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Teacher qualification and student performance in Biology at the Kenya Certificate of Secondary Education(KCSE) in public secondary schools in Nakuru East Sub-county, Nakuru county, Kenya

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***Abstract**: This study aimed at investigating the teacher qualifications and the students' academic performance in KCSE in biology in public secondary schools in Nakuru east sub-county. The study was anchored on self-efficacy theory. The study was guided by the following research question: How does the teachers' qualification influence secondary school students' performance in Biology atKCSE in Nakuru east sub-county? The target population was all the head teachers, biology teachers and biology students from all public secondary schools in Nakuru east sub-county. Stratified random sampling and simple random sampling techniques was used to select six secondary schools, six head teachers, eleven biology teachers and nine hundred students from all public secondary schools in Nakuru east sub-county. The study used a mixed methods approach and a convergent-parallel design.Questionnaires and interviews ware used as the main tools for data collection from selectedSchools that is both open-ended. The instruments were pre-tested to check their validity and reliability and was done through a pilot study. A Reliability threshold of α=0.7 was adopted for the study. Descriptive statistics was used to analyze quantitative data by filling frequencies and percentages presented in tables, charts, and graphs. Open-ended questions were analyzed qualitatively in narrative and tabular forms. All ethical considerations were adhered to during the study. Key findings indicate that teachers' qualifications, influences performance in Biology in Nakuru east sub county public secondary schools. It was suggested that teachers have to be exposed to teachers' characteristics that influence students' performance in Biology. Students should be provided with teachers who are qualified, experienced and have positive attitudes towards teaching. The study recommended that teachers with good academic qualifications, attitudes and professional experience should be involved in guiding and teaching of the students.*

***Keywords:** Teacher qualifications, Student academic performance, self-efficacy, KCSE performance, Biology*

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I. Introduction

The issue of performance below expectations by students in secondary schools especially in Science subjects has become a global concern in the education sector. Studies that have been carried Globally, Regionally and in the African continent all point out to the need for a serious investigation into the reasons behind this scenario. Ngema (2016) investigated factors that make the poor performance of learners in the science subjects at the Ingwavuma Circuit University of South America. Using a mixed method design, samples were chosen purposefully in four high schools at the Ingwavuma Circuit. The schools identified were schools which underperformed in the science subjects in the year 2014. Grade 12 science teachers and Grade 12 science students participated in this study. Data were collected by two closed-ended questionnaires. The questionnaires were designed for completion by the teachers (3) and one by the learners (98).

Whittle (2018) carried a study in Australia on teacher's perceptions and their influence on academic performance of Victorian Certificate of Education (VCE) Physical Education students. VCE Physical Education teachers (n = 37) from 31 secondary schools in Victoria, Australia participated in the qualitative study using focus groups with a semi structured interview schedule. The Recorded focus group discussions were transcribed verbatim coded and analyzed in (NVivo 11). A social ecological model was used to categorize the emergent themes. At individual level teachers perceived content knowledge, expectations, passion and enthusiasm, pedagogical content knowledge and use of reflective practices to inform teaching as key factors influencing student's academic performance. Social level influences identified were positive student-teacher relationships and student access to the teachers outside of class time. The emergent themes highlight the teacher perceptions of the key factors of effective teaching in this context. Professional learning opportunities to improve effectiveness of pre-service and in-service teachers of senior-secondary physical education are discussed.

