The Role of Student-Related Factors in the Performance of Biology Subject in Secondary Schools in Eldoret Municipality, Kenya

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Abstract
This paper focuses on the student-related factors that influence performance of students in Biology in Kenya Certificate of Secondary Education in Eldoret municipality. The study was conducted through an ex-post facto design. A total of ten secondary schools were sampled. Target respondents were Form Three students and teachers of Biology (those teaching Form Three) within the municipality. The study sample (which was made up of 225 respondents; 200 students and 25 teachers) was obtained using stratified sampling. Simple random sampling was then used to choose the streams and particular students who participated in the study. Purposive sampling was used to obtain only the students who study Biology. The data was collected using questionnaires, observations and interviews and analysed using statistical package for social science (SPSS) computer programme. The results were presented using descriptive and inferential statistics. It was established that student-related factors affecting performance of Biology in Eldoret Municipality are: primary school Science which provides a requisite background for Biology at secondary school level; interest in Biology (theory and practical) provides a force for learners to participate in the learning process; their ability to carry out the practical effectively, and students’ ambition and attitudes. The study is significant both to scholars and other readers as it is in line with the Educational Policy in Kenya which emphasizes continuous improvement of Science education, the study sought to achieve this policy by finding areas that need improvement in the performance of Biology as a Science subject, some of which could be found applicable in other Science subjects.

Keywords: role, student factors, performance, biology subject, secondary schools, Eldoret municipality, Kenya.

INTRODUCTION
Student factors are the circumstances in school or learning environment that are at the students’ disposal and have an effect on their performance in Science. This paper discusses some of these factors in light of a study conducted in Eldoret Municipality in Kenya. Majorly, majority of the student-related factors that affect their academic performance emanate from their socio-economic backgrounds and their attitudes.

BACKGROUND OF STUDENTS
Aikenhead (1996) has argued that: “It is easy to assert that; to be effective, teaching must take full account of the multidimensional cultural world of the learner, to apply this principle in a particular situation, and to express it in terms of curriculum materials and classroom methods is a formidable task” (p. 40). Aikenhead takes up this challenge in part by exploring the practical implications of cultural border crossings in terms of curriculum materials aimed at teaching Science and technology for all students no matter what borders they need to cross. Aikenhead (ibid.) argues that Science educators, western and non-western, need to recognize the inherent border crossing between students’ life-world, subcultures and the subculture of Science, and that we need to develop curriculum and instruction with these border crossings explicitly in mind, before the Science curriculum can be accessible to most students.

In the context of Science education, Aikenhead (1996) identifies several powerful sub-groups that influence students’ understanding about Science: the family, peers, the school, the mass media and the physical, social and economic environment. Aikenhead (1997) and Jegede (1995) argue that, for majority of students their movement between the micro-culture of their family and the micro-culture of school Science is not smooth and often limits their success at Science. Such students experience a discordant culture gap between family and school that moving into the culture of school Science seems virtually impossible. They might avoid (or drop out of) school Science to sustain their self-worth whenever they experience the “foreign” culture of school Science. In developing countries, the Science curriculum itself may be a problem for students who strongly believe in their community’s indigenous belief system. Science education worldwide aims to nurture equitable opportunities for success for all students (UNESCO, 1994) because success at Science depends in large measure on how effectively students can negotiate into culture of school Science;
an ingredient for successful border crossing between disparate cultures.

Learning Science is to acquire the culture of Science. To acquire the culture of Science, students must travel from their everyday life-world to the world of Science found in their Science classroom. Students’ flexibility, playfulness and feelings of ease in the world of Science will help determine the smoothness with which they cross the border into the Science culture. This smooth transition or lack of it will affect the degree of culture acquisition that takes place. Muwanga-Zake (1998) further states that the greatest cultural barrier to learning Science is language. The problem is that like many other African countries, South Africa has developed Science curricula and content upon western trends and teaches Science mainly in English (for Anglophone countries) (ibid.). Therefore, majority of students may not comprehend what is written or taught and may resort to memorizing. Further complications arise from the differences between the normally scientific English that demands clarity and common English language usage. Thus language barrier could account for the difficulty that learners and teachers find with Science to a great extent. This in turn, could affect the students’ achievement in Science subjects Muwanga-Zake (ibid.).

