

RELATIONSHIP BETWEEN PRINCIPALS' INSTRUCTIONAL SUPERVISION AND STUDENTS' ACADEMIC ACHIEVEMENT IN SCIENCES IN SECONDARY SCHOOLS

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Abstract: The role of the school principal is to promote academic excellence of their students by focusing on teaching and learning in terms of measurable students' progress. The purpose of this study was to investigate the relationship between principals' instructional supervision and their students' academic achievement in Sciences. Academic achievement was measured in terms of grades obtained in the Kenya Certificate of Secondary Education (KCSE). Descriptive research design was adopted for this study. The target population was the principals and Science teachers in Makueni County and the respondents were selected through proportionate stratified sampling. A total of 68 schools, 68 principals and 272 science teachers were selected for the study. Data was collected using questionnaires administered to the principals and the Science teachers. A correlation test was done between the principals' degree of practice of instructional supervision and students' academic performance in the Sciences. A strong relationship was found between the practice of instructional supervision and academic achievement in all the Science subjects.

Key Words: Academic achievement, instruction, Instructional supervision, Principal, Sciences

1.1 INTRODUCTION

Principals in secondary schools are the people entrusted with the responsibility of ensuring that educational strategies are put in place that support effective teaching and learning for all students in their schools. Their key responsibility is to promote the learning and success of all students by ensuring that effective instruction is done (Alig-Mielcarek 2003). Instruction on the other hand is a systematic process that is employed to develop education and training programmes in a consistent and reliable fashion (Raiser & Dampsey, 2007). The school principal is therefore expected to have a working knowledge of effective instructional strategies in order to understand the instructional needs of their students and teachers and be able to effectively

address these needs (Blankstein, 2010; Smylie, 2010). In addition, school principals have a responsibility to help teachers to clarify instructional goals and work with them collaboratively in order to improve teaching and learning and to be able to meet those goals. They are expected to be able to help teachers shift their focus from what they are teaching to what the students are learning through practicing instructional leadership (Blasé, Blasé & Philips, 2010).

1.2 Instructional Supervision of the Teaching and Learning Process

Supervision is regarded as a painful experience that should be avoided if possible (Acheson & Gall, 2003; Garuba & Rothstein, 1998). For a long time, supervision was perceived as an instrument to control the instructional behaviour of teachers (Glickman, Gordon & Ross-Gordon, 2010; Garuba & Rothstein, 1998). Instructional supervision is a collegial, collaborative way of offering help to improve instruction (Olivia & Pawlas, 2004). In addition, instructional supervision has a key focus of improving instruction and student achievement. It should endeavor to improve teacher instruction and student learning (Brooks, 2007; Palandra, 2010, Rous, 2004; Donaldson, 2007; Harrison & Killion, 2007). Therefore, instructional leaders need to practice clinical supervision which is geared towards the best practices in teaching and learning and may be more effective and appreciated (Acheson & Gall, 2003).

Instructional supervision entails the engagement of leaders in supervision that enhances teaching skills and subsequently the achievement of students (Cunningham & Cordeiro, 2009; Glanz, 2006; Smith & Andrews, 1989 as quoted by Lyons, 2010). Time should be taken to ascertain what kind of support needed by each individual teacher and to determine what exactly each teacher needs in order to excel in the classroom, which could mean modeling lessons for newly appointed teachers, pairing weak teachers with those who are more experienced and

ensuring that teachers attend relevant teaching seminars (Lyons, 2010). Principal activities may include being visible throughout the school, providing praise and feedback to teachers about classroom performance or behaviors, and ensuring uninterrupted instructional time. Instructional leaders that monitor the teaching and learning process do so for the purpose of professional growth for the teacher and administrator, not evaluation (Glickman, Gordon & Ross-Gordon, 2001). Instructional leaders focus on ways of improvement to obtain the shared goals of the school.