Baraiywo, Orora, and Anditi (2018), carried a study which sought to investigate the influence of selected students' characteristics on academic performance in biology among secondary school students in Nandi East Sub County, Nandi County. The study employed cross-sectional descriptive survey research design a sample of 12 principals and 296 students were selected using purposive and proportionate stratified random sampling procedures participated in the study. Data was gathered using the Principal's Interview Guide (PIG) and Students' Characteristics Questionnaire (SCQ). The Students' Characteristics Questionnaire was tested and its reliability was estimated using Cronbach's Alpha method. The instrument yielded a reliability coefficient of 0.82 and was deemed as reliable. Data was analyzed with the aid of the Statistical Package for Social Sciences (SPSS). Qualitative data generated by open ended items and interviews were organized in themes pertinent to study objectives and summarized using frequencies and percentages. The hypotheses of the study were tested in the 0.05 level of significance using the Chi-Square test for independence. The study revealed the students' attitudes and career preferences influence academic performance in biology. The findings of the study may be used by school administrators, teachers, parents, educationists and policy makers to improve the teaching-learning process and performance of students in biology, give teachers an insight of the link between learner characteristics and performance and thirdly, it can also be used by the school administrators and the Ministry of Education to formulate policies and develop practices that enhance students' achievement in biology. The findings can further be used to help students have positive attitudes towards biology.

Baraiywo, Orora, and Anditi (2018), students' attitudes and career preferences influence academic performance in biology yet controversial exists as to what teachers' characteristics' that contribute to poor students' performance in biology in Nakuru East Sub County Nakuru County. This has left the gap for further research on what influence is the teacher characteristics on pupil's academic performance in biology. The Gap in academic performance of biology in Nakuru East Sub County in Nakuru County has continued to exist despite the relatively high academic performance of biology attained by the other surrounding Counties with similar prevailing conditions except that of teachers' characteristics. It is for this reason that the study was meant to find out the influence of teachers' characteristics on pupils' academic performance in biology in Nakuru East Sub County. The findings can be used to improve access, equity, quality and relevance education in the area (Kenya 2012) as these will quench the thirst of education of many stakeholders in the area.Table 1and 2 shows the performance in the subject during the last 5 years.

Table 1 presents a summary of the performance in biology at KCSE in the years 2017-2021in Nakuru County

Table 1: KCSE Performance in Biology in Nakuru County, 2017-2021

YEAR	NO.STUDENTS	A	A-	B+	B-	C+	C	C-	D+	D	D-	E	M.SC	GRADE
2017	20344	55	14	1030	1005	1370	1186	1326	2004	3011	5235	4098	3.178	D
2018	32750	47	32	1587	1276	2323	3200	3217	3422	4532	7322	5462	2.454	D
2019	31489	22	30	2000	2208	3024	2078	2170	3176	4036	7131	5114	3.127	D
2020	22319	69	68	2987	4420	4215	3997	5076	4710	6276	9132	6057	3.473	D+
2021	28217	70	70	2897	3000	4654	4420	3965	5987	7642	9836	5392	2.873	D+

Source: KCSE Analyzed results, Nakuru County Education Office

Table 2 presents a summary of the performance in biology at KCSE in the years 2017-2021in Nakuru East Sub-county County

Table 2: KCSE Performance in Biology in Nakuru East Sub County, 2017-2021

YEAR	No.students	A	A-	B+	B-	C+	C	C-	D+	D	D-	E	M.SC	GRADE
2017	2998	3	40	107	150	202	237	315	498	400	789	257	3.101	D+
2018	3876	2	88	207	351	260	302	411	595	499	830	331	2.873	D
2019	3199	3	58	166	251	233	288	345	502	420	724	209	3.234	D
2020	3688	4	68	175	261	243	300	354	427	500	735	195	2.786	D
2021	3360	7	70	150	238	343	254	324	484	522	712	251	3.855	D+

Source: KCSE Analyzed results, Nakuru East County Education Office

Statement of the Problem

Secondary education is the basic requirement for selection into tertiary institutions and further skills training (MOET, 2005). Adeyemi (2010) observes that achievement is positively influenced by teachers' qualification and experience while Akiri and Ugborugbo (2008) noted it was affected by teachers' marital status.

