having very minimal resources.

## **2.4 Influence of Teacher Training on Time Management**

Time management is critical in the teaching and learning process. Well managed time will lead to proper understanding by the students (NCTAF, 1996). Darling- Hammond (1997) established that more productive teacher and professional training programs make a difference to the teachers' abilities to utilize their available time in the teaching and learning process. A separate study done by Ngala and Odebero (2010) in primary schools majorly in Rift Valley province indicated that some teachers have tight work schedule thus lack time to prepare for their teaching duties. This also interferes with their participation in the training programs. They further recommended that school management should allocate more time to their teachers to enable them participate in training programs in order to improve on time management.

Darling-Hammond (1997) held a survey which showed that Kentucky teachers were much better prepared in terms of their time management, content and teaching coursework background than in 1988 and had experienced more extensive training than teachers in any other state in the US. A recent survey of Kentucky teachers also found that more than 80% of in-serviced teachers who graduated from Kentucky Colleges of



Education felt well-prepared for virtually all aspects of their jobs including time management in contrast to report about teacher education from previous studies (Kentucky Institute for Educational Research, 1997).

## **2.5 Relationship between Teachers' Training and Student Academic Achievement**

Several studies have compared teacher training programs and students' academic achievement. According to Ngala (1997), other factors held constant, there exists a positive correlation between teacher training and student academic achievement in final examinations. In a separate study carried out by Ngala and Odebero (2010) in Rift Valley and Nyanza provinces on staff development programs as it relate to teacher effectiveness, it was discovered that teachers in high performing schools took more interest in staff training programs compared to their colleagues in the average and low performing schools. Atsenga (2002) in his study of the English language revealed that effective teaching methods have high influence on learning. Teacher training programs, which promote knowledge on choice and use of effective teaching methods, influence the teachers' effectiveness thus high student academic achievement. Morgan (2010) revealed that training provide knowledge and skills to improve and encourages better performance and quality output.

Studies done in the US by Little & Harrison (1994), Darling-Hammond (1998), Smylie, Allensworth, Greenberg, Harris & Luppescu (2001) and National Staff development Council (2001) both agreed that training had visible influence in student academic achievement. Wested, Ashton & Crocker (2000) noted that training had a positive

influence on the accountability and student results. Porter et al (2000) also agreed that teacher training was a key factor in performing schools. In addition, Wenglinsky (2000) worked with special populations of students and discovered that there was a positive relationship between higher students test scores in Mathematics and Science and teacher training. Nyangarora (1996) concurred that mastery of content area facilitated effective teaching and therefore enhances student academic achievement. In a separate study carried out by Rivers and Sanders (1996) on influence of trained teachers on future student academic achievement, it was discovered that a trained teacher receiving students from untrained teacher can facilitate excellent academic gain for his/her students during the school year.

Ferguson (1991), suggested that teacher training may play an important role in student academic achievement. In the US, greater attention has been given to the role teacher training plays in student achievement (National Commission of Teaching and America's Future, 1996; National Education Goals Panel, 1998). In order to improve student achievement, more than twenty five states have enacted legislation to improve teacher development (Darling-Hammond, 1997). Sanders & Rivers (1996) observed that teacher effectiveness is highly influenced by teacher training. By reviewing the above, the research study ascertained the truth about the same in Gem district.

Teachers get involved in training which lets them try out new instructional approaches and get immediate feedback. In the District of Columbia teachers are granted five in-service days during the school year which takes place in August. When teachers participate in training, it can improve teacher quality (Hanushek, Kain & Rivkin, 1998).

A national study of over 1,000 mathematics and science teachers found similar results. Therefore sustained and intensive training is more likely to have an influence on enhanced teacher knowledge and skills and consequently student achievement than short training activities (Porter, et al, 2001). Guskey & Clifford (2003) noted that the ultimate goal of teacher training is improving student outcomes. It is also worth noting that teachers who are well prepared and trained are more effective teachers in the classroom and therefore have the greatest influence on the student achievement (Killion & Shulman, 1999).