Effective instructional supervision provides assistance to teachers, curriculum development, staff development, and group development and action research. It is therefore critical to bringing together the organizational goals in line with the needs of the teachers for the improvement of teaching and consequently student achievement (Lyons, 2010; Cayetano, 2011). Clinical supervision is a process in which the supervisors provide teachers with objective feedback on the state of their instruction, diagnose and solve instructional problems, help teachers develop a positive attitude about professional development (Acheson & Gall, 2003; Cayetano, 2011) and improve teaching and learning through instructional dialogue (Glanz, 2006; Kelear, 2008). Quality teaching can be achieved when there are clear lines of communication between teachers and the principal. The principal is charged with the responsibility of providing honest feedback with the aim of improving the quality of teaching which should be given in an objective manner and one way of doing this is through clinical supervision.

Clinical supervision is a process in which the supervisors provide teachers with objective feedback on the state of their instruction; diagnose and solve instructional problems; help

teachers develop instructional skills; evaluate for promotion and help teachers develop a positive attitude about professional development (Acheson & Gall, 2003). Its main purpose is improved teaching and enhanced learning through instructional dialogue (Glanz, 2006; Kelehear, 2008). Clinical supervision is a three step process where firstly the supervisor meets with the teacher and plans a classroom observation. Secondly a lesson is observed systematically and in a non judgmental fashion where data is recorded as it relates to the objectives. Third the supervisor meets with the teacher to analyze the data recorded, interpret the meaning of the information from the perspective of the teacher and decide on the best way forward (Acheson & Gall, 2003; Glanz, 2006; Cayetano, 2011).

The role of the principal is important at this point as he has to communicate the objective effectively so that the teacher understands that the ultimate goal is the academic achievement of the students, and the quality of their teaching is critical to the success of the students. Teachers need to be assured that they can discuss teaching practices with the principal without feeling intimidated and the principal is responsible for giving this assurance. Principals are therefore charged with the responsibility of providing honest feedback with the aim of improving the quality of teaching which should be given in an objective manner together with encouraging self reflection among teachers (Glickman, Gordon & Ross-Gordon, 2001; Glanz, 2006).

1.3 Science Education in Kenya

The Kenyan education system has three levels of primary, secondary and post- secondary (university, college, certificate and vocational training). At the end of the primary education, learners sit for a national examination, the Kenya Certificate of Primary Education (KCPE) to

qualify for admission into secondary school and at the end of the secondary education learners again sit for another examination, (KCSE) to graduate to the tertiary level of education. At both levels the Sciences are compulsory subjects of study. At the secondary school level, a student is expected to sit for at least two of the Science subjects and in some cases the three (KIE, 2001). The importance of these subjects cannot therefore be assumed, and consequently students' good performance in them is paramount.

The strengthening of the Sciences at the secondary school level in Kenya was declared a priority in the seventh National Development Plan for industrialization and sustainability (Kanja, Iwasaki, Baba, & Uenda, 2001). The evidence of deterioration in students' performance at the secondary school level presents a worrisome challenge to the Kenyan education system (Global Literacy Project, 2008). In 1998, the Kenya government in collaboration with the Japan International Cooperation Agency (JICA) initiated the Strengthening of Mathematics and Science in Secondary Education (SMASSE) project with the aim of strengthening teaching and learning of Mathematics and Sciences. In a baseline survey conducted in Kenya under SMASSE project, poor instructional practices, lack of a professional school community, administration and management practices regarding instruction were identified as major factors affecting performance in Mathematics and Sciences in Kenyan secondary schools (Sifuna & Kaime, 2007). The SMASSE project then advocated for change in teachers' instructional practices and recommended a shift from teacher-centered to student-centered instructional methods through an In-Service Education and Training (INSET) program (Wambui, 2005). For this to be implemented effectively instructional supervision becomes an integral part of the school management.

Most studies conducted in this area have concentrated on improvement of teaching methods as a way of improving performance (Ackers & Hardman, 2001; Githua & Nyabwa, 2008; Kanja *et al*, 2001; Wambui, 2005). These studies have proposed interventions that target the teachers' instructional activities to the exclusion of school leadership. Research has shown that principals have an indirect influence on students' academic achievement (Hallinger & Heck, 1996; Leithwood & Jantzis, 2000) and this study explores the specific instructional supervision activities by the school principal which may bring about improved performance in the Sciences among students.