Considering that teachers play a major role in the teaching and learning process and based on the performance in biology at the KCSE over the last couple of years as evidenced in the background to the study, there was need to examine teacher's qualifications that influence academic achievement in biology in Nakuru

town east sub-county. It is possible that teacher's qualifications may be the cause of low academic achievement in biology in Nakuru town East sub-County. It is a concern because if no action is taken, then in the long run the health sector in Nakuru East Sub County and beyond, which sources personnel from students who have done reasonably well in Biology would be affected adversely. Secondary school students' academic achievement in Nakuru town East sub County has been low despite the infrastructural, material and technical support from the government and other development partners.

The low performance in biology in secondary schools in Nakuru east sub-county undermines students' chances of joining institutions of higher learning to do medicine and jeopardizes opportunity for job placement in health sectors, and in most cases reduces an individual's active participation in national development. There is little if any empirical evidence relating teacher's qualifications and academic achievement in biology students in Nakuru east sub county, hence the need for the study. This study therefore sought to analyze the influenceof teachers' qualification on students' academic performance in Biology at KCSE in public secondary school in Nakuru east sub county, Nakuru county, Kenya

The study was guided by the research question as: *To what extent does teacher qualification influence performance in Biology at KCSE in Nakuru East Sub-county?*

II. Review of Related Literature

The study was guided by the self-efficacy theory which was developed by Albert Bandura (1977) that aided in understanding student engagement in biology. The term self-efficacy was first coined by psychologist Albert Bandura (1977) a Canadian-American psychologist and a professor at Stanford University. He proposed the concept, in his own words, as a personal judgment of how good one can execute courses of action required to deal with prospective situations.

Self-Efficacy is a person's particular set of beliefs that determine how good one can execute a plan of action in prospective situations (Bandura, 1977). To put it more simply, self-efficacy is a person's belief in their ability to succeed in a particular situation. Bandura was responsible for bringing the term to light, but psychologists have studied self-efficacy from several perspectives. For an example of another perspective, Kathy Kolbe – educator and best-selling author – thinks that believing in one's abilities can be vital in measuring cognitive strength (2009). She believes that self-efficacy also involves determination and perseverance – seeing as how it helps one overcome obstacles that would interfere in utilizing those innate abilities to achieve goals**.** Albert Bandura (1977) states individuals develop self-efficacy beliefs by interpreting information from four main sources of influence.

Strengths of Self-Efficacy Theory

High levels of self-efficacy enhance one's accomplishments and feelings of personal well (Pajares, 1996). Self-efficacy helps one to remain calm when approaching challenging tasks (Pajares, 1996). Building self-efficacy in multiple areas increases one's confidence in mastering new domains (Ormrod, 2008).High self-efficacy increases one's willingness to experiment with new ideas (Ormrod, 2008). Self-efficacy encourages one to set higher expectations for future performances (Ormrod, 2008). High self-efficacy increases one's persistence and focus on a given task beyond previous levels (Ormrod, 2008).

Weaknesses of Self-Efficacy Theory

High self-efficacy beliefs do not always guarantee positive outcome expectations (Pajares, 1996). Self-efficacy beliefs vary greatly between individuals, which makes them very difficult for researchers to assess (Pajares, 1996). People with high self-efficacy and high skills may lack the resources and equipment to perform (Bandura, 1986).When performances are impeded by disincentives, inadequate resources, or external constraints, self-judged efficacy will exceed the actual performance (Bandura, 1986). Even though this theory has weaknesses, the weaknesses will be covered by review of literature and the theories reviewed later in this research to supplement its weakness.

Applicability of Self-Efficacy Theory to the study

Self-efficacy has been linked with many benefits to daily life, such as resilience to adversity and stress, healthy lifestyle habits, improved employee performance, and educational achievement. Since Self-Efficacy is a person's particular set of beliefs that determine how well one can execute a plan of action in prospective situations (Bandura, 1977). Therefore, this theory is applicable to this study in so many ways. This theory will enhance the teachers' beliefs on what they are delivering and by doing so it will enable students to have confidence on teacher and perform well especially in Biology. This theory further will help to address the Teachers' characteristics which hinder the student performance in Biology. This is simply because self-efficacy is a person's belief in their ability to succeed in a particular situation.