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Research Design**

The project study adopted a descriptive survey design. Descriptive research design was appropriate for this study because of the cross sectional nature of the data collected and the comparative analysis inherent in the topic.

### **3.2 Study population**

The population consisted of 107 teachers who have taught the compulsory subjects, namely, English, Kiswahili and Mathematics at form four level in 2009, 2010 and 2011 drawn from 20 mixed public secondary schools in Gem District. This number of teachers was arrived at by taking at most two teachers per subject per school. The research project therefore included 58 trained and 49 untrained teachers. These 20 schools were the only mixed public secondary schools which had presented candidates for KCSE examinations in the three years mentioned above.

### **3.3 Operational definitions of variables**

This study considered only two variables, namely trained/untrained teachers and performance as independent and dependent variables, respectively. Names of trained teachers as well as students' performance were obtained from the records held by the DQASO office. Influence of teachers training was inferred by comparing performance mean scores for KCSE examinations in compulsory subjects taught by trained with those

taught by untrained teachers. The mean scores were for compulsory subjects in the three successive years under study (2009, 2010 and 2011).

### **3.4 Data collection**

The study relied on secondary data. The data collection was done from 58 trained and 49 untrained teachers giving a total of 107 from 20 schools. This number of teachers was arrived at by taking at most two teachers per compulsory subject per school. The targeted teachers comprised all trained and untrained teachers who had taught the compulsory subjects in the three years. It is worth noting that 60 teachers was the ideal number but some teachers taught at least a subject or were promoting continuity where some had left due to transfers and natural attrition, among other reasons.

Heads of examination departments in the three schools were consulted because the names of those who taught the KCSE classes had not been captured by the DQASO reports. Letters were given to these heads in time. The questionnaire was summarized giving spaces for ticking whether the teachers who taught were same or different and at the same time trained or not. The schools were categorized into day and boarding- cum- day schools for purposes data collection. Performance of the target teachers were measured by the mean grade of the students' performance in their respective subjects. This data was collected for KCSE examination results for the three years from records at the DQASO office and heads of examination department in three schools.

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

This chapter presents analysis and findings of the data collected mainly from the DQASO office in Gem district, Kenya and three schools whose records could not be obtained from the DQASO office. The study considered performance indices recorded in the three compulsory subjects taught by both trained and untrained teachers in 20 schools in Gem District. The study focused on all teachers who had taught the compulsory subjects. The study found some teachers to have taught two compulsory subjects.

All the intended information was got 100% as these were recorded information from the DQASO and the response from the three schools was also as expected. The research study did not consider gender disparity and position of the teachers. The number of students in these schools was not considered as the records for two purely boys boarding schools in the district with a candidature of at least 200 each showed that their performance indices was 8.00 and above, a performance index far much higher than the mean performance of these schools with less than 100 students (DQASO report on the Performance of Secondary Schools in Gem, 2011).

### **4.2 Performance analysis**

The study considered the performance indices of these teachers in various schools in their respective subjects. The teachers have been stratified as trained and untrained with consideration put as same teachers teaching the classes from 2009 to 2011 while others

were included to promote continuity in teaching where some had been transferred or left.

This is shown as in the table 1 below:

**Key: T- Trained teacher      UT- Untrained teacher**

**S- Same teacher              D- Different teacher**

**E- English                      K- Kiswahili                  M- Mathematics**

**Table 1 Mean scores and standard deviations of performance by year, subject and type of teacher**

	YEAR		2009				2010				2011				Performance indices (mean grades) in KCSE		
			T		UT		T		UT		T		UT				
	Trained/ untrained		S	D	S	D	S	D	S	D	S	D	S	D	2009	2010	2011
1	Anyiko	E				√		√			√				3.61	4.22	4.25
		K		√						√			√		3.28	3.86	3.99
		M			√				√				√		3.28	3.14	3.32
2	A.Kodhek	E		√			√						√		4.67	5.20	5.28
		K			√				√			√			4.28	4.67	4.87
		M			√				√				√		4.29	4.33	4.86