1.4 Importance of the Science Subjects

Sciences not only provide students with highly relevant skills that are applicable to almost any workplace, they offer a flexible foundation enabling students to attain highly respected and well paid jobs and guarantee them a secure future, (Tyler, 2007). The study of these subjects is recognized as the most important in most fields of human endeavors and the level of students' interest and performance depends on the level of development, (Sjoberg & Schreiner, 2005). Their usefulness in the scientific world, technological activities, commerce, economics and even humanities is almost at par with the importance of education as a whole, (Tella, 2008). The study of the Sciences helps to engage the learners positively, creating in him/her the ability to verify or reaffirm scientific concepts or principles, to engage students positively with the scientific enterprise, (Hofstein & Lunetta, 2004). It also helps to develop understandings of investigative methods in Science, involving the gathering and use of evidence (Gott & Duggan, 2004). The role of the teacher in this process is to work with students' ideas, scaffolding them to establish the very powerful discourses of the scientific culture and scientific ways of viewing and dealing with the world (Wickmann & Ostman, 2002).

Studying the Sciences equips students with essential skills that would make them very employable, be that in a scientific or non-scientific arena, (Aikenhead, 2006). Sciences enable the student to become more confident in numeracy, gaining proficiency with figures and calculations that will prove invaluable when it comes to future employment (Tyler, 2007; Lyons, 2005). This proficiency is more than just putting numbers into formulae; it involves analyzing data and understanding trends in the same way that businesses might examine market data or sales figures (Tyler, 2007; Klein, 2006; Ryder, 2001).

Problem solving is another key skill that students master within Science; while this is important within a practical or experimental setting, it is essential to employers in all fields, especially when it is extended to evaluating alternative solutions provided by others (Klein, 2006). In addition, students gain crucial experience in communication skills. By presenting their work, be it verbally or in writing, students become so competent at expressing a logical argument, debating and persuading, that it becomes second nature to them, rather than something to be awkward and embarrassed about – this of course is a skill which is indispensable in the workplace (Wickmann & Ostman, 2002; Aikenhead, 2006).

The skills gained from studying the Science subjects are versatile and transferable and are applicable to any profession; a foundation in Science can lead to a huge variety of career options in all sectors, beyond those that might be predicted (Lyons, 2005). Sciences are obviously relevant to many Science-related jobs, such as Engineering, Information Technology, Medicine, Psychology, Sports Science, Music Technology, Animal Health, Forensics or Astronomy, but they are also significant to working in Banking, Journalism, Teaching, Television, Marketing, Law, Photography, Art Restoration, Media and Film Production, to name but a few (Klein, 2006; Tella, 2008). In addition to providing students with useful skills and making them highly

employable, it has been shown that achieving further qualifications in the Sciences brings greater rewards in monetary terms in future employment when compared to other subjects.

Sciences are omnipresent in modern society; due to the unsustainable demands we make on the world's resources and the impact we have on our environment, the contribution of Science is vital to ensure the survival of our planet by developing new or alternative solutions for everything we do from fuel production to waste disposal, (Sjoberg & Schreiner, 2005; Oketch *et al* 2010). With current issues such as gene therapy, nuclear power, oil depletion, genetically modified foods, diseases and global warming, future scientists have a fascinating and crucial role to play, be it developing new communications solutions or contributing to make the world a better place (Gott & Duggan, 2004; Ryder, 2001).

Studying Sciences therefore provides an excellent foundation, keeps options open and offers a good progression route either directly into employment or to higher education to study them or other related subjects further (Oketch *et al*, 2010). By opting for the Sciences, students could find themselves contributing to ensuring the future of the planet as well as safe-guarding their own future in the world of employment.

This study focused on students' academic achievement in the Science subjects, namely; Chemistry, Physics and Biology which are key subjects in the current secondary school education structure. These subjects are expected to play a major role in the realization of important national plans like the Kenya Vision 2030 to help the country become globally competitive and prosperous by the year 2030 (GoK, 2007). These subjects are also seen as an important contributor towards the attainment of the set national and international obligations like the Millennium Development Goals (MDGs). This has been reflected in the amount of resources

both human and otherwise which are channeled towards enhancing the teaching and learning of the Sciences at all levels of the education system (JICA, 2007).