Conceptual Framework.

A conceptual framework is a structure that the researcher believes can explain the natural progression of the phenomenon to be studied (camp, 2001). It is linked with the concepts, empirical research, and important theories used in promoting and systemizing the knowledge**.**

Independent Variable Dependent Variable

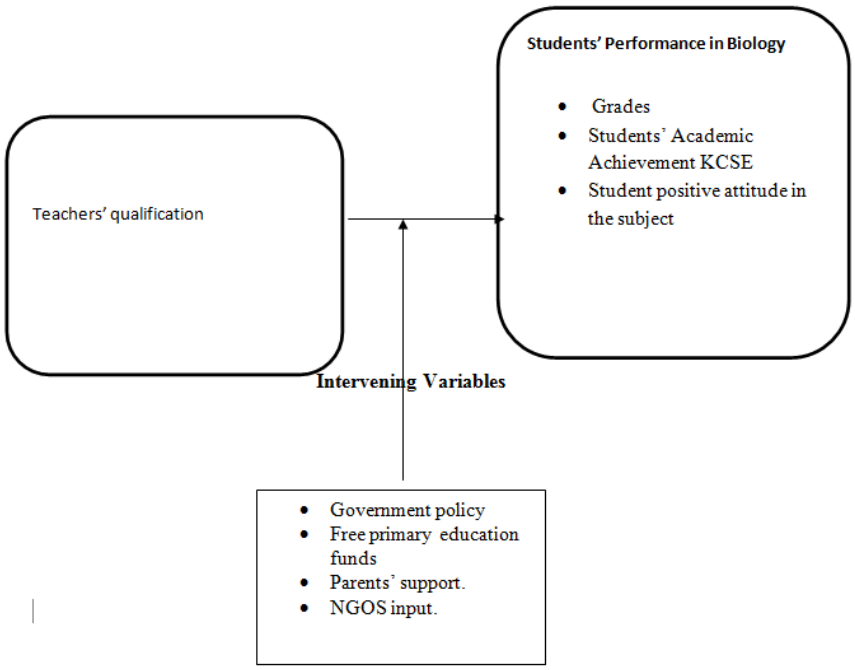

Figure 1: **Influence of Teacher qualification on Students' Performance**

Teacher Qualification and Students' academic Performance in Biology

Darren (2012) studied how teacher qualifications impact students' achievement model established by the mississippi department of education in Holland. The study was conducted in six-county geographical region by Timothy Darren Holland in the university of Southern Mississippi and involved teachers from several high schools that taught classes that were involved in the subject area testing program. Each participant taught one of the four state-mandated subject area classes that are tested to determine achievement levels and accreditation ratings for each high school. The purposeof the study was to collect information from each teacher on the qualifications they held during the 2009-2010 school year and to compare those qualifications with the mean scale score for each teacher's subject area classes. The researcher focused on five separate teacher qualifications that were National Board Certification, years of experience, alternate route certification, level of degree, and hours in the content area. Twenty tests were conducted to test each qualification against the mean scale score from each subject area. Two of the test conducted produced statistically significant results. Teachers who held a National Board Certificate proved to have a statistically significant impact on test scores in English II with $t(48) = 3.319$, $p = .002$. Teachers who completed more than eighteen hours in mathematics also produced statistically significant iii results in Algebra I classes with $t(47) = -2.349$, $p = .023$. These two outcomes provide a solid foundation and support basis that school administrators can use to implement practices in teacher induction and teacher recruitment programs. A statistically significant impact on student achievement occurred in only 10% of the test during this project. Although a small percentage, the results provide educational leaders with a support basis that can be applied to current policy and practice. These results also leave the door open for future researchers to expand on the ideas explored during this project. Research topics and ideas that can easily be applied to classroom practices, foster educational growth, and maximize the opportunity for student achievement. Darren dwelt much on English and mathematics. Therefore, my research would dwell on biology subject. Again in this research in the test the students were not involved therefore my research is going to involve them. Also the aim under which Darren carried the research is different from the one I have. The aim of this research was to compare qualification and the achievement of each subject. But the aim of my research is to investigate teachers characteristic and student's performance in biology and this will come up with exact solution. The methodology Darren used is different with the one I'm going to use. The sample size will differ since Darren in six county geographical regions; my research is going to be carried in one county. Therefore, the less the geographical the more accurate the finding will be. Darren used the tests as