3	Apuoyo	E		√			√				√			3.08	3.11	3.42
		K			√			√				√		3.01	3.41	3.52
		M	√				√				√			2.71	3.01	2.99
4	B.A. Ohanga	E	√				√				√			2.29	3.03	3.31
		K		√					√				√	2.93	2.94	3.03
		M			√			√				√		2.11	2.50	2.65
5	Dienya	E	√				√				√			2.81	2.72	3.18
		K		√			√				√			2.97	3.08	3.44
		M				√		√				√		3.42	2.98	3.71
6	H. Ongili	E			√				√			√		3.32	3.36	3.81
		K		√			√				√			3.14	3.18	3.41
		M	√						√				√	2.30	2.22	2.34
7	Kambare	E				√			√		√			2.21	2.38	3.10
		K	√				√				√			2.84	3.04	3.11
		M				√			√				√	2.41	2.52	2.96
8	Kaudha	E		√			√						√	3.48	4.71	4.68
		K			√			√					√	3.76	4.00	4.38
		M	√				√					√		3.81	4.02	4.87
9	Lundha	E		√			√						√	3.16	2.98	3.71
		K				√		√			√			3.18	3.20	3.22
		M				√			√				√	2.30	3.11	5.28
10	Ndere	E			√			√				√		4.24	4.55	4.82



		K	√					√			√			4.56	4.84	4.93
		M			√			√			√			3.71	3.81	4.02
11	Ndori	E		√			√				√			3.37	4.21	4.50
		K	√				√				√			2.38	3.49	2.67
		M				√			√			√		2.81	2.45	2.66
12	Nyabeda	E		√			√				√			4.08	4.19	4.67
		K			√		√				√			3.81	4.01	4.21
		M				√		√					√	3.89	3.72	3.91
13	Nyagondo	E	√				√				√			6.72	5.81	6.38
		K	√				√				√			5.87	6.11	6.28
		M			√		√				√			5.86	6.13	6.42
14	Nyamninia	E		√			√				√			3.89	4.12	4.70
		K	√				√				√			3.71	3.89	3.99
		M			√		√				√			4.23	3.78	4.30
15	Nyangulu	E				√	√				√			2.26	3.10	3.34
		K	√				√				√			2.81	2.08	3.21
		M			√			√				√		2.31	2.40	2.50
16	Sagam	E	√				√				√			2.81	3.90	4.00
		K				√	√				√			3.72	4.01	4.22
		M		√			√				√			3.11	3.19	3.41
17	Sirembe	E				√	√				√			4.20	4.61	4.72
		K			√			√				√		4.51	4.89	5.03
		M		√					√			√		3.89	4.01	4.51

18	Ulumbi	E	√						√			√	4.51	4.39	4.92
		K	√			√				√			4.78	4.89	4.91
		M	√						√			√	4.01	3.84	3.96
19	Uranga	E		√		√						√	2.81	3.30	3.31
		K	√			√				√			3.01	3.28	3.37
		M			√			√				√	2.33	2.81	3.21
20	Wagwer	E		√		√				√			3.34	3.86	4.02
		K	√			√				√			4.10	4.28	4.39
		M			√			√				√	2.76	3.21	2.41
		Σ	18	15	15	12		15	10	10		12			