In Makueni County, Kenya, academic performance in the Sciences has been low over the past years as compared to the other subjects offered in the curriculum. Table 1 below shows students' average performance in the Sciences in the period of (2011-2014) in comparison to some of the other subjects in the curriculum. This performance is given in terms of the KCSE grading scale of 1-12(grade E to A), which gives the best performance as 12 corresponding to a grade A, while 1 is the poorest and corresponds to a grade E. Table 1 shows the details of this performance.



Table 1: Students' Scores in KCSE between 2011 and 2014, Makueni County

YEAR	2011	2012	2013	2014
SUBJECT	M.S	M.S	M.S	M.S
MATHEMATICS	2.85	2.86	2.79	2.68
CHEMISTRY	3.54	3.36	3.39	3.43
BIOLOGY	4.66	4.15	4.18	4.27
PHYSICS	4.12	4.24	4.28	4.13
ENGLISH	5.74	5.66	5.62	5.83
KISWAHILI	5.69	5.63	5.94	5.97
C.R.E	5.85	6.16	5.89	6.48

HISTORY	5.88	5.75	5.67	6.13
GEOGRAPHY	5.86	5.77	5.84	5.87
AGRICULTURE	5.94	5.83	6.09	6.14
BUSINESS STUDIES	6.04	6.16	6.29	6.18
HOME SCIENCE	6.46	6.35	6.38	6.41

Source: County Education Office, Makueni

It is observed that the performance of the Science subjects is lower than all the other subjects that are offered in the curriculum except in Mathematics. It is observed that the Sciences recorded mean scores of values below five corresponding to grades below a grade C-.

Instructional supervision has been identified as one of these factors (Lyons, 2010), which ensures that the set goals and vision communicated by the principal are implemented during the teaching/learning process. Supervision includes activities like coordinating the curriculum, maintaining high visibility in the school together with supervising and evaluating instruction (Alig Mielcarek, 2003; Lyons, 2005). Effective principals understand what good teaching is and they recognize it as a critical factor in successful instructional programming (Marzano *et al*, 2005).

1.6 Statement of the Problem

The quality of education in Kenya is seen in terms of the number of students passing in national examinations (Eshiwani, 1993). Educators and the general public have therefore often expressed concern over factors that influence student performance in examinations. Principals in secondary schools are therefore expected to lead their schools in such a way that their students perform well in examinations. Academic performance in the Sciences in Makueni County has been poor over the years as compared to the performance in the other subjects as seen in Table 1.

The highest expected performance is a grade A (mean score 12) while the poorest grade is E (mean score 1). With average mean scores of 3.3 (D plain) in Chemistry, 4.2 (D plus) in Biology and 4.2 (D plus) in Physics, many of the students in the County fall below the cut off grade of 7 (C plus) grade for higher education qualification in these subjects. This, therefore, shows that with these results many of the students in the County cannot qualify for most of the courses in institutions of higher learning which signifies a major impediment to the country's economic growth. As noted earlier principals play a major role in determining the academic performance in a school due to their varied tasks and roles. This study therefore explored the relationship between instructional supervision and students' academic achievement in the Sciences.

1.7 Purpose of the Study

The purpose of this study was to investigate the relationship between principals' instructional supervision and students' academic achievement in Sciences in Makueni County, Kenya.

1.8 Research Hypothesis

The following Null hypothesis was tested:

HO: There is no statistically significant relationship between principals' instructional supervision and students' academic achievement in the Sciences in Makueni County secondary schools.