the instrument while I'm going to use questionnaires as the instrument. In tests it deals with only learnt but questionnaires anybody can do it.

Egun (2016) examined the effect of teachers' qualification on the academic achievement of Senior Secondary School Students in biology. The area for the study was Ethiope East Local Government Area of Delta State Nigeria. The study applied ex-post-facto survey research design. Random sampling was used to select six (6) in Ethiope East Local Government Area. The SS II student's 2014/ 2015 sessional result formed the data which was analysed using simple percentage and t - test statistic. Three research questions were answered and the findings of the research showed that academic achievement of Senior Secondary School students in Biology subject was independent of the teachers' qualification, teachers' experience and type of school attended. It was concluded that the learning of Biology depends on the way it is presented to the learner, the way the learner actively interacts with the learning experiences presented to him and the environment within which the learning takes place. Recommendation is made for organization of more regular in-service and refresher training of biology teachers to enable them embrace and conform to the emerging technologies in pedagogy. Also students should be enlightened on the relevance of biology and be adequately motivated to have a positive attitude towards the subject.The gap my research is looking to fill is that this study was done in Nigeria in different levels of education to teachers of different qualifications. This studywas based on secondary teacher's qualification that influence student performance..This is simply because the more schools one uses the more likely to identify the problem.

III. Research Design And Methodology

This study adopted mixed method research design. By applying the mixed methods approaches, researcher incorporated methods of collecting or analysing data from the quantitative and qualitative research approaches in a single research study (Creswell, Clark, & Plano, 2014).According to Creswell (2014) mixed approach provides detailed results in a study because the study was conducted from quantitative and qualitative dimensions.Convergent parallel design of this paradigm was used to enable the researcher collect both qualitative and quantitative data. The convergent-parallel approach is a concurrent approach and involves the simultaneous collection of qualitative and quantitative followed by combination and comparisons of these multiple data sources. (Alex et al., 2017).

The study used a cross-sectional survey to collect quantitative data. A cross-sectional survey research design important because it entails data collection with a view to answering questions concerning the status of the object of study.The researcher used this design to get information from head teachers and teachers of selected schools from Nakuru east Sub County during interview. Phenomenological research is qualitative research approach that seeks to understand and describe the universal essence of a phenomenon. Both quantitative and qualitative data was collected at the same time but with different instruments and at different points. Data from the sources was then be analysed and interpreted independently then converged and the results be released in line with Creswell (2014) guidelines on convergent parallel design's procedures.

This study targeted various segments of the population in the Nakuru east sub-county. Nineteen (19) head teachers 38 Biology teachers and 9000 students in public secondary schools was targeted for the study making a total number of 9057 respondents for this study. Therefore, 19 head teachers, 38 biology teachers' and 9000 students were considered as respondents in the study. Table 3 presents this population and sample.