**Source: (DQASO report on the Performance of Secondary Schools in Gem, 2011)**

From table 1 above, the study found that for the three years under study, 58 trained teachers taught the three compulsory subjects consistently. This number had been arrived at by considering all the trained teachers in 2009, 2010 and 2011. To understand the table fully, the researcher used the data from one school to illustrate the procedure that was used and the usefulness of table 1. The researcher used Wagwer Mixed Secondary School as an example. English was taught by a different teacher who obtained a mean of 3.34 in 2009. In 2010 and 2011 the same teacher attained a mean grade of 3.86 and 4.02 respectively. The number of untrained teachers was found to be 49. In general the study assumed that there was minimal, if any, likelihood of a teacher leaving a school in 2009 and joining another or going back to the same school between 2009 and 2011. The teachers formed the basis of analysis where those who taught within the three year period

were evaluated. Only one analysis was done, that is, performance versus training. Descriptive statistics were used to analyze the data. These included means, standard deviations and percentages. Chi square statistic was used to test for the significant difference between the performance of the trained and untrained teachers. Mean scores for performance in the compulsory subjects were calculated for both trained and untrained teachers for the period 2009, 2010 and 2011 in all the 20 schools. The results showed that the difference was significant. Further analysis by use of chi square was done as below:

**Table 2 Results for chi square test for the association between trained and untrained teachers**

	Number of trained teachers	Number of untrained teachers	Total
	59	48	107
Performance	3.878	3.582	7.460
Total	62.878	51.582	114.46

Source: The researcher

From the table above: degree of freedom (df) = 1,  $p < 0.05$

$$X^2 = 114.46 (59 \times 3.582 - 48 \times 3.878)^2 \div (107 \times 7.46 \times 51.582 \times 52.878)$$

$$= 0.03337$$

The value of the chi square statistic is significant,  $x^2=0.033$ ,  $p \leq 0.05$ . This implies that performance in KCSE examinations in Mathematics, English and Kiswahili by students

taught by trained teachers in mixed public secondary schools in Gem District was much better than the performance of those taught by their untrained colleagues. It can be concluded from this that teacher training makes a big difference in their performance hence students performance.

The research found that out of 20 schools under study, 80 percent of them engaged trained teachers in either one or two compulsory subjects while 20 percent engaged both trained and untrained teachers. It was also found that no school engaged fully untrained teachers in all the compulsory subjects. At the same time the study found 14 schools out of 20 engaged untrained teachers in at least a compulsory subject at form four level of study. In conclusion, the research generally found that most schools engaged more trained teachers in English and Kiswahili while more untrained teachers were in Mathematics. This was shown as in table 3 below where 11 out of the 20 schools utilize more untrained teachers in Mathematics.

#### **4.2.1 The number and caliber of teachers engaged by each school**

**Table 3 The number and caliber of teachers engaged in each of the 20 schools**

Subject	Number of schools engaging fully trained teachers	Number of schools with a combination of both trained and untrained teachers	Number of schools engaging fully untrained
English	9	9	2
Kiswahili	12	5	3
Mathematics	2	7	11

**Source: The researcher**

### **4.3 Discussion of the Results**

The research study observed that performance indices for the compulsory subjects kept on increasing for the period under study. This can be observed from the performance mean grades in the three compulsory subjects as in the table 1 above. Generally the performance of trained teachers was better compared to the untrained ones. This was observed from the calculations done where the average per compulsory subject was taken, added then divided by three for both the trained and untrained teachers were taken then compared. The mean performance of the trained and the untrained teachers was 3.878 and 3.582 respectively. This meant that those trained performed slightly better than the untrained. Considering their standard deviations, that is, how far their performance deviated from the mean performance, it was realized that those for the trained deviated further away from the mean. This stood at 1.017 for the trained compared to 0.8190 for the untrained. This disparity was also analyzed by the use of chi square. The chi square statistics result is shown in table 2. The study observed that this slight advantage the trained teachers had in performance over the untrained could have been attributed to the better use of teaching and learning resources, better time management as well as improved content delivery as was noted by various scholars in chapter two. The study found that the performance indices for the teachers engaged for continuity purposes were not consistent.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter considered the mean performance of both trained and untrained teachers in mixed public secondary schools in Gem District. It went further to summarize by comparing the extent of influence training has on performance, highlighting the limitations of the research study and finally gave the recommendations.