1.9 Conceptual Framework

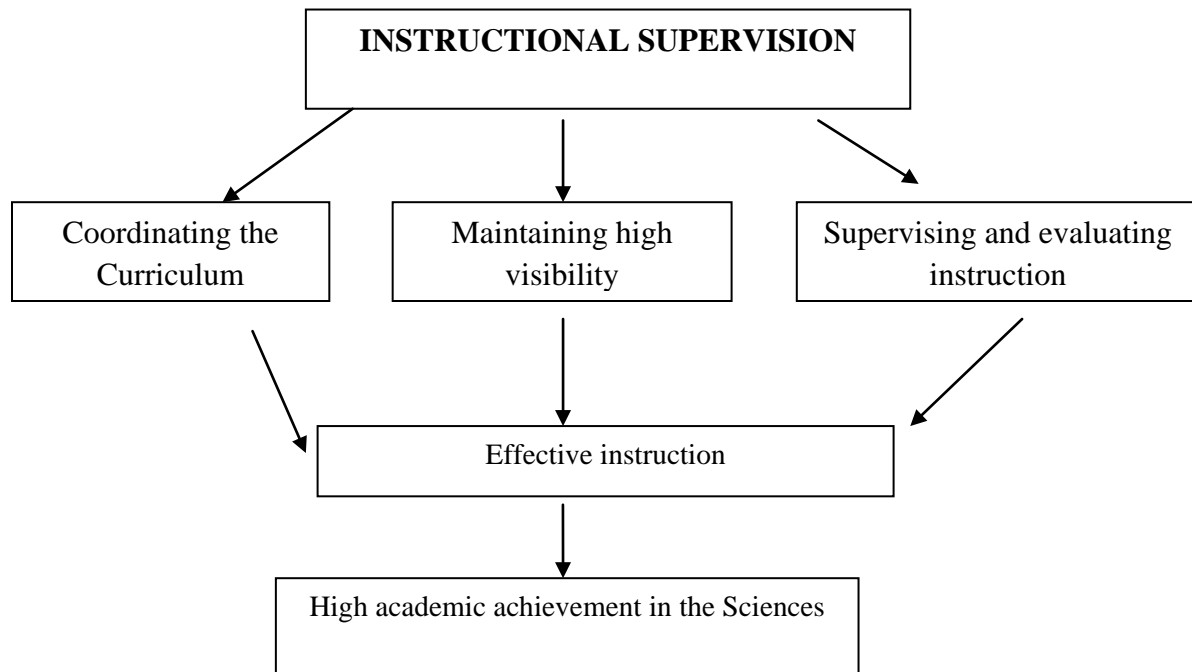


Figure 1: Conceptual Framework

Source: Researcher

2.1 METHODOLOGY

The study adopted the descriptive survey research design which enabled the respondents to report on the instructional supervision practice by themselves or their principals and how such practice has impacted on students' academic achievement in the Sciences. The target population for the study was all Principals and Science teachers from Makueni County.

The sample for the study was selected through proportionate sampling in order to get a representation of schools from each of the nine districts that constitute Makueni County. In each school the principal and three Science teachers were the respondents. Once the schools were selected the principal was the first respondent, while the Science teachers were selected through random sampling representing each of the three Science subjects namely Chemistry, Physics and Biology.

Data was collected using two sets of questionnaires administered one on the school principals and the other on the Science teachers. The Teachers' Questionnaire (TQ) was used to collect views of teachers about the principals' instructional supervision practice and its impact on students' academic achievement. The Principals' Questionnaire (PQ) collected views from the principals themselves on their instructional leadership practices. Interview guides were also administered on the principal of every school to provide more in depth information on the principals' instructional supervision practices.

It was important to ascertain the validity and reliability of the instruments to ensure that they focused on the information they were intended to collect. To ascertain validity, the questionnaires and in depth interview questions were presented to the researcher's supervisors and experts in the School of Education in Maasai Mara University. This was done for them to provide their comments on the relevance of each item on the instrument for constructive criticism and then revised according to their advice and comments.

To ensure reliability of the research instruments the researcher conducted a pilot study of the instruments in five schools which were not included in the main study. An internal consistency measure or analysis of inter-rate reliability was utilized, and as proposed by Hallinger (1983), a Cronbach alpha coefficient of 0.7 was got for the various items in the research instruments. The Cronbach alpha coefficient in this study was found to be 0.961 and above through calculation for each of the items.

Data was collected by four research assistants who were from the research area and trained on data collection techniques. They were given basic guidelines on the research process

and were taken through the research instruments and given the general expectations of the researcher. The researcher however administered the research instruments to at least one school in each district.

The collected data was analyzed using Pearson correlation test which gave the relationship between the principals' instructional supervision practice and students' academic performance in the Science subjects.