Table 3: ***Population Matrix*** ***n=9017***

Category	Population	percentage
Biology Teachers	11	100%
Head teachers	6	100%
Students	9000	100%
Total	**9017**	

Source: Field data 2022

The sample is a representative of the population to ensure that the findings can be generalized from the research sample to the population as a whole(Creswell, 2014). Sampling is that part of statistical practice concerned with the selection of individual observations intended to yield some knowledge about a population of concern, especially for the purposes of statistical inference (Mugenda and Mugenda, 2008). The study employed different sampling procedures to select the study participants.Between 10% and 30% is an appropriate sample for a study whose entire population is less than 10,000Mugenda and Mugenda (2013). Six (6) head teachers were therefore sampled and this was 30% of head 19 teachers. The study used stratified random sampling in selecting 6 head teachers from secondary schools' form Nakuru East Sub-county. All the schools in Nakuru East Sub-county were grouped into 3 strata;mixed day secondary schools, girls boarding secondary schools, boys boarding secondary schools. Then the head teachers from each stratum were organized

in ascending order to the population of the students in theschool. Simple random sampling was used to select 2 head teachers from each stratum.

The study therefore used simple random sampling to select 11 Biology teachers to take part in this study. This was 30% of 38 Biology teachers. Simple random sampling was used as a major sampling technique because each respondent has an equal chance of inclusion in the sample. It was appropriate because the entire population is relatively large, diverse and sparsely distributed, hence random sampling technique helped to achieve the desired objective. This technique was appropriate for the study as it is cost effective and efficient in administration. The sampling technique gives each teacher in the population an equal probability of being the sample. A simple random sample was obtained by choosing elementary units in such a way that each unit in the population has an equal chance of being selected.

Nine hundred (900) students was therefore sampled, this was 10% of 9000 students. Since this was a heterogeneous population, the researcher put these students in two strata, boys and girls, and then in each stratum simple random sampling technique was used to sample equal number of boys and girls. Pieces of papers were written yes and no for each stratum, folded and shaken and someone blindfolded was asked to pick a piece of paper at a time until the required number of boys and girls were attained. Crossman (2012) asserts that simple random gives each and every person an equal number of selections in a research study.

Questionnaires were used mostly by the researcher for the study since they can collect large data from many participants in one place at a time. The study used a closed-ended question in the questionnaire to standardize and qualify responses from the research. Ogula (2010) explains an interview guide as a list of questions a researcher asks the participants during the interview in a study. It is another method the researcher used to collect data. An interview guide was prepared for the head teachers.

Validity according to Madondo (2016) is the ability of research instruments to answer what they are supposed to measure.There are four types of validity: - criterion validity, content validity, constructs validity and face validity. The researcher prepared the instruments in close consultation with supervisors whose expert judgment helped to improve the content validity.

Pilot testing was conducted because the schools under study in Nakuru East County they had similar characteristics to the main study. The individual or institutions that were involved in the pilot test did not participate in the actual study. The pilot was done in 3 public secondary schools and Stratified random sampling was used to select 3 schools, 3 head teachers and 6 teachers for the pilot study; it was possible to determine whether the questionnaire provided the data required for the study. The result of the pilot study was useful in clarifying items in the questionnaire and simplifying the instructions. It also yielded experience that was used to further refine the questionnaire.

Testing and re-testing helped to improve the reliability of the questionnaires by ensuring that the questionnaires give consistent results. For the items that were not scaled, clarity of the questionnaire items was assessed and those items found to be inadequate or vague was either removed or modified in order to improve the quality of the questionnaires thus increasing its reliability.Finally the study adhered to professional research ethics to avoid unnecessary misunderstanding, conflicts and ethical misconduct.

IV. Results And Discussions

The researcher administered a total of 911 questionnaires to biology teachers and students in public secondary schools in Nakuru East Sub County on diverse dates of August 2022. He also conducted interviews with 6 sampled head teachers from public secondary schools in Nakuru East Sub-county. The response rate is presented Table 4

Table 4: ***Instrument Response Rate*** ***n=917***

Participants	**Sample**	**Response**	**Percentage**
Head teachers	6	6	100%
Students	900	900	100%
Biology teachers	11	11	100%
Questionnaires	911	911	100%

Source: Field Data 2022

As indicated in table 5, all 6 head teachers, 11 biology teachers and 900 students sampled successfully participated in the study. The 911 questionnaires issued to 11 biology teachers and 900 students were all returned. The high return rate happened due to the fact that the researcher himself administered the questionnaires and waited for the participants to fill and then collected them on the same day. According Kothari (2013), 70% or higher questionnaire return rate is very good. Therefore, the study achieved a valid response rate. Interviews were conducted with the 6 head teachers which translated to 100% response rate.The researcher considered the return rate as good and proceeded with data analysis.