### **5.2 Summary of findings**

The research found that generally more examination classes are assigned different teachers to promote continuity. The research study found that there are improvements in the mean scores performance of every subject in all the schools. The study also found that major reductions in mean score performance came from the untrained teachers with exceptions in three occasions from the same teacher who was trained. This was found in English as a compulsory subject in Kambare, Kaudha and Dienya.

### **5.3 Conclusion**

From the discussion therefore, the study concluded that training influences performance as mean difference in performance of trained and untrained teachers stood at 0.296. This difference was also justified by the chi square statistics which gave a significant difference of 0.033. The study concluded that teachers' training played a major influence in students' performance.

## **5.4 Limitations of the study**

The study only considered two variables, that is, performance as the dependent variable and teachers training as the independent variable. This could not give accurate analysis of the actual influence training has on performance. The study did not examine the entire period a student should be in secondary school. This limits the time of analysis in the research study. The study did not consider the involvement of a teacher in the course of the year where one might have left the class. Instead the study assumed the continuity is to start at the beginning of the year.

## **5.5 Recommendations**

The study found that training influences performance. This was because 96.6 percent of the trained teachers posted improved results. As a result of this the research project recommends that training should not just stop at university or college levels. The short training courses like workshops, seminars and in service training are very necessary and should be encouraged. The study further recommends that studies on other factors which may influence performance should be studied. These should include: socio-economic, cultural and environmental factors as well as motivation for both the students and teachers.

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## **APPENDIX I: LETTER OF PERMISSION**

University of Nairobi,  
School of Business,  
Kisumu Campus,  
P.O. Box 19134-40123,  
Kisumu.

Dear Sir/Madam,

RE: QUESTIONNAIRE ON THE INFLUENCE OF TEACHER TRAINING ON THE PERFORMANCE OF STUDENTS IN MIXED SECONDARY SCHOOLS IN GEM DISTRICT, KENYA

I am a Master of Business Administration student at the University of Nairobi specializing in Human Resource Management.

I am carrying out a research on the above topic. I humbly request you to kindly assist me by filling in the questionnaire as correctly and honestly as possible. Be assured that your identity and response will be treated with utmost confidentiality. Hence do not write your name on the questionnaire.

I take this opportunity to thank you in advance for your willingness to participate in this important exercise.

Yours faithfully,

Mahulo Peter.

[mmahulo@yahoo.com](mailto:mmahulo@yahoo.com)

Cell phone: +254736496755



## APPENDIX II: QUESTIONNAIRE

Kindly complete this section as instructed and as honestly as possible. DO NOT write your name or identity whatsoever on the questionnaire as the information given is to be treated with the confidentiality it deserves.

Please tick (✓) the blank boxes as appropriate.

**Teachers who taught the KCSE class of the specified years**

**Key: Same Teacher (ST) Different Teacher (DT)**

**Table 4** Questionnaire

	2009				2010				2011			
	Trained		Untrained		Trained		Untrained		Trained		Untrained	
	ST	DT	ST	DT	ST	DT	ST	DT	ST	DT	ST	DT
<b>English</b>												
<b>Kiswahili</b>												
<b>Mathematics</b>												

### APPENDIX III: TABLES OF PERFORMANCE

**Table 5** Number of Students who qualified for Admission to Public Universities nationally from 2006 to 2010

<b>Year</b>	<b>Entry</b>	<b>No. that qualified</b>	<b>Percentage</b>
2006	243612	12258	5.03
2007	276239	16120	5.84
2008	305995	11239	3.67
2009	337404	24221	7.18
2010	357488	32611	9.12
<b>TOTAL</b>	<b>1520738</b>	<b>96449</b>	<b>6.17</b>