3.1 Results and Discussion

Instructional supervision was described using three broad activities namely supervising and evaluating instruction, coordinating the curriculum and maintaining high visibility by the school principal. Each of these was further broken into more specific activities as outlined below. The degree of practice of these activities by each of the principals was given as either almost never, rarely, sometimes, frequently or almost always. The results are given in Table 2 below:

Table 2: Principals' Instructional Supervision Practice

Practice	Almost Never %	Rarely %	Sometimes %	Frequently %	Almost Always %
Supervise and evaluate instruction					

1.	Take keen interest in the teaching/learning process Of Sciences to ensure the goals are achieved	5.0	8.125	16.25	38.125	32.5
2.	Conduct informal observations in classrooms and students workbooks to check their consistency	13.75	11.25	21.25	38.25	15.625
3.	Monitor the teaching/learning to ensure that work covered is consistent with the work planned	8.125	5.625	15.625	40.625	30.0
4.	Point out specific strengths and weaknesses in teacher instructional practices in post observation feedback	7.5	13.75	20.0	37.5	21.25
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Coordinate the curriculum						
5.	Make clear who is responsible for various functions in the school regarding curriculum implementation	8.125	6.25	8.75	31.25	45.625
6.	Draw upon the results of students continuous assessment when making curricular decisions	6.25	8.125	13.125	40	32.5
7.	Monitor the classroom curriculum to ensure that it covers the schools set objectives	7.5	9.375	15.625	41.25	26.25
8.	Ensure the provision of teaching/learning materials	7.5	6.25	10.0	35.0	41.25
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Maintain high visibility						
9.	Take time to talk to teachers and students during their free time	13.125	5.625	18.125	29.375	33.75
10.	Visit classrooms to discuss school issues with students and teachers especially regarding the sciences	10.375	12.5	25.0	31.25	20.625
11.	Cover classes for teachers till a late or substitute teacher arrives	20.0	17.5	18.75	32.5	11.25
12.	Visit the science laboratory and study rooms to encourage science teachers and students	15.0	11.25	22.5	31.875	19.375

It is evident from the above results that the degree of practice of these specific activities of instructional supervision by the principals is varied. A correlation coefficient test of these results with the students' academic achievement in the Sciences gave the following results:

Table 3: Principals' Instructional Supervision and performance in Sciences

Principals' supervision practices	Sciences	
	correlation coefficient	p-value
Supervise and evaluate instruction	0.2663*	0.0019
Take keen interest in the teaching/learning process of mathematics and sciences to ensure the goals are achieved	0.1788*	0.0373
Conduct informal observations in classrooms on a regular basis and the students workbooks to check on their consistency	0.2154*	0.0118
Monitor the teaching/learning to ensure that work covered is consistent with the work planned	0.2018*	0.0189
Point out specific strengths and weaknesses in teacher instructional practices in post observation feedback	0.2655*	0.0019
Coordinate the curriculum	0.3237*	0.0002
Make clear who is responsible for various functions in the school regarding curriculum implementation	0.2051*	0.017
Draw upon the results of students continuous assessment when making curricular decisions	0.2622*	0.0019
Monitor the classroom curriculum to ensure that it covers the schools set objectives	0.2738*	0.0014
Ensure the provision of teaching/learning materials and teaching aids	0.3204*	0.0002
Maintain high visibility	0.1689	0.0566
Take time to talk to teachers and students during their free time	0.1142	0.1889
Visit classrooms to discuss school issues with students and teachers especially regarding the sciences	0.107	0.2118
Cover classes for teachers till a late or substitute teacher arrives	0.077	0.3858
Visit the science laboratory and study rooms to encourage science teachers and students	0.1738*	0.0462

A statistically significant correlation coefficient of 0.2663 was established between supervision and evaluating instruction and performance in Sciences. A correlation coefficient of 0.3237 which is statistically significant was deduced between coordinating the curriculum and

performance in Sciences. All the indicators of coordinating the curriculum were statistically and significantly correlated with performance in Sciences in the County. On the other hand, a statistically insignificant correlation of 0.1689 was deduced between maintaining high visibility and performance in Sciences as shown in Table 3 above. However, visiting the Science laboratory and study rooms to encourage Science teachers and students by the principals was significantly correlated with performance in Sciences in Makueni County schools.