Coleman et al. (1966) and Plowden et al. (1967), Bowles and Gintis (1976) (as cited in Jepkoech, 2002), note that in the United States and Britain, the socio-economic background of a student is more important in explaining his/her academic performance than school characteristics and experiences. They conclude that a society’s cultural, economic and political structures are the main determinants of school outcome. According to Coleman et al. (ibid.), socio-economic factors are strongly related to academic achievement. Plowden’s survey of British school children emphasizes that the influence of the home as an important contributor to variation in academic achievement (Plowden et al., ibid.). Plowden further reports that in general:

The higher the socio-economic group, the more parents attend open days, concerns and attends parent-teacher association meetings, and the more often they talked with heads and class teachers about how their children were doing in school (Plowden et al., as cited in Jepkoech, 2002).

More educated and better paid parents showed greater concern for the academic progress of their children than the parents with less education and who engaged in poorly paying jobs. Basing on multicultural education, Mugdil (1988) argues that mono-cultural orientation of our curriculum poses a subtle, on the surface but inherently ingrained, challenge on how certain subjects especially Science based are perceived across the ethnic divide. Considering societal views, many students go to school on behalf of their parents and or the teachers. The teacher has been seen by the society as that poor fellow seated in the school compound with nothing to do other than manage the congregation of young people coming from various backgrounds and spend the day passing on theories not relevant to the community. At worst, the school is the escape zone for those running away from hard labour occasioned by high prevalence of poverty and disease in the families. As such some come to spend a day in class with colleagues to escape the hard realities of life demonstrated in the hunger pangs biting throughout the day, offering temporary relief albeit very short-lived.

Construction of new knowledge goes more smoothly when learners can relate new content to their existing background knowledge (Good & Brophy, 1997, p. 400). This of course is helpful when the existing background knowledge is correct. However, students’ incorrect prior knowledge or alternative frameworks (Driver & Bell, 1986) have been shown to impede learning of fundamental scientific concepts.

If student’s prior knowledge is fuzzy, it should be clarified; if it is missing it should be supplied; if it is incorrect, it should be corrected, and if it is correct it should be used as a building block for new knowledge. Students can learn new information more readily when their background knowledge is activated and connections are made with the new knowledge. Students will allow the correct concepts replace their pre-existing false concepts only if the new concepts are more valid, more powerful, more useful or in some other way preferable to their existing concepts (Good & Brophy, 1997, p. 401). In Kenya, the primary school average score in the subjects is between 47 and 48 percent. However, when the pupils go to secondary school, their performance deteriorates considerably and they cannot solve problems they could in primary school. The then Chief inspector of schools (CIS), Mr. Daniel Rono, observed that there is a serious problem in transition from primary to secondary schools, adding that some candidates who score grade A in Mathematics and Science in KCPE end up failing in the same in KCSE (The Blackboard, 2000, p. 12).

**STUDENTS’ ATTITUDE**

Attitudes affect achievement and achievement affects attitudes (Owiti, 2001). Owiti has revealed that attitude influences performance and performance influences attitude. This paper examines how students’ attitude (positive or negative) influences their performance in Biology. Njuguna (1998) argues that emotional attitudes can have a profound effect on our learning efficiency. The kind of attitude one holds in a learning situation therefore is of great significance. The attitude aspect has caused
considerable concern in education. Munn et al. (1972) argue that “attitudes are learnt predispositions towards aspects of our environment” (p. 606). They involve the tendency to evaluate something in a positive or negative way. An attitude consists of three basic components, namely thinking, feeling and reacting. The thinking component involves self-belief. The feeling component involves issues related to value, and the reacting component involves the tendency to behave in a certain way.

Njuguna (1998) further argues that a human infant is born without any concept of themselves, any attitude or value system. Their self-concept and attitudes towards other objects develops with the development and their interaction with their “significant others”. Such persons are teachers, peers and parents. A child who receives positive perceptions and expectations from their significant others develops a positive self-concept. Positive self-concept influences motivation and performance in tasks. If a child is motivated and achieves highly in a task, that child will have positive attitudes towards that task. However, low motivation leads to negative attitudes thus low performance. Children in our schools fail to benefit from teaching, not because they do not have the ability but because of their self-view, which determines to a great extent what they do or avoid, and what they see or ignore (Njuguna, 1998). Therefore, the home, school and society offer varied and important conditions for the child’s acquisition of values, cultures and or development of self-concept all of which influence academic performance.

One major problem of Science education in developing countries, identified by students, is the feeling that school Science is like foreign culture to them (Maddock, as cited in Aikenhead, 1997). Their feelings stem from fundamental differences between the culture of western Science and their indigenous cultures. One may wonder whether the kind of attitudes held towards learning by students is related to the failure or passing usually noted in many examination situations. A clear answer to such an issue may help us to know how to respond to learning situations be they encouraging or discouraging. Physiological factors play a major role in learning. Driver and Bell (as cited in Fensham, 1988) say:

Learning outcomes depend not only on the environment, but on the knowledge, purposes and motivations that the learner brings to the task. That is, the ideas and beliefs we already hold will be of major influence on the interpretation we place on what we are taught (p. 77).

According to Driver and Bell (ibid.), “the learners have the final responsibility for their learning…. in that they decide what attention they give to a learning task, construct their own interpretations of meaning for the task and evaluate those meanings” (p. 78). Norwich and Jaeger (1989) aver that, “there is at best an explicit or implicit assumption that the attitude to school subjects should be related to achievement, if only on the grounds that positive attitude leads to greater achievement” (p. 314).

STATEMENT OF THE PROBLEM

Academic achievement in Kenya is established through examinations, which consist of set questions that seek to determine how much an individual perceives the subject as a result of learning. Commendable performance is an indication of effective learning. Secondary education has been characterized by poor performance in national examinations, especially in core subjects such as Mathematics and Sciences (MoEST, 2005). There is an outcry nation-wide that performance in Sciences (Biology included) is poor and the trend has been observed for some years. According to Professor Karega Mutahi, the Permanent Secretary Ministry of Education (MoE), the KCSE results has portrayed poor performance in Sciences (Jebet & Naserian, 2003). The most recent outcry was expressed through press statements by the Minister of Education after the 2008 KCSE results were released. The Minister lamented over the poor performance in Biology among other Sciences (Aduda, 2009).

Releasing the 2009 KCSE results, Prof. Ongerí, the then Minister for Education further noted there was a drop in Biology; considering it is a crucial subject. This is not news to reckon, given that the subject had recorded a drop in performance in 2008 KCSE (Siringi, 2010). There is need for scientific and technological advancement for any nation to keep in step with the world’s technological growth. This will enable a nation to advance and compete effectively in economic and social growth and development. But then, it is difficult to envision a developing nation being unable to achieve technological advancement with a large manpower base ignorant or unable to handle the same technology, owing to inherent phobia to Sciences. It calls for concerted efforts to reverse this trend, if the projected growth is to be achieved. It is therefore necessary to direct more efforts on Science education. In view of students’ poor performance in KCSE Biology, there is need to establish the factors that promote good performance in Biology in KCSE. The aim of this paper is to identify and discuss the student-related factors that influence the performance of students in Biology in KCSE examination in selected secondary schools in Eldoret Municipality.

LIMITATIONS OF THE STUDY

The study was confined to the factors relating to students. As such, any other factor that influences performance of students which was not part of the defined parameters of the study was deemed out of
scope. The results were, therefore, interpreted only within this context of the study. The study was also limited to a smaller sample of schools that were selected and Form Three students participated. The study was further limited to the performance in Biology in KCSE and to analyzing data given by the sources. The study had no control over the exact information students and teachers of Biology chose to give or withheld. Despite these limitations, the study provides a framework for undertaking a close analysis of the relationship between student-related factors and academic performance in schools and recommending appropriate interventions.

MATERIALS AND METHODS

The study was carried out in 10 selected secondary schools in Eldoret municipality of Uasin-Gishu County in the Rift Valley Province of Kenya. Eldoret municipality comprises parts of Eldoret East, Eldoret West and Warenget Districts. It sought to capture useful data that was representative of the factors that influence performance of students in Biology in the three districts (previously Uasin-Gishu District). The study design was ex-post-facto. This is a design in which the study variables are not exposed to direct manipulation or intervention on part of the research. However, the author provided as much control as possible under the existing conditions. The research control was limited to the responses to specific category of form three students in the selected schools.

There were 30 secondary schools within the municipality at the time of study, of which 10 were selected for the study based on whether they were boys’, girls’, or mixed schools. Biology teachers in the selected schools at the time of study were involved. Two hundred students and twenty-five teachers were used in the study. Owing to the varied nature of the schools, stratified sampling was used. Three categories were used for equal representation i.e. girls’, boys’ and mixed schools. During sampling, 75% of the girls’ and 100% boys’ schools were used while 20% of the mixed schools were used. Simple random sampling was used to select the schools in the girls’ and mixed category. Data was then collected from the sample selected using observations, questionnaires and interviews. Both qualitative and quantitative data analyses were employed. Qualitative analysis involved derivation of explanations and making interpretations of findings and trying to establish relationships from information gathered. Quantitative analysis involved derivation of statistical descriptions and interpretation of data by use of descriptive statistics.

RESULTS AND DISCUSSION

The study sought to examine the student-related factors that influence performance in Biology. This was based on the premise that student-related factors are influential to performance in Biology. Therefore, these factors need to be understood and properly addressed in order to improve students’ performance. Student related factors were measured by looking at the following variables: students’ primary school Science, their interest in Biology, whether or not they were allowed to choose the subjects they want, availability of reading materials, they having study timetables, interest in practicals, number of tasks and subjects studied, their ambition and attitude, cases of indiscipline/truancy, absenteeism, ability to do practicals, them having discussion groups and attendance of symposiums and exhibitions.

Primary School Science Influences Performance in Biology

The study sought to establish whether or not primary school Science influences performance in Biology at secondary level. Fifty-one percent students and 48% of teachers interviewed did not agree that primary school Science affects performance in Biology. The student respondents (51%) disagreed with the statement that primary school Science influences performance in Biology in secondary schools. They were of the view that the general Science taught in primary school is split into specific disciplines at secondary level where advanced concepts are introduced and therefore could not establish the link between the general Science taught in primary to Biology taught at the secondary level. The pattern of Science education becomes more complex at the secondary level with the introduction of subjects such as Physics, Biology and Chemistry as noted by the science and technology in vocational education (STVE) report.

In an interview, one of the students said: “I used to enjoy primary Science as I never scored below 70 marks, but here in secondary, Biology is hell! In fact classification is the worst topic I have ever come across”. On the other hand, 43.5% and 48% of the student and teacher respondents respectively agreed that primary school Science influences performance in Biology. Basing on the study, this is a significant observation, because if prior knowledge is correct, it should be used as a building block for new knowledge (Good et al., 1997, p. 401). The link provides continuity and demystifies Sciences at secondary level hence effective primary foundation in Science provides requisite background for students studying Biology at secondary level.

Student Characteristics

The study also sought to establish whether or not student characteristics such as interest in Biology, interest in practical Biology, ability to do practicals, ambition and attitude influence performance in Biology. The findings are summarized in Table 1 below.
**Students Interest in Biology**

The study sought to establish whether or not students’ interest influences performance in the subject. It was found that majority (92%) of the respondents agreed that students’ interest influences performance in Biology. This is so because having interest in Biology cultivates students’ positive attitude towards the subject, hence enabling the student to work hard. Respondents mentioned doing self study on the subject, asking for assistance from teachers in areas of difficulty, forming discussion groups, high scores in the subject, dedicating more revision time for the subject, having a personal time table which guides students’ private studies, and working under less supervision, as some of the attributes that trigger improved performance in Biology. The study established that an interest in Biology influences performance because it provides the drive within students to participate in the learning process. On the other hand, only 6% (students) and 12% (teachers) disagreed with student interest as affecting performance in Biology. They argued that revising of Biology notes and Biology text books is what determines Biology performance.

**Student Having Interest in Practical Lessons**

Practicals entail application of theoretical concepts by performing experiments. Having interest in something drives an individual towards working hard to achieving it. The study, therefore, sought to establish whether student having interest in practical influences performance in Biology. The findings showed that 81.5% (students) and 84% (teachers) indicated that student interest in practical influences performance in Biology. Student’s willingness to participate in practical activities, especially when in groups improves the performance in Biology (SMASSE INSET, 2004). Through participation, scientific skills for hands on/practical skills are developed. Moreover, Biology practicals supplement good marks to those students who are weak in theory (KNEC, 2007), hence influencing the performance. One student respondent in an interview said: “Biology practical is my saviour, I love it since I am weak in the theory section”. However, 11% of student and 8% of teacher respondents disagreed that students having interest in practicals influence performance in Biology because to them once a student is familiar with the theory section then doing the practicals are very easy since practicals is just theory in practice. From the findings, the respondents recognize that other than an interest in the subject, an interest in the practicals greatly influences performance in Biology.

**Students’ Ambition**

Most students have got a personal ambition/dream for the future career and, therefore, work towards accomplishing the ambition. Therefore, the study sought to establish whether students’ ambition influences performance in Biology. The study found that majority (76.5%) of the student and (84%) teacher respondents indicated that student ambition influences performance in Biology. Majority of the respondents argued that most students have already set the target that they want to achieve, such that the desire within them acts as a drive to work hard for success or an achievement. Thus, great performance in the subject will be achieved if students’ ambitions are linked to it. For example, students opting for mechanical or electrical engineering and thus, influencing performance of the subject.

One respondent said “mimi napenda bio sana kwa sababu ningependa kawa daktari maishani ili nisaidie wagonjwa” (meaning, I love Biology so much because I want to be a doctor so that I may help those who are sick). It emerges from the study that ambition contributes to performance; it cultivates independence, building the desire to study thus posting good results. The author noted that the career dreams of learners influence their output.

**Students’ Attitude Towards Biology**

Attitude is the inner feelings of an individual towards something or somebody. Positive attitudes in students help to improve performance. Thus, the study sought to establish whether students’ attitude towards Biology influences performance in the subject. It was found that majority (89.5%) of student and (92%) teacher respondents were of the opinion that student’s attitude affects performance in Biology. Owiti (2001) believes that attitude affects achievement and achievement affects attitude. Attitude influences one’s thought which in the end affects understanding of the individual. Positive attitude activates the thinking, feeling and reacting components on an individual, hence influences the performance. On the other hand, negative attitude contributes to lack of motivation in learners hence hindering them from performing well. Positive attitude cultivates students’ ambitions and morale of what they want to be in future hence, working hard under minimum supervision. One of the respondents said that their Biology teacher was the one who made the subject to be difficult as she always used complicated terms without clear explanation. This made the respondent to hate the subject because he did not understand the key concepts in the subject, thus affecting the performance in the subject. Attitude also affects performance in Biology. The problem, the author notes, lies in the attitude type; positive or negative that the learner possesses, if positive it influences good performance and if negative it influences poor performance.

**Students’ Ability to do Practicals**

Biology practical forms paper three of the Biology KCSE exam. Bakke (2005) notes that having a
personal experience in the learning process accounts for 80% of knowledge retention. Practicals help students to put what they have learned in theory into reality thus, making the subject livelier. The study sought to establish whether students ability to do practicals influence performance. Of the respondents, 75.5% of the students and 84% of teachers agreed that ability to do practicals influence performance in Biology. Ability to do practicals contributes to the performance in the subject. Majority of the respondents argued that Biology practical is far much better than the theory paper and therefore, students who are able to perform practicals efficiently are well placed in terms of subject performance. Students also enjoy the marvels of Science while learning at the same time participating (Siringi, 1998).

The then KNEC secretary, Juma Mwachihi, lamented candidates scripts showed they do not perform adequate practicals in Sciences as required by the syllabus. The candidates failed in questions whose answers were dependent on experiments (KNEC, 2000). This observation concurs with the findings of the study, that students should be capable of doing practicals because they contribute positively to performance in practical exams at the same time improving their response to theoretical questions dependent on experiments.

Freedom to Choose Subjects
In secondary schools, students should be guided on choosing of various subjects by teachers. This is done through guidance and counselling on career choices. Ordinarily students choose disciplines on the principle of interest, attitude and motivation (SMASSE INSET, Uasin-Gishu, 2004). The study sought to establish whether freedom to choose subjects influences performance in Biology. The study revealed that 56% students and 64% teachers interviewed confirmed that freedom of choosing the subjects influences performance in Biology.

Students mentioned that they should be left to choose the subjects they want in order for them to achieve the best results. Freedom of choosing the subjects, especially the Sciences, should be allowed because majority of the students have already set their target. For instance, some want to be pilots, engineers, doctors, while others want to be teachers, mechanics among other disciplines. Therefore, students opting to be engineers should not be forced to take Biology since it will contribute little to their career, and it will also breed negative attitudes towards the subject and therefore, leading to poor performance. In an interview, one of the student respondents, on subject choice, said that: “Since I joined this school, my ambition was to be an engineer, but I am being forced to take Biology which I don’t have interest in because it will not help me in future”.

The Number of Tasks and Subjects Done By a Student
The study sought to establish whether the number of tasks and examinable subjects done by a student influence performance in Biology. It was established that 64% of the student and teacher respondents agreed that the higher the number of tasks and subjects done by students’ the poor the performance. This is because studying many subjects will require extra time and energy from the learners in order for them to be able to cover all subjects comprehensively. While at the same time leaving little or no time for the students to relax and integrate what they have learned or studied especially those difficult Biology concepts. This therefore, lowers the performance of the subject. KNEC requires students to be examined in a minimum of seven subjects.

On the other hand, taking the required number of subjects will create enough time for the student to effectively handle each subject and therefore, he/she will be left with ample time to integrate some technical concepts for instance, those found in Biology which will help to improve the performance in the subject. With respect to the study, the number of tasks and subjects done by students is instrumental to their performance in Biology. Hence students should be guided in choosing tasks and how many to handle (curricula and co-curricula) so that they are not overburdened. When one of respondents was asked to state as to why she didn’t find any reason for blaming on high number of tasks and subjects taken to be the cause of poor performance in Biology, she said:

When you have a lot of subjects to do, your mind will automatically adjust since in Biology we were taught that a lot of thinking will increase the cerebral cortex (memory part of the mind) which will help me to accommodate all the subjects and perform better. In fact, I am performing better in Biology than those students who are taking few subjects.

Factors Influencing Knowledge Acquisition in Students
The study sought to establish whether knowledge acquisition factors such as availability of reading materials, having study time tables and planning, discussion groups, attending symposiums and exhibitions influence performance in Biology.

Availability of Reading Materials Especially Biology Books Influences Performance
Ideally, reading materials provided to the students help to boost performance because students will read wide in areas where they do not understand. In addition they will read ahead of their teachers hence enabling quick integration of the concepts. Thus, the study sought to find out whether or not students
having reading materials especially Biology books influence performance in Biology. Results showed that majority (78.5%) student and (88%) teacher respondents confirmed that availability of reading materials improved performance.

A study done by Muruguru (2000), on students’ performance in Kiswahili, showed that availability of text books in schools contributes to high achievement. Some of the reasons advanced by respondents to support the observation showed that text books help students to read widely on areas which have already been covered but not well understood and that are not covered. Besides widening students’ scope, text books also help to familiarize students with new terms and diagrams that are crucial during examination as well as increasing students’ confidence in the subject there by improving the performance of Biology. In an interview, one of the respondents had this to say: “hawa waliimu wanaliipa ili watuafunze, kwa nini tushugulike na kazi ya ziada?” (meaning, there is no need for students to read Biology materials which is an extra task because teachers are paid to teach them). The author notes that the actual problem is that students are unwilling to go an extra mile to build on the knowledge acquired in the classroom.

**Students Having Study Timetables and Planning**

Proper management of time greatly improves student’s performance since time wasted cannot be recovered. Kurgat (2008, p. 20) notes that poor planning of personal study time may cause students to lose concentration. He advocates for proper planning as a useful study skill as it eliminates distractions and indecision in their study. The study sought to establish how time management by students by having study timetables and planning influences performance in Biology. Majority (79.5%) of students and (80%) teachers accepted that students having study timetables and planning influence performance.

Further interrogation of the students during conduct of study showed that having a personal time table enables them to allocate time to every subject and therefore, they will be committed to the timetable. Students who plan their time well do not procrastinate. It was also established that planning comes in when for instance; some students allocate time according to the difficulty of the subjects whereby Sciences (Biology, Chemistry and Physics) are given much time than humanities to enhance proper understanding. Biology, for example should be allocated much time because it has several concepts which are hard and takes a little bit long to be integrated. However, few (15.5% and 12%) student and teacher respondents respectively did not admit to the fact that having a timetable influences performance in Biology because to them, they read with moods thus having a timetable to them is useless. One of the respondents in an interview said: “I read Biology when my heart tells me to, but not reading it because the timetable dictates so. You may end up being a slave of the timetable but in real sense, you are doing nothing.” The position of the study is proper management of time and use of timetables is worth because learners are able to operate within time frames set by themselves and not on the basis of examination time tables.

**Students Having Discussion Groups for Biology**

Group discussions are very important in studies since they help individuals/students to express their opinions freely in areas of weakness and therefore, the need to be helped (Page, 2008). Thus, the study sought to establish whether students having discussion groups for Biology influence performance. As a result, the study established that 84.5% and 80% of the student and teacher respondents respectively attributed good performance to group discussions. This is because discussion groups help slow learners to sharpen their minds and be able to integrate complicated Biology terms that they didn’t understand in class. In addition, group discussion plants the virtue of commitment to members because everybody has to contribute to the discussion hence, widening their scope of knowledge.

It is through discussion groups that students are able to express themselves in areas of difficulty and be able to learn new ideas from each other hence, building their capacity in the subject which affects performance. Dr. William Glasser, who specializes in educational counselling, has estimated that we remember 10% of what we read, 20% of what we hear, 30% of what we see, 50% of what we see and hear, and 70% of what we discuss with others (Bakke, 2005). It emerges that discussion as a medium for knowledge acquisition is vital. The author is of the opinion that study discussion groups be embraced more to promote good performance especially among weak students.

**Students Attending Symposia and Exhibitions**

Attending of symposiums and exhibitions by students leads to their exposure, innovativeness and creativity which are required in the learning process (SMASSE, 2008). The study sought to establish whether or not students attending symposiums and exhibitions influence students’ performance in Biology. It was found that 73.5% of the student and 60% of the teacher respondents agreed that such attendance influenced their performance in Biology. This is due to the exchange of ideas that students have with their colleagues pertaining different topics. Symposia help students to be aware of different Biology concepts and questions that normally give them problems. On the other hand, Biology exhibitions cultivate the idea of innovativeness and creativity.
which motivates the students and therefore, stimulates their attitude, ambition and interest towards the subject hence, affecting the performance. Originality and creativity amongst students is developed through activities such as symposiums and exhibitions because students are able to gather ideas which perfect their thoughts thus better understanding of the concepts. Exposure to different learning environments promotes interest, attitude and ambition in the student influencing their performance. The study agrees that attendance of symposiums and exhibitions are among factors that promote good performance.

Students’ Truancy/Indiscipline

Discipline and hard work is the key to success among students (Kurgat, 2008). The study therefore, sought to find out whether or not students truancy/indiscipline influence performance in Biology. It was established that 61% of the student and majority (90%) of teacher respondents indicated that lack of discipline influences performance in Biology. Undisciplined students for instance, school sneakers, drug abusers have much of their time and energies directed to these activities while dedicating little or no time for study (Kurgat, 2008). In addition, abuse of drugs among students lowers the concentration power and therefore, affecting the performance. Rebellion and rudeness also influences students’ ambition, interest and attitude which are very important in enhancing performance of the student. Truant behaviour makes students to miss classes which in the end affect their academic performance because they cannot be able to link what they missed with what they have in their books. Thirty percent of the student and 20% of teacher respondents were of the opinion that student truancy/indiscipline cannot affect performance in the subject because to them, some avenues of indiscipline like for example cheating in the exam, leads to excellent performance.