**Source: DQASO report, Gem District, (August 2011) on KCSE performance**

**Table 6** KCSE mean grades for 20 Mixed Secondary Schools in Gem District from 2009 to 2011 in the compulsory subjects

	School	English			Kiswahili			Mathematics		
		2009	2010	2011	2009	2010	2011	2009	2010	2011
<b>1</b>	<b>Anyiko</b>	3.61	4.22	4.25	3.28	3.86	3.99	3.28	3.14	3.32
<b>2</b>	<b>Argwings Kodhek</b>	4.67	5.20	5.28	4.28	4.67	4.87	4.29	4.33	4.86
<b>3</b>	<b>Apuoyo</b>	3.08	3.11	3.42	3.01	3.41	3.52	2.71	3.01	2.99
<b>4</b>	<b>B.A.Ohanga</b>	2.29	3.03	3.31	2.93	2.94	3.03	2.11	2.50	2.65
<b>5</b>	<b>Dienya</b>	2.81	2.72	3.18	2.97	3.08	3.44	3.42	2.98	3.71
<b>6</b>	<b>Horace Ongili</b>	3.32	3.30	3.81	3.14	3.18	3.41	2.30	2.22	2.34
<b>7</b>	<b>Kambare</b>	2.21	2.38	3.10	2.84	3.04	3.11	2.41	2.52	2.96
<b>8</b>	<b>Kaudha</b>	3.48	4.71	4.68	3.76	4.00	4.38	3.81	4.02	4.87
<b>9</b>	<b>Lundha</b>	3.16	2.98	3.71	3.18	3.20	3.22	2.30	3.11	5.28
<b>10</b>	<b>Ndere</b>	4.24	4.55	4.82	4.56	4.84	4.93	3.71	3.81	4.02
<b>11</b>	<b>Ndori</b>	3.37	4.21	4.50	2.38	3.49	3.67	2.18	2.45	2.66
<b>12</b>	<b>Nyabeda</b>	4.08	4.19	4.67	3.81	4.01	4.21	3.89	3.72	3.91
<b>13</b>	<b>Nyagondo</b>	6.72	5.81	6.38	5.87	6.11	6.28	5.86	6.13	6.42
<b>14</b>	<b>Nyamninia</b>	3.89	4.12	4.70	3.71	3.89	3.99	4.23	3.78	4.30
<b>15</b>	<b>Nyangulu</b>	2.26	3.10	3.34	2.81	3.08	3.21	2.31	2.40	2.50
<b>16</b>	<b>Sagam</b>	3.81	3.90	4.00	3.72	4.01	4.22	3.11	3.19	3.41
<b>17</b>	<b>Sirembe</b>	4.20	4.61	4.72	4.51	4.89	5.03	3.89	4.01	4.51
<b>18</b>	<b>Ulumbi</b>	4.51	4.39	4.92	4.78	4.89	5.91	4.01	3.84	3.96
<b>19</b>	<b>Uranga</b>	2.81	3.30	3.21	3.01	3.28	3.37	2.33	2.81	3.21
<b>20</b>	<b>Wagwer</b>	3.34	3.86	4.02	4.10	4.28	4.39	2.76	3.21	2.41

**Source: DQASO report (August 2011) on the Performance of Schools in Gem District for the last three years in KCSE**

**APPENDIX IV: LIST OF MIXED SECONDARY SCHOOLS IN  
GEM DISTRICT**

1. Aluor Mixed
2. Anyiko
3. Argwings Kodhek
4. Apuoyo
5. B.A. Ohanga
6. Dhene
7. Dienya
8. Gongo Warom
9. Horace Ongili
10. Jina
11. Kagilo
12. Kambare
13. Kaudha
14. Lihanda
15. Lundha
16. Luri
17. Malele
18. Malunga
19. Ndegwe
20. Ndere
21. Ndori
22. Nyabeda
23. Nyagondo
24. Nyamninia
25. Nyangulu
26. Nyasidhi
27. Ojola
28. Ramula
29. Sagam
30. Sirembe
31. Ulumbi
32. Uranga
33. Wagwer
34. Yala Township.