These results show that there is a statistically significant correlation between nine of the twelve specific practices that define instructional supervision and academic achievement in Sciences in Makueni County secondary schools. Based on these findings, the null hypothesis should therefore be rejected and the alternate accepted.

It is evident from these findings that the principal has a key role of supervision of the curriculum implementation process for good performance in the Science subjects to be realized. They have a responsibility to make a follow up of the teaching learning process by regularly conducting informal observations to compare the planned work and what the students have learned. It is the role of the principal to point out strengths and weaknesses of the teacher based on their observations. The principal has to create harmony between the set objectives and the actual work covered through regular monitoring of classroom curriculum. The study found out that when principals coordinate the curriculum in terms of the teaching and learning process their students' performance in the Sciences is improved. This involved monitoring of the curriculum to ensure it is in line with the school set objectives. It also involved provision of the needed teaching/ learning resources.

Supervision of the teaching/ learning process is the glue that holds the educational systems in place. It ensures that teachers are teaching the prescribed curriculum and using the proper instructional methodology. Sciences require interactive teaching methods like class demonstrations and scientific investigations. Supervision by the principal therefore ensures that this is being done by the teachers. It also ensures that the students are not at risk of not completing the KCSE syllabi which could undermine their chances of success in the examinations (Wiles & Bondi, 2011). Supervision also provides support for teachers and so teachers who are not being supervised may have a difficult time improving instruction and consequently students' academic achievement (Glickman et al, 2001).

These findings agree with earlier research by Knezek (2001) in his study of supervision as selected instructional leadership behaviour of elementary principals and student achievement in reading. His study found that principals' supervision helps improve students' academic achievement. Similarly Kwinda (2002) in his study titled Instructional leadership role of the school principal in Thohoyandou found out that supervision by the school principal led to improved students' academic achievement. They found that in high performing schools collaborative supervisory systems were in place that fostered teacher reflection on instruction as well as collaboration among teachers and with the principal. Green (2010) in his study on the four dimensions of principals' leadership identified supervision as one of the cornerstones of instructional leadership which leads to improved student academic achievement.

4.1 CONCLUSION

The results of this study showed that based on teachers and the principals responses, the practice

of supervision by the principal was not up to the expected level yet it was found to impact on students' academic achievement. It was evident that most principals only practiced the specific activities of supervision frequently, rarely or sometimes and a few of them practiced almost always. It was observed that schools with principals who exemplify instructional supervision behaviours had students with higher levels of academic achievement than principals who did not. The correlation test showed that academic achievement of the students had a positive correlation with the principals' practice of instructional supervision in almost all the activities.

The study also found that principals who took a keen interest in the teaching/ learning of their students in the Science subjects had their students performing better in these subjects. There is therefore an improvement in the students' performance in the Sciences when principals monitor the teaching/ learning process and ensure the provision of teaching/learning materials. It was evident from the results of the study that principals who visit the laboratory to encourage the Science teachers and students and also take time to talk to their students during their free time had their students performing better than those who did not do this often, thus showing that supervision of the teaching/ learning process leads to improved students' performance in the Sciences. Principals therefore can make a difference in meeting the challenge of students' academic performance specifically in the Sciences by exhibiting behaviours that are consistent with instructional supervision.

4.2 RECOMMENDATIONS

The following are the recommendations made from this study:

- i. Principals should supervise, evaluate and coordinate the instruction process to ensure that it is in line with the set goals. This can be done by meeting with individual teachers to

encourage them on the effective use of instruction time and new teaching skills and also with learners to discuss their performance at given times. Principals should be available in the school to both teachers and students. They should visit teachers in classrooms and Science laboratories to encourage the teachers and ensure the provision of teaching/ learning resources.

- ii. Principals should monitor students' progress by discussing their academic achievement with teachers individually and at departmental level. The principal should also talk with students and teachers about academics and progress towards the set goals. They should visit classrooms to ensure alignment of instruction to the set school academic goals.

ACKNOWLEDGEMENT

I wish to thank my Supervisors, Prof. Edward Tanui and Dr. Alexander Ronoh most sincerely for their support and guidance during this study. They were patient with me and tirelessly walked with me all the way. They gave me direction and taught me the importance of being consistent and focused.

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