Research question sought to find out how teachers' qualifications influence Nakuru East Sub County secondary school students' performance in Biology.The participants were asked to fill questionnaire regarding the different teacher's qualifications that influence student's performance in biology. There is a need for different teacher's qualification as each student is different in terms of getting things they are taught.

Students' Response on Teacher's Qualification

The opinions of the students regarding the teacher's qualification they prefer are presented in Table 5.

Table 5: ***Students' Responses on Teacher's qualification in their school n=900***

Teacher's qualification	SA	A	U	D	SD	Total
Teachers with low class in Diploma education perform poorly	324(36%)	252(28%)	144(16%)	117(13%)	63(7%)	900(100%)
Teachers with pass in Degree education perform fairly	342(38%)	270(30%)	90(10%)	108(12%)	90(10%)	900(100%)
Teachers with Master's Degree education perform well	369(41%)	342(38%)	72(8%)	90(10%)	27(3%)	900(100%)
Teachers with PhD education perform best	270(30%)	198(22%)	153(17%)	198(22%)	81(9%)	900(100%)

Source: Field Data 2022

Teachers with low class in Diploma education perform poorly; the responses were as follows, Strongly Agree 324(36%), Agree 252(28%), Undecided 144(16%), Disagree 117(13%) and Strongly Disagree 63(7%). Majority of the respondents strongly agreed on this because if a teacher lacks the required knowledge to disseminate to the learners therefore it will influence the students negatively.

Teachers with pass in Degree education perform fairly. The responses on this were as follows, Strongly Agree 342(38%), Agree 270(30%), Undecided 90(10%), Disagree 108(12%) and Strongly Disagree 90(10%). Majority of the respondents agreed on this because the students are much influenced by teacher's qualification from university. If a teacher did not perform well that teacher is likely to influence students negatively in performance.

Teachers with Master's Degree education perform well. The responses were as follows, Strongly Agree 369 (41%), Agree 342(38%), Undecided 72(8%), Disagree 90(10%) and Strongly Disagree 27(3%). The majority of the respondents strongly agreed because the more the teacher is qualified the more he/she is likely to influence performance.

Teachers with PhD education perform best. The responses were as follows, Strongly Agree 270(30%), Agree 198(22%), Undecided 153(17%), Disagree 198(22%) and Strongly Disagree 81(9%). Majority of the respondents strongly agreed because the teacher who is qualified to PhD level is going to motivate the learners on importance of education hence the learner are going to be influenced towards performing well.

From the responses, it is evident that teacher's qualification is highly embraced in public secondary schools in Nakuru East Sub County. According to the reviewed literature Darren, (2012) asserts that teachers qualification influence student's performance. This is so because teacher with high qualifications tends to motivate students a lot compared to those with low qualification.

Teachers' Response on Teacher's Qualification

In finding out how teacher's qualifications influence Nakuru County secondary school students' performance in Biology. The response is presented on Table 6.