In an interview, one of the respondents said that:

On my behalf I don’t see any problem with cheating in the exam because it really saves. Biology for example, has technical terms and concepts used which unless you write them somewhere, you cannot pass that subject. I have been doing this since form one and nobody in this class has managed to score above me in Biology.

Another respondent said that smoking of bhang helps him to be alert and upright hence increasing his concentration in the subject. He said; "Kama haingekwawa madawa ile natumia, topic ya classification singewęza" (that, were it not for the drugs that I normally use, then the topic of classification was beyond my comprehension). The study noted that improved discipline promotes good performance. Schools should embrace friendly ways of improving performance by involving all stakeholders (parents, school community, school neighbours and students too) so as to promote discipline.

Students’ Absenteeism

Absenteeism from school hinders smooth progress of the learning process (Kurgat, 2008). The study sought to establish whether student’s absenteeism influences performance. It was found that majority (72.5%) of the students and (84%) teachers interviewed agreed that student absenteeism influences performance in Biology. According to the respondents, students who have fees arrears were normally sent home regularly which affected their performance because they cannot be able to understand what was taught in their absence especially in Sciences. Poor health on the other hand, affects the student’s motivation and concentration power in class and during private studies because of the pain that the individual is experiencing. In an interview, one of the respondents who had asthma said: "Am performing poorly in Biology and other subjects because I cannot manage to study in the evenings nor mornings when it is cold outside since my breathing system normally block and therefore, am unable to do anything". HIV/AIDS has affected the education sector in a number of ways for example; the number of orphans in schools is on the rise as parents are dying from HIV/AIDS. These orphans are likely to drop out or more so miss school for reasons relating to caring for sick family members or lack of school fees because the meagre resources are all used up to treat the patients (MoEST, 2005). More should be done towards management of HIV/AIDS pandemic in the schools, the impact is greatly felt in institutions that are affected.

CONCLUSION AND RECOMMENDATIONS

The study findings revealed that, the student related factors affecting performance of Biology in Eldoret Municipality are; primary school Science which provides a requisite background for Biology at secondary school level thus influencing performance in KCSE, interest in Biology (theory and practical) provides a force within learners to participate in the learning process, their ability to carry out the practical effectively promotes good performance in addition to ambition and attitude contribute to students output as it cultivates independence among students influencing performance positively. Other student related factors based on knowledge acquisition noted were availability of reading materials, students using study time tables and organizing their work, employing study discussion groups and attending symposiums, field trips and exhibitions. On the contrary, the study also established that absenteeism, indiscipline, and truancy in students posts poor performance.
Based on the findings, the author recommends the following: firstly, since students lack a clear understanding on the relationship between subject selection and career choices attention should be provided for students to be guided and their attitudes changed on the perceptions they possess towards Biology and careers relating to the same. This can be made possible by making guidance and counselling departments operational and active in schools to help learners have insight in Biology as a career subject. Secondly, a practical resource-based learning approach along with the theory be encouraged to vary stimuli hence building the concentration span of the students and have students do varied projects on concepts learned in class. Thirdly, there is need to encourage the use of discussion groups and team teaching amongst students to boost knowledge acquisition and retention. Fourthly, it was noted that absenteeism is a major drawback to improving performance. Schools should therefore curb absenteeism by liaising with parents on mode of instalments of school fees payment and assisting students’ access bursaries, for instance, foundations and constituency development fund (CDF).

Lastly, it was revealed in the study that practical Biology exam if highly improves the KCSE Biology grade. Teachers should be encouraged to assess learners regularly on practical skills. Perhaps more practical lessons should be availed and documented so that teachers should plan for them and regular inspection done by QASO officers to ensure the actual order/process is adhered to.

REFERENCES