Table 6: Teachers' Responses on Teacher's qualification in their school n=11

Teacher's qualification	SA	A	U	D	SD	Total
Teachers with Diploma level performs best	1(7%)	1(13%)	2(16%)	3(28%)	4(36%)	11(100%)
Teachers with Degree level performs well	2(12%)	1(10%)	1(10%)	4(38%)	3(30%)	11(100%)
Teachers with master's Level perform poorly	1(8%)	1(8%)	4(38%)	1(10%)	4(36%)	11(100%)
Teachers with PhD level perform poorly	4(36%)	2(19%)	2(17%)	2(20%)	1(8%)	11(100%)

Source: Field Data 2022

The findings of the study on the Teachers with Diploma level performs best were as follows, Strongly Agree 1(7%), Agree 1(13%), Undecided 2(16%), Disagree 3(28%) and Strongly Disagree 4(36%). Majority of the respondents disagreed those Teachers with Diploma level performs best.
The responses that teachers with Degree level performs well were as follows, Strongly Agree 2(12%), Agree 1(10%), Undecided 1(10%), Disagree 4(38%) and Strongly Disagree 3(30%). The majority of respondents disagreed that teachers with degree perform well.
The responses on the Teachers with Master's level perform poorly were as follows, Strongly Agree 1(8%), Agree 1(8%), Undecided 4(38%), Disagree 1(10%) and Strongly Disagree 4(36%). Majority of the respondents disagreed.
The responses on the Teachers with PhD level perform poorly were as follows, Strongly Agree 4(36%), Agree 2(19%), Undecided 3(17%), Disagree 2(20%) and Strongly Disagree 1(8%).majority of respondents disagreed with this statement.
Table 6 shows that the majority of teachers agreed that teacher's qualifications influence Nakuru East Sub County secondary school students' performance in Biology. With the reviewed Research carried in Nandi South District Education office (2012) concluded teachers to go for higher degrees (masters) to improve student academic achievement. With the findings the researcher concluded that teachers' qualifications influences Nakuru East Sub County secondary school students' performance in Biology. This is so because teachers with high academic qualifications tend to perform better in the actual teaching learning sessions.

Head teachers' Response on Teacher's Qualification

The participants were asked to be interviewed regarding the teacher's qualification influence on secondary school students' performance in biology. The opinions of the head teachers regarding the teachers' qualification are presented in Table 7.

Table 7: **Head teachers' Response on Teacher's Qualification *n=6***

Teachers' Qualification	Number of participants	Response %
Teachers with high qualification	6	4 (60%)
Teachers' with low qualification	6	2(40%)

Source: Field data 2022

Table 7 shows that out of 6 respondents who took part in this study, 4 confirmed that teachers with high qualifications do best in performance of biology in Nakuru East Sub county public secondary schools.A similar response was also indicated on teachers with low qualifications.Out of 6 respondents, 2 confirmed that teachers with low qualification do poorly in performance of biology in Nakuru East Sub county public secondary schools.

From the responses, it is clearly that the teachers' qualification influences biology performance in Nakuru East Sub county secondary public schools. With the reviewed Research carried in Nandi South District Education office (2012) concluded teachers to go for higher degrees (masters) to improve student academic achievement. Therefore in order to improve this, teachers with high qualification should be allowed in secondary schools.

V. Conclusion And Recommendations

5.1 Conclusion

The participants were classified according to school type in order to find out if teachers' characteristics influence performance in biology Nakuru East County. All the data was collected from biology teachers, head teachers and students of public secondary schools in Nakuru East sub County. As indicated by the study outcome, there was a significant positive influence of teachers' characteristics on students' performance in biology.

Exposure of teachers to teachers' qualifications that influence performance helps them perform better, gives them emotional stability, enhances their relationships with student and helps them stay focused in day to day academic activities. It was found that there was a positive relationship between teachers' characteristics and students' academic performance of biology in Nakuru East Sub County. Students lack awareness and face a time constraint, whereas teachers too suffer from lack of time to devote to the teaching. Consequently, the general conclusion was that teachers have to be exposed to teachers' qualification that influence student' performance in Biology. Students should be provided with teachers who are qualified, experienced and have positive attitudes towards teaching.

5.2 Recommendations

The study recommended that teachers with good academic qualifications and professional experience should be involved in guiding and teaching of the students.

